

# **Alameda Creek Bridge Replacement Project**

ALAMEDA COUNTY, CALIFORNIA  
DISTRICT 4 – ALA – 84 (PM 13.0/13.6)  
EA 04-16030/EFIS 0400000429

## **Final Environmental Impact Report/ Environmental Assessment with Finding of No Significant Impact**



**Prepared by the State of California Department of Transportation**

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



**August 2017**

For individuals with sensory disabilities, this document can be made available in Braille, large print, on audiocassette, or computer disk. To obtain a copy in one of these alternate formats, please call or write to Caltrans, Attn: Ms. Emily Chen, Office of Environmental Analysis, 111 Grand Avenue MS 8B, Oakland, CA 94612 or 510-286-6170, Voice.



This project proposes to replace the Alameda Creek Bridge and realign the bridge approaches on State Route 84. The project limits extend from postmile 13.0 to 13.6.

**FINAL ENVIRONMENTAL IMPACT REPORT/  
ENVIRONMENTAL ASSESSMENT WITH FINDING OF NO SIGNIFICANT IMPACT**

Submitted Pursuant to: (State) Division 13, California Public Resources Code  
(Federal) 42 USC 4332(2)(C) and 49 U.S.C. 303

THE STATE OF CALIFORNIA  
Department of Transportation

Cooperating Agencies:

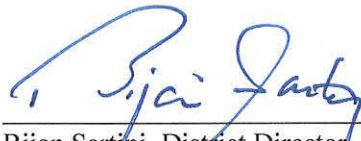
U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers, National Marine Fisheries Service, and Federal Highway Administration

Responsible Agencies:

National Marine Fisheries Service, U.S. Fish and Wildlife Service, U.S. Army Corp of Engineers, California Transportation Commission, California Department of Fish and Wildlife, and Regional Water Quality Control Board

8-16-17

Date of Approval



Bijan Sartipi, District Director  
California Department of Transportation  
NEPA and CEQA Lead Agency

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


*Alameda Creek Bridge Replacement Project*  
*EA 04-16030/EFIS 0400000429*  
*Final EIR/EA*

FOR

The California Department of Transportation (Caltrans) has determined that Alternative 3B will have no significant impact on the human environment. This FONSI is based on the attached Environmental Assessment (EA) and supporting technical reports, which has been independently evaluated by Caltrans and determined to adequately and accurately discuss the need, environmental issues, and impacts of the proposed project and appropriate mitigation measures. It provides sufficient evidence and analysis for determining that an Environmental Impact Statement is not required. Caltrans takes full responsibility for the accuracy, scope, and content of the attached EA (and other documents as appropriate).

The environmental review, consultation, and any other action required in accordance with applicable Federal laws for this project is being, or has been, carried-out by Caltrans under its assumption of responsibility pursuant to 23 USC 327.

8-16-17  
Date

  
Bijan Sartipi, District Director  
California Department of Transportation

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# **Preface to the Revised Draft EIR/EA**

The Revised Draft Environmental Impact Report (EIR)/Environmental Assessment (EA) for the Alameda Creek Bridge Replacement Project was circulated on January 13, 2017, beginning the 45-day public review period. The California Department of Transportation (Caltrans) released the previously circulated Draft EIR on February 3, 2015, beginning the 45-day public review period. In response to public input, Caltrans extended the deadline for comments from 5 PM on March 20, 2015 to 5 PM on April 3, 2015. Only comments submitted for the Revised Draft EIR/EA received a written response in the Final EIR/EA.

The December 2016 Revised Draft EIR/EA replaced and superseded the January 2015 Draft EIR in its entirety. Therefore, Caltrans did not respond to comments submitted on the January 2015 Draft EIR.

As compared to the previously circulated Draft EIR, the Revised Draft EIR/EA contained revisions that were primarily related to the following:

- **SUMMARY**
- **CHAPTER 1 PROPOSED PROJECT**
  - Section 1.1. Introduction
  - Section 1.2 Purpose and Need
  - Section 1.4 Alternatives
- **CHAPTER 2 AFFECTED ENVIRONMENT, ENVIRONMENTAL CONSEQUENCES, AND AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES**
  - Section 2.1 Human Environment
    - Section 2.1.1 Land Use
    - Section 2.1.3 Traffic and Transportation/Pedestrian and Bicycle Facilities
    - Section 2.1.4 Visual/Aesthetics
    - Section 2.1.5 Cultural Resources
  - Section 2.2 Physical Environment
    - Section 2.2.1 Hydrology and Floodplain
    - Section 2.2.2 Water Quality and Stormwater Runoff
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    - Section 2.4.2 Project Considered for Cumulative Impact Analysis

- Section 2.4.3 Resource Areas with No Contribution to Cumulative Impacts
  - Section 2.4.4 Resources Considered for Cumulative Impact Analysis
- **CHAPTER 3 ENVIRONMENTAL QUALITY ACT EVALUATION**
  - Section 3.2 Effects of the Proposed Project
    - Section 3.2.2 Less-than-Significant Effects of the Proposed Project
    - Section 3.2.3 Significant Environmental Effects of the Proposed Project
    - Section 3.2.4 Unavoidable Significant Environmental Effects
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- **CHAPTER 4 COMMENTS AND COORDINATION**
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    - Section 4.2.1 Public Review of the Draft EIR
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- **CHAPTER 5 LIST OF PREPARERS**
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- **APPENDICES**
  - Appendix A California Environmental Quality Act Checklist
  - Appendix B Section 4(f) Evaluation
  - Appendix D Environmental Commitments Record



## SUMMARY

### Introduction

The California Department of Transportation (Caltrans), in cooperation with the Federal Highway Administration (FHWA), proposes to replace the Alameda Creek Bridge and realign the bridge approaches on State Route 84 (SR-84) from postmile 13.0 to 13.6, in southern Alameda County (refer to Figure S-1 for the project location map).

The Alameda Creek Bridge Replacement Project would address the structural deficiencies of the Alameda Creek Bridge while improving safety by replacing the bridge and realigning the approaches. The purpose of the proposed Alameda Creek Bridge Replacement Project is to correct structural deficiencies of the Alameda Creek Bridge and its approaches while providing a facility that meets driver expectations of SR-84's operating speed, all of which improve safety (definition of terms included in Appendix H).

### Background

On September 10, 1997, Caltrans' Headquarters Division of Engineering Services completed an Advance Planning Study with the objective of improving the operation and safety at the Alameda Creek Bridge location by upgrading to current design standards (Caltrans, 1997). Although the original project scope was to upgrade the existing nonstandard bridge railings and construct standard shoulders on the Alameda Creek Bridge, the Caltrans Headquarters Division of Engineering Services concluded that the existing bridge was not adaptable to staged removal and involved excessive complications associated with the fatigue analyses of the structure<sup>1</sup> (Caltrans, 2003). Staged removal of the Alameda Creek Bridge would entail the removal of half of the bridge in the longitudinal direction, construction of a wider replacement bridge in its place, transfer of vehicular traffic to the new bridge, removal of the remaining half of the existing bridge, and construction of the second half of the wider bridge. Removal of the existing bridge in stages would result in the bridge not being structurally adequate to carry traffic loads and would require the complete closure of SR-84 for an extended period of time.

In addition to the bridge not being adaptable to staged removal and not having the structural capacity to carry the additional weight of widening to provide standard shoulders, Caltrans' Division of Engineering Services determined it was more cost-effective to replace rather than upgrade the existing structure, and therefore recommended the construction of a new replacement bridge with a revised alignment. Reconstructing a new bridge at the existing location would involve long-term closure and would not address the geometric deficiencies that exist with the current Alameda Creek Bridge and its approaches.

In 2012, Caltrans conducted a Road Safety Analysis study on SR-84 between post miles 10.8 and 18.0, using Value Analysis/Explicit Road Safety processes and techniques. The results of the study focused on safety and included recommendations for roadway improvements in the Niles Canyon Corridor while minimizing the impacts to the

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<sup>1</sup> The purpose of this analysis is to determine internal forces, stresses, and deformations of structures under various load effects (Caltrans, 2015h).

environment where possible and prudent. Using collision data supplied by Caltrans (from November 2007 to September 2010), the Road Safety Analysis identified five locations within the SR-84 corridor between Mission Boulevard (SR-238) and I-680 with safety needs. The Alameda Creek Bridge was identified as a location in Niles Canyon with unmet safety needs.

In February 2015, Caltrans released the Alameda Creek Bridge Replacement Project Draft Environmental Impact Report (EIR) for public review and comment. California Environmental Quality Act (CEQA) guidelines specify that the lead agency must recirculate an EIR when there is significant new information added to the project analysis after public notice of the Draft EIR. This Revised Draft EIR/Environmental Assessment (EA) for the Alameda Creek Bridge Replacement Project provided new information relevant to the proposed project that was not included in the January 2015 Draft EIR; that document was substantially revised. Per CEQA Guideline 15088.5 (g), a summary of revisions to the previously circulated Draft EIR was located in the Preface of the Revised Draft EIR/EA.

Comments received during the earlier circulation period are considered to be part of the project record and are kept within the project's file, however, these comments did not receive a written response in the Final EIR/EA. Only comments submitted for the Revised Draft EIR/EA received a written response in the Final EIR/EA.

Caltrans is the lead agency responsible for preparing this Final EIR/EA in compliance with National Environmental Policy Act (NEPA) and CEQA.

### **Overview of Project Area**

The Alameda Creek Bridge is located in an undeveloped, scenic portion of SR-84, referred to as the Niles Canyon corridor (refer to Figure S-1). SR-84 in the Niles Canyon corridor is a two-lane conventional highway that leaves the urbanized setting of Fremont, CA and transitions into a rural setting east of Mission Boulevard (State Route 238 (SR-238)) up to its connection with Interstate 680 (I-680). The roadway is generally bounded by a steep canyon wall, Alameda Creek, and the Niles Canyon Railway. The speed limit on the Niles Canyon section of SR-84 is 45 miles per hour (mph), with an advisory speed of 30-35 mph at some curve locations. The roadway has narrow shoulders with generally curvilinear horizontal alignment; the eastern portion is less curvilinear with more open roadside and generally flatter sideslopes. In 2007, State Scenic Highway designation was awarded for the Niles Canyon and Paloma Way portion of SR-84 through the Niles Canyon corridor between SR-238 and I-680.

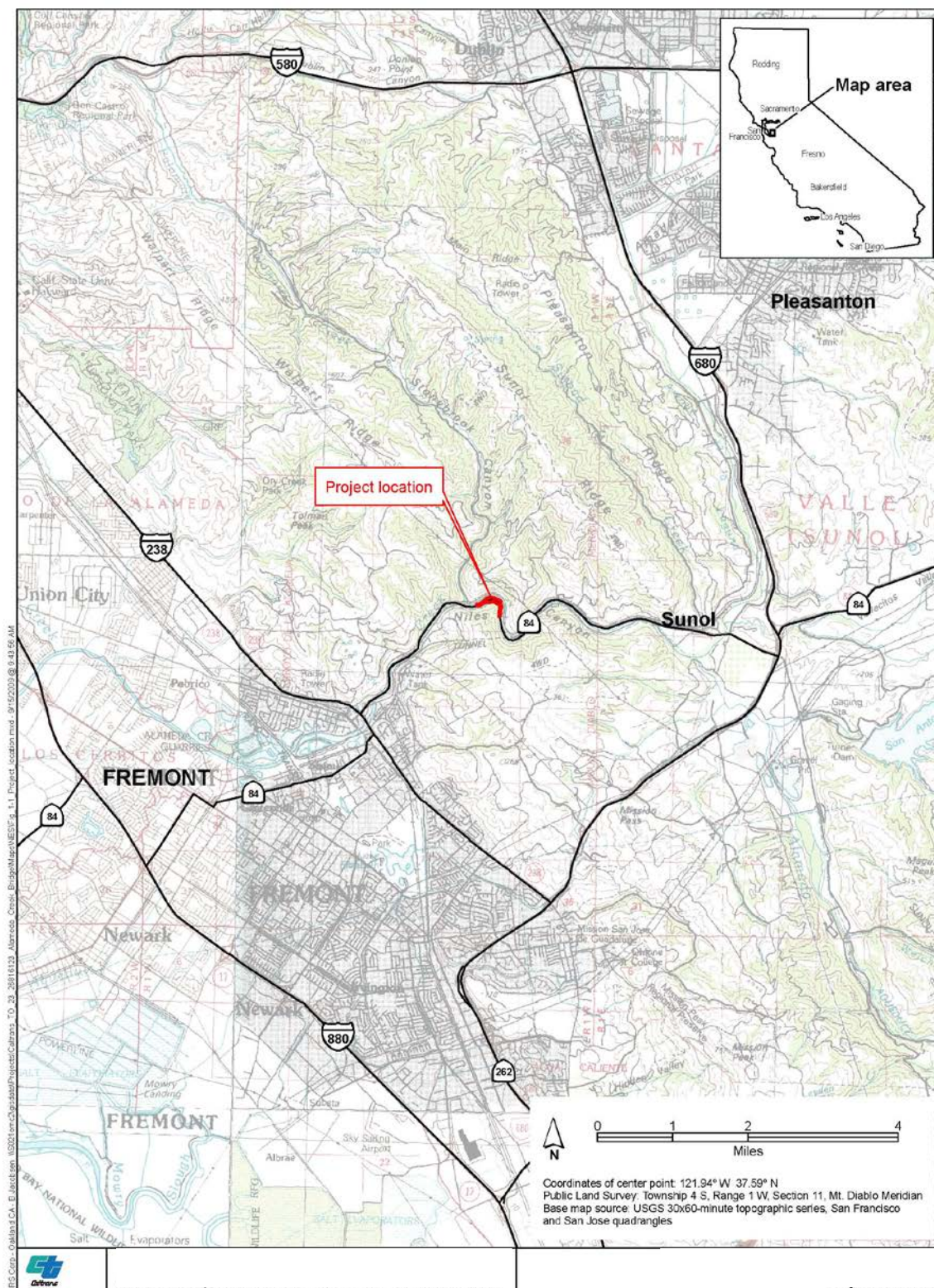
The Alameda Creek Bridge is located in the western portion of the Niles Canyon corridor. The Niles Canyon Railway parallels SR-84 and lies within 200 feet of the existing bridge. Similarly, the Sunol Aqueduct, a designated historic property, parallels SR-84 within the project limits. Remnant footings and an in-stream concrete wall of a former bridge are located upstream of the existing Alameda Creek Bridge (refer to Figures 3 and 4 in Chapter 1). These bridge footings and concrete wall act as a weir and serve as a low-flow fish passage barrier. The land use surrounding the immediate project area is open space, predominately owned by public agencies and managed as watershed lands.

### **Projects in the Study Area**

In addition to the Alameda Creek Bridge Replacement Project, the other projects in the study area are the Niles Canyon Safety Improvements Project (Medium-Term Improvements) and the Niles Canyon Safety Improvements Project (Short-Term Improvements Project). The Niles Canyon Safety Improvements Project (Medium-Term Improvements) would construct several spot safety improvements along SR-84, from Mission Boulevard (SR-238) to I-680. Within the Alameda Creek Bridge Replacement Project area, the Niles Canyon Safety Improvements Project (Medium-Term Improvements) is proposing to add safety lighting. Caltrans circulated the Draft EIR/EA for this project in October 2016 and held two public open forum hearings prior to the conclusion of the 45-day comment period on December 2, 2016.

In September 2016, Caltrans completed the Niles Canyon Safety Improvements Project (Short-Term Improvements) which involved several localized safety improvements along SR-84, from Mission Boulevard (SR-238) to I-680. These localized improvements included pavement markings (including bicycle sharrows, reflective roadside delineators, and object markings). All work associated with the Niles Canyon Safety Improvements project (Short-Term Improvements) occurred on pavement. A list of projects considered as part of the Alameda Creek Bridge Replacement Project's cumulative impact analysis is located in Section 2.4.2.

### Figure S-1. Project Location Map



## **Purpose**

The purpose of the proposed Alameda Creek Bridge Replacement Project is to correct structural deficiencies of the Alameda Creek Bridge and its approaches while providing a facility that meets driver expectations of SR-84's operating speed, all of which improve safety (definition of terms included in Appendix H).

## **Need**

The proposed action is intended to meet the following needs:

### **Alameda Creek Bridge Deficiencies**

On September 10, 1997, Caltrans' Headquarters Division of Engineering Services completed an Advance Planning Study with the objective of improving the operation and safety at the Alameda Creek Bridge location by upgrading to current design standards (Caltrans, 1997). Although the original project scope was to upgrade the existing nonstandard bridge railings and construct standard shoulders on the Alameda Creek Bridge, the Caltrans Headquarters Division of Engineering Services concluded that the existing bridge was not adaptable to staged removal and involved excessive complications associated with the fatigue analyses of the structure<sup>2</sup> (Caltrans, 2003). Staged removal of the Alameda Creek Bridge would entail the removal of half of the bridge in the longitudinal direction, construction of a wider replacement bridge in its place, transfer of vehicular traffic to the new bridge, removal of the remaining half of the existing bridge, and construction of the second half of the wider bridge. Removal of the existing bridge in stages would result in the bridge not being structurally adequate to carry traffic loads and would require the complete closure of SR-84 for an extended period of time. The route serves a large volume of regional traffic between the East Bay Area on the west and the Tri-Valley area on the east (Caltrans, 2012). Complete closure of SR-84 at the project location would sever the main regional connection between I-880 and I-680.

In addition to the bridge not being adaptable to staged removal and not having the structural capacity to carry the additional weight of widening to provide standard shoulders, Caltrans' Division of Engineering Services determined it was more cost-effective to replace rather than upgrade the existing structure, and therefore recommended the construction of a new replacement bridge with a revised alignment. Reconstructing a new bridge at the existing location would involve long-term closure and would not address the geometric deficiencies that exist with the current Alameda Creek Bridge and its approaches.

In 2012, Caltrans conducted a Road Safety Analysis study on SR-84 between post miles 10.8 and 18.0, using Value Analysis/Explicit Road Safety processes and techniques. Using collision data supplied by Caltrans (from November 2007 to September 2010), the Road Safety Analysis identified five locations within the SR-84 corridor between Mission Boulevard (SR-238) and I-680 with safety needs. The Alameda Creek Bridge was identified as a location in Niles Canyon with unmet safety needs. In order to

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<sup>2</sup> The purpose of this analysis is to determine internal forces, stresses, and deformations of structures under various load effects (Caltrans, 2015h).



achieve the connectivity and safety goals of system planning, the deficiencies of the bridge should be addressed, which would also provide the safety benefits of a structure with improved geometry. Factors contributing to this assessment include the following facility deficiencies:

- *Restricted sight distances*
  - Restricted sight distance occurs when the continuous length of highway ahead is not visible to the highway user. The existing conditions at the Alameda Creek Bridge are considered to have restricted sight distance because of the tight radius curve on the approaches to the bridge. Due to the tight radius curve at this location, motorists driving the 45 mph speed limit do not have enough time to adjust to the curve, which is advised at 30 mph.
- *Low design speeds due to sharp curve radii at bridge approaches*
  - Although the speed limit of the Niles Canyon corridor is 45 mph, the existing conditions at the Alameda Creek Bridge have posted advisory signs that recommend that the bridge be driven at 30 mph going eastbound and 35 mph going westbound. Motorists driving at the 45 mph speed limit through the Niles Canyon corridor are not anticipating the 30 mph and 35 mph curves and as a result, do not have enough time to adjust to tight curve radii at the Alameda Creek Bridge.
- *Bridge railings that do not offer the structural integrity of modern railing*
  - Unlike modern railing, the existing 1928 bridge railing does not provide the capability to redirect vehicles back into the roadway in the event of a collision.
- *Lack of width for vehicular maneuvers to avoid collisions and room for bicyclists to share the roadway*
  - There are no shoulders on the existing Alameda Creek Bridge. Eight-foot shoulders are an important safety feature that allow vehicles to take corrective action to avoid collisions, provide room for disabled vehicles, and provide width for bicyclists to ride in if they do not wish to take the travel lane.

The Alameda Creek Bridge has exceeded its useful service life and, at 89 years old (as of 2017), has exceeded the original 50-year design life of the structure. The bridge exhibits signs of structural deterioration with spalling concrete exposing the underlying reinforcing steel to the elements and to rusting. Although the bridge is structurally adequate as of 2017, it is currently classified as “functionally obsolete”, meaning it is no longer functionally adequate for its task due to the design deficiencies listed above. The existing railing does not perform as well as modern railing when hit, and, with the lack of shoulders, there is no space provided for motorists maneuvering to avoid collisions.

## **Safety**

The safety deficiencies of the Alameda Creek Bridge include the sharp curve radii at the western and eastern approaches to the bridge, the non-standard shoulder width at the bridge, lack of median buffer/centerline rumble, and non-standard bridge railing.



From 1/1/2003 to 12/31/2013<sup>3</sup>, there were a total of 23 traffic collisions reported at the Alameda Creek Bridge from postmile 13.2 to 13.6<sup>4</sup>. Of the 23 traffic collisions, none resulted in fatalities and 12 resulted in injuries (Caltrans, 2016b). There were four (17%) cross-centerline, 2 (9%) head-on, three (13%) sideswipe, and seven (30%) run-off road collisions (Caltrans, 2015a). These types of collisions were associated with most of the serious injury accidents along the corridor. Significant numbers of collisions (44%) were hit-object type collisions (Caltrans, 2016b). Objects hit included side of bridge railing, bridge approach guardrail, cut slope or embankment, natural material on roads, other vehicles, etc. (Caltrans, 2016b). In addition, there were a total of four (17%) Driving Under the Influence (DUI) related accidents, and one (4%) accident involved a pedestrian or bicyclist (Caltrans, 2016b).

In 2007, Caltrans installed grooved centerline rumble strips from just east of Route 238 (Mission Boulevard) (PM 11.1) to just west of the Silver Springs Underpass (PM 16.7) as part of a safety improvement project along the Niles Canyon Corridor. Caltrans excluded the Alameda Creek Bridge and its approaches (PM 13.314/13.501) from the grooved centerline rumble strip installation as there is not sufficient lane width on the bridge for rumble strips; instead, only modified median striping details were placed on the bridge.

Accident data were further analyzed during the pre-rumble strip installation period (available 58 months, from 1/1/2003 to 10/31/2007) and the Post-rumble strip installation period (available 74 months, from 11/1/2007 to 12/31/2013), by looking at the accident patterns within the project limits separately<sup>5</sup>. A breakdown of the accident data within the project limits (PM 13.2/13.6) during the pre- and post-rumble strip installation period is provided below:

Pre-Rumble Strip: There were a total of 10 accidents out of which seven involved injuries in the 58 months of pre-rumble strip installation period from 1/1/2003 to 10/31/2007. The actual total accident rate (0.93) was less than the statewide average (1.30) during the three-years of pre-rumble strip installation period (11/1/2004 to 10/31/2007). However, the actual Fatal + Injury (F +I) rate (0.78) was higher than the

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<sup>3</sup> As of January 2016, the latest Traffic Accident Surveillance and Analysis System (TASAS) accident data available is through 12/31/2013. TASAS data are continuously updated to California Highway Patrol (CHP)'s reported accident data. The time lag for the latest available values is the data processing time required to convert the CHP's California Statewide Integrated Traffic Records System (SWITRS) to Caltrans' TASAS System.

<sup>4</sup> Although the project limits for the Alameda Creek Bridge Replacement Project extend from 13.0 to 13.6, postmile 13.0 to postmile 13.2 (extending all the way to the Palomares Road intersection and the Farwell Union Pacific Railroad Underpass), these locations have different geometrics than the subject Alameda Creek Bridge Replacement Project location. Extending the traffic safety analysis to the Palomares Road Intersection would therefore include accident data that are not relevant to the Alameda Creek Bridge Replacement Project. For this reason, PM 13.2 was selected as the appropriate beginning postmile for the traffic safety analysis.

<sup>5</sup> Caltrans TASAS Office only keeps 10-year data; older data are discarded. As of January 2016, the earliest data that is available is dated 1/1/2003 and the latest data that is available is up to 12/31/2013.

state average rate of 0.55 during the same three-year study period for similar facilities<sup>6</sup> of the State Highway System.

**Post-Rumble Strip:** There were a total of 13 accidents out of which five involved injuries in the 74 months of post-rumble strip installation period from 11/1/2007 to 12/31/2013. The actual total accident rate (1.33) was slightly higher than the statewide average (1.30) during the three-years of post-rumble strip installation period (11/1/2007 to 10/31/2010). Also the actual F+I rate (0.67) was higher than the state average rate of 0.55 during the same three-year study period for similar facilities of the State Highway System

### **Driver Expectations of SR-84 Operating Speed**

In 2008, Caltrans conducted a speed survey within the corridor between post miles 10.83 and 17.98 so that radar enforcement could be utilized to identify the Critical Speed. The Critical Speed is defined as the 85<sup>th</sup> percentile speed which is the speed at or below which 85% of vehicles travel (California Vehicle Code Section 22354). Although the existing speed limit in the Niles Canyon corridor is 45 mph, the survey found that the average Critical Speed between post mile 10.83 and 17.98 is 47.8 mph in the eastbound direction and 47.7 mph in the westbound direction within those limits. Various speed survey points within the immediate Alameda Creek Bridge Replacement Project vicinity (post miles 13.0 to 13.6) identify that the Critical Speed is 45 mph and above (even though there are advisory speed signs at both approaches to the Alameda Creek Bridge).

The 85th percentile speed is used extensively in the field of traffic engineering and safety<sup>7</sup>. Since the majority of drivers are considered reasonable and should be accommodated, some numerical definition for this segment of the driver population is needed. Over time, the 85th percentile driver (or speed) has been used to characterize reasonable and prudent behavior. FHWA's Green Book recommends that anticipated operating speed be considered in designating the design speed. The strong influence of driver desire and expectations on operating speed should be recognized in that determination. Expectations are formed, in part, on the function of the facility within the network. The current geometric conditions at the Alameda Creek Bridge approaches are mismatched with driver expectations of the operating speed, documented as 45 mph throughout the Niles Canyon corridor.

Driver expectations play a large role in the accident pattern at the Alameda Creek Bridge. There are posted advisory speed signs recommending that the bridge be driven at 30 miles per hour (mph) going eastbound and 35 mph going westbound. Even though these advisory speed warning signs are at both approaches to the Alameda Creek Bridge, there is a pattern of drivers leaving the roadway on the outside of the curve due to the tight-curve radius on the western end of the Alameda Creek Bridge. This history of

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<sup>6</sup> Similar facilities pertinent to this segment of SR-84 refer to existing roadways with similar characteristics/geographical suburban/urban conventional two-lane highways in the California Highway System.

<sup>7</sup> [http://safety.fhwa.dot.gov/speedmgt/ref\\_mats/fhwasa10001/](http://safety.fhwa.dot.gov/speedmgt/ref_mats/fhwasa10001/)

accidents indicates that the existing conditions of the roadway alignment are inconsistent with driver expectations of SR-84 operating speed. Research by FHWA suggests risks of crashes increase with increasing differentials in speed. Such differentials can be between adjoining highway sections (change in 85th percentile speeds due to changes in roadway geometry) or between speeds of vehicles in the same traffic stream (FHWA, 2014a).

**Table S-1. Relative Risk of Differential Speed Caused by Changes in Roadway Geometry**

Speed Differential ( $\Delta V$ =Change in Velocity)	Safety Risk
$\Delta V < 5$ mi/hr	Low
$5 \text{ mi/hr} < \Delta V < 15$ mi/hr	Medium
$\Delta V > 15$ mi/hr	High

Source: [http://safety.fhwa.dot.gov/geometric/pubs/mitigationstrategies/chapter3/3\\_designspeed.cfm](http://safety.fhwa.dot.gov/geometric/pubs/mitigationstrategies/chapter3/3_designspeed.cfm)

Table S-1 classifies the relative risks of differential speed caused by changes in roadway geometry. Research suggests that crash rates may rise with increasing differential speed (FHWA, 2014a). This table informs Caltrans of design standards to address relative risks. According to Table S-1, the speed differential caused by the changes in roadway geometry between adjacent sections of the roadway and the existing 30 mph curve going eastbound on the Alameda Creek Bridge categorizes the existing condition as a “high” safety risk (FHWA, 2014a). The speed differential between adjacent sections of the roadway and the existing 35 mph curve going westbound on the Alameda Creek Bridge categorizes the existing condition as a “medium” safety risk.

### Proposed Action

Caltrans proposes to replace the Alameda Creek Bridge and realign the bridge approaches on SR-84 from postmile 13.0 to 13.6 in southern Alameda County. The purpose of the proposed Alameda Creek Bridge Replacement Project is to correct structural deficiencies of the Alameda Creek Bridge and its approaches while providing a facility that meets driver expectations of SR-84’s operating speed, all of which improve safety (definition of terms included in Appendix H). The existing bridge is not suitable for rehabilitation as the bridge does not have the structural capacity to carry the additional weight of widening to provide standard shoulders. Additionally, the bridge exhibits signs of structural deterioration with spalling concrete exposing the underlying reinforced steel to the elements and to rusting.

This section describes the four Alternatives developed to meet the project’s purpose and need. Table S-2 summarizes the differences and similarities between each of the Alternatives while Table S-3 summarizes Alternatives’ impacts to various resource areas by Alternative. In addition to the four Alternatives, the No-Build Alternative is also considered.

### *Features Common to All Build Alternatives*

All Build Alternatives would replace the existing Alameda Creek Bridge and construct a new, two-lane roadway section, approximately 75 feet north of the existing SR-84 alignment. All Alternatives would realign SR-84 by increasing the curve radii between post miles 13.0 and 13.6. The larger radius of the curve would improve sight distance and reduce the number of errant vehicles that might otherwise cross the centerline or run-off-the-roadway. The new alignments for both the western and eastern approaches would be a maximum distance of 75 feet north of the current SR-84 alignment. The roadway on the new alignment sections would consist of a twelve-foot lane in each direction, eight-foot shoulders, a two-foot median soft barrier (suitable for a rumble strip), and a three-foot “choker” (also known as an unpaved three-foot shoulder). Black and yellow 35 mph advisory signs would be placed on the westbound and eastbound approaches to the Alameda Creek Bridge.

Additionally, all Alternatives propose to remove the existing Alameda Creek Bridge as well as remove the remnants of the existing footings and concrete wall of a former bridge, located approximately 100 feet upstream of the existing Alameda Creek Bridge. These bridge footings and concrete wall act as a weir and serve as a low-flow fish passage barrier. Per preliminary discussion and consultation with the United States Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), California Department of Fish and Wildlife (CDFW), and National Marine Fisheries Service (NMFS)<sup>8</sup>, the removal of these bridge footings would address anticipated compensatory mitigation requirements for project impacts under the federal Endangered Species Act (ESA) consultation and the following permits: 1602 Streambed Alteration Agreement and Clean Water Act (CWA) Section 404 and 401 permits.

### *Alternative 1*

Alternative 1 would construct a new 410-foot-long, 46-foot-wide, cast-in-place (CIP) box-girder bridge, with a 705-foot-radius curve, on the north side of the existing bridge. The new bridge would be supported by two on-land abutment foundations and two columns. One column would be placed in the stream and the other column would be located outside of the stream channel. The western alignment approach would be approximately 1,400-feet long and would require embankment fill for its entire length. Realignment of the eastern approach would require the installation of a 1,190-foot long steel-reinforced concrete retaining wall (Caltrans Type 1) and a 1,090-foot long concrete soil-nail wall. The 1,190-foot long Type 1 retaining wall would be located on the creek side of SR-84 (called the WB wall). The Type 1 retaining wall would vary in height from a minimum of 13 feet to a maximum of 36 feet. The 1,090-foot long concrete soil-nail wall would be located on the hill side of SR-84 (called the EB wall) and would vary in height from a minimum of four feet to a maximum of 20 feet.

### *Alternative 2*

Alternative 2 would construct a new 500-foot long, 46-foot wide, CIP box girder bridge, with a 650-foot-radius curve, on the north side of the existing bridge. The new bridge would

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<sup>8</sup> The project will have “No Effect” on the Central California Coast Distinct Population Segment (DPS) Steelhead. Refer to Section 2.3.5 regarding project impacts to Central California Coast DPS Steelhead.

be supported by two on-land abutment foundations and three columns. Two columns would be constructed on either side of the primary creek channel and a third in the secondary channel, closer to the western approach. The western alignment approach would be 1,400-feet long and would require embankment fill for its entire length as well as the installation of an 850-foot-long Type 1 retaining wall, varying in height from four to 20 feet. Realignment of the eastern approach would require the installation of a 1,150-foot-long Type 1 retaining wall and a 470-foot long rock cut. The 1,150-foot-long Type 1 retaining wall would be located on the creek side of SR-84 (called the WB wall) and would vary in height from a minimum of 13 feet to a maximum of 36 feet. The 470-foot rock cut would be located on the hill side of SR-84 (called the EB wall) and would vary in height from a minimum of two feet to a maximum of 23 feet.

#### *Alternative 3A*

Alternative 3A would construct a new 450-foot long, 46-foot wide, CIP box-girder bridge, with a 650-foot-radius curve, on the north side of the existing bridge. The new bridge would be supported by an abutment foundation at the west approach on a spread footing and three columns. The two eastern columns would be located on either side (outside) of the primary creek channel and the western column would be located outside the creek. The new bridge would be comprised of two distinct sections. The first section would be a 450-foot long CIP box girder that crosses the flood channel. The second section would be a series of precast slabs installed as a sidehill viaduct for the eastern approach along 1,170 feet of the existing hillside. The bridge would be constructed as one continuous structure with no abutment or other structural feature between the box girder and precast slabs. The western alignment approach would be 1,400-feet long and would require embankment fill for its entire length. Realignment of the eastern approach would require the installation of approximately 800 feet of rock cuts with anchored-wire mesh and soil-nail walls on the hill side (called the EB wall). The combination of rock cuts and soil-nail walls would vary in height from a minimum of two feet to a maximum of 21 feet. Following construction, the soil-nail walls would be covered with a 2:1 slope embankment and hydroseeded.

#### *Alternative 3B*

Alternative 3B would construct a new 450-foot long, 46-foot wide, CIP box girder bridge, with a 650-foot-radius curve, north of the existing bridge. The new bridge would be supported by an abutment foundation at the west approach on a spread footing and three columns. The two eastern columns would be located on either side (outside) of the primary creek channel and the western column would be located outside the creek. The new bridge would be comprised of two distinct sections. The first section would be a 450-foot long, CIP box girder that crosses the flood channel. The second section would be a series of precast slabs installed as a sidehill viaduct along 250 feet of the existing hillside. The bridge would be constructed as one continuous structure with no abutment or other structural feature between the sections; the two sections would abut at a paired-set of columns. The western alignment approach would be 1,400-feet long and would require embankment fill for its entire length. Realignment of the eastern approach would require the construction of a 300-foot-long rock cut with anchored-wire mesh on the hill side (called the EB wall). The rock cut would vary in height from a minimum of two feet to a maximum of 17 feet.

### **Identification of a Preferred Alternative**

After comparing and weighing the benefits and impacts of all feasible alternatives, Caltrans' Project Development Team (PDT) identified Alternative 3B as the Preferred Alternative, subject to public review. Alternative 3B meets the project's purpose and need while minimizing environmental impacts to natural communities and habitats. Final identification of a Build Alternative occurred after the public review and comment was completed (as a point of clarification, the No-Build Alternative was considered one of the Alternative options that Caltrans could select). Following the completion of the public review and comment, Caltrans looked at the entirety of the project record, selected an Alternative, and prepared a Final EIR/EA with Finding of No Significant Impact (FONSI) for compliance with NEPA.



**Table S-2. Summary of the Alternatives**

<b>Feature</b>	<b>Alternative 1</b>	<b>Alternative 2</b>	<b>Alternative 3A</b>	<b>Alternative 3B</b>
<b>New Bridge</b>				
Total Length (feet)	410	500	450	450
Columns	2	3	3	3
Bridge Spans	3	4	4	4
<b>Sidehill Viaduct</b>				
Total Length (feet)	None	None	1,170	250
Spans	None	None	30	7
<b>Western Approach</b>				
Embankment fill (feet)	0 to 16.3	0 to 16.3	0 to 15.4	0 to 15.6
<i>Slope</i>				
Eastbound	4 to 1	4 to 1	4 to 1	4 to 1
Westbound	2 to 1	2 to 1	2 to 1	2 to 1
<i>Roadway</i>				
Total Length (feet)	1,400	1,400	1,400	1,400
<i>Retaining Wall</i>				
Type	None	Type 1	None	None
Total Length (feet)	N/A	850	N/A	N/A
Height (feet)	N/A	4 to 20	N/A	N/A
<b>Eastern Approach</b>				
<i>Roadway</i>				
Total Length (feet)	1,200	1,200	1,100 (overlay only)	500 (overlay only)
<i>WB Wall (Creek Side)</i>				
Type	Type 1	Type 1	None	None
Total Length (feet)	1,190	1,150	N/A	N/A
Height (feet)	13 to 36	13 to 36	N/A	N/A
<i>EB Wall (Hill Side)</i>				
Type	Soil-Nail Wall	Rock Cut	Soil-Nail Walls and Rock Cuts	Rock Cut
Total Length (feet)	1,090	470	800	300
Height (feet)	4 to 20	2 to 23	2 to 21	2 to 17

**No-Build Alternative**

Under the No-Build Alternative, the project would not be constructed and deficiencies at the Alameda Creek Bridge would remain. The No-Build Alternative is considered the environmental baseline against which potential environmental impacts of the Alternatives are analyzed.

### **Joint NEPA/CEQA Document**

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

Some impacts determined to be significant under CEQA may not lead to a determination of significance under NEPA. Because NEPA is concerned with the significance of the project as a whole, often a "lower level" document is prepared for NEPA. One of the most common joint document types is an Environmental Impact Report/Environmental Assessment (EIR/EA).

After receiving comments from the public and reviewing agencies, this Final EIR/EA was prepared. The Final EIR/EA includes responses to comments received for the Revised Draft EIR/EA, but not on the previously circulated Draft EIR for the project. Comments received during the earlier circulation period are considered to be part of the project record, however, these comments did not receive a written response in this Final EIR/EA. This Final EIR/EA identifies Alternative 3B as the Selected Alternative. All substantive comments received during the recirculation period were considered prior to making the determination on the Selected Alternative. If the decision is made to approve the project, a Notice of Determination will be published for compliance with CEQA. The Department has decided to issue a FONSI for compliance with NEPA. A Notice of Availability (NOA) of the FONSI will be sent to the affected units of federal, state, and local government, and to the State Clearinghouse in compliance with Executive Order 12372.

**Table S-3. Project Impacts by Alternative**

Environmental Topic	Alternative 1	Alternative 2	Alternative 3A	Alternative 3B	No Build	Avoidance, Minimization, and/or Mitigation Measure <sup>9</sup>
Land Use						
Consistency with State, Regional, and Local Plans and Programs	Overall, all Alternatives are consistent with relevant state, regional, and local plans and programs with minimal inconsistencies with the East Alameda County Conservation Strategy.				The No-Build is not consistent with transportation planning goals set by Plan Bay Area and the Alameda Countywide Transportation Plan to provide safe and efficient facilities for East Alameda County.	VISUAL-1, VISUAL-2, VISUAL-3, VISUAL-4, VISUAL-5, CULTURAL-3, CULTURAL-4, WATER-1, WATER-2, WATER-3, WATER-4, WATER-5, WATER-6, WATER-7, WATER-8, WATER-9, WATER-10, UPLAND TREES-1, RIPARIAN TREES-1, NATURAL COMMUNITIES-9, AWS-1, CRLF-1, INVASIVE-1, INVASIVE-2, and INVASIVE-3
Compatibility with habitat conservation plan	No impact					None
Located in a Coastal Zone	No impact					None
Located near designated Wild and Scenic Rivers	No impact					None
Parks and Recreational Facilities						
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?	No impact					None
Does the project include recreational facilities or require the construction or expansion of recreational facilities which	No impact					None

<sup>9</sup> Detailed descriptions of the proposed Avoidance, Minimization, and/or Mitigation Measures are located in Chapter 2 and Appendix D.  
Alameda Creek Bridge Replacement Project

Environmental Topic	Alternative 1	Alternative 2	Alternative 3A	Alternative 3B	No Build	Avoidance, Minimization, and/or Mitigation Measure <sup>9</sup>
might have an adverse physical effect on the environment?						
Impact parks/recreational facilities?	All Alternatives would have minimal indirect impacts to the Niles Canyon Railway, including temporarily increased noise levels from project construction and demolition and indirect visual impacts as a result of construction activities.				No impact	VISUAL-1, VISUAL-2, VISUAL-3, VISUAL-4, and VISUAL-5
Growth						
No impact						
Farmlands/Timberlands						
No impact						
Community Impacts						
Community Character and Cohesion	No impact					None
Relocations and Real Property Acquisitions	No impact					None
Environmental Justice	No impact					None
Utilities/Emergency Services						
Utilities	Two relocations of Pacific Gas & Electric (PG&E) utility poles within the project limits.				No impact	UTL-1
Emergency Services	Short-term lane closures would be necessary to facilitate construction. These short-term lane closures would occur on the weekends and during off-peak hours as to not affect peak-hour traffic (between 6 – 10 AM and 3 – 7 PM) during the weekdays.				No impact	TRAFFIC-1
Traffic and Transportation/Pedestrian and Bicycle Facilities						
Conflict with applicable plans, ordinances, policies, or programs	Consistent with applicable plans, ordinances, policies, and programs.				The No-Build is not consistent with transportation planning goals set by Plan Bay Area and the Alameda Countywide Transportation Plan to provide safe and efficient facilities for	None

Environmental Topic	Alternative 1	Alternative 2	Alternative 3A	Alternative 3B	No Build	Avoidance, Minimization, and/or Mitigation Measure <sup>9</sup>
					East Alameda County.	
Increase traffic congestion	No impact					None
Increase hazards as a result of a design feature	No impact					None
Visual/Aesthetics						
Adverse effect on scenic views/damage scenic resources	Would impact* approximately 415 trees on 0.6 mile stretch of a designated State Scenic Highway.	Would impact* approximately 408 trees on 0.6 mile stretch of a designated State Scenic Highway.	Would impact* approximately 444 trees on 0.6 mile stretch of a designated State Scenic Highway.	Would impact* approximately 296 trees on 0.6 mile stretch of a designated State Scenic Highway.	No impact	Measures VISUAL-1 through VISUAL-7, UPLAND TREES-1, and RIPARIAN TREES-1
Substantially damage scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway.	Would impact* approximately 415 trees on 0.6 mile stretch of a designated State Scenic Highway.	Would impact* approximately 408 trees on 0.6 mile stretch of a designated State Scenic Highway.	Would impact* approximately 444 trees on 0.6 mile stretch of a designated State Scenic Highway.	Would impact* approximately 296 trees on 0.6 mile stretch of a designated State Scenic Highway.	No impact	Measures VISUAL-1 through VISUAL-7, UPLAND TREES-1, and RIPARIAN TREES-1
*During the design phase, Caltrans’ Office of Biological Science, and Permits and Caltrans’ Office of Design would make an effort to reduce impacts to natural communities in temporary impact areas to the greatest extent possible by designating environmentally sensitive areas on plan sheets and marking those locations in the field.						
Degradation of existing visual character or quality	Potential effects to existing visual character or quality.				No impact	Measures VISUAL-1 through VISUAL-7, UPLAND TREES-1, and RIPARIAN TREES-1
Create a new source of light or glare	No long-term sources of light or glare would be introduced by all Alternatives. Temporary light and glare impacts during construction would be negligible with the implementation of standard project measures.				No impact	VISUAL-4
Cultural Resources						
Create a substantial adverse change in the significance of a historical resource	Would demolish the Alameda Creek Bridge, a structure considered eligible for the Alameda County Register of Historic Resources.				No impact	CULTURAL-3 through CULTURAL-5
Create a substantial adverse change in the significance of an archeological resource	No impact				No impact	CULTURAL-1 and CULTURAL-5
Disturbance to human remains	No impact				No impact	CULTURAL-2 and CULTURAL-5
Hydrology and Floodplain						
Located within a 100-year floodplain	Yes				No impact	None

Environmental Topic	Alternative 1	Alternative 2	Alternative 3A	Alternative 3B	No Build	Avoidance, Minimization, and/or Mitigation Measure <sup>9</sup>
Expose people/structure to significant risk of loss	No impact					None
Water Quality and Storm Water Runoff						
Result in substantial drainage pattern alteration	Modification of existing drainage structures and addition of new drainage systems for the new bridge structure.				No impact	Measures WATER-1 through WATER-10
Violation of water quality standards	Potential due to excavation and construction activities.				No impact	Measures WATER-1 through WATER-10
Change to groundwater supply or groundwater recharge	Increase in impervious surface area would result in increased water runoff and less percolation to groundwater aquifers and the removal of the weir may result in faster rates of water movement by Alameda Creek.				No impact	Measure WATER-6
Substantially degrade water quality	Caltrans' construction water quality BMPs would be implemented to ensure no construction activities adversely affect receiving waters. Caltrans would incorporate stormwater treatment system(s) within the project area to remove pollutants of concern from Caltrans' roadway run-off resulting from increased impervious surface area.				No impact	Measures WATER-1 through WATER-10
Geology/Soils/Seismic/Topography						
Expected likelihood of seismic related issues, including ground shaking and liquefaction	Low potential for seismic related issues as the structure would be designed using Caltrans' Seismic Design Criteria (SDC), which provides the minimum seismic requirements for highway bridges designed in California.				No impact	None
Expose people or structures to potential adverse effects	During construction, workers would be exposed to shaking, lurching, and cracking. No structure or people would be exposed to potential adverse effects as the structure would be designed using Caltrans' Seismic Design Criteria (SDC), which provides the minimum seismic requirements for highway bridges designed in California.				No impact	None
Mineral Resources						
No impact						
Paleontology						
Destruction of paleontological resources (i.e., fossil remains and sites) as a result of ground disturbance.	Potential due to excavation and construction activities in previously undisturbed geologic formations.				No impact	PALEONTOLOGY-1
Hazardous Waste/Materials						
Create a hazard to the environment/public	Existing Alameda Creek Bridge likely contains Asbestos Containing Material (ACM) and Lead Based Paint (LBP). A bridge survey for ACM would be completed prior to demolition to assess asbestos requirements for bridge removal. Appropriate hazardous materials-related construction specifications would be developed.				No impact	HAZ-1 through HAZ-3
Be located on a site which is included on a list of hazardous materials sites, and, as a result, would create a hazard to the public or environment.	No impact					None



Environmental Topic	Alternative 1	Alternative 2	Alternative 3A	Alternative 3B	No Build	Avoidance, Minimization, and/or Mitigation Measure <sup>9</sup>
Air Quality						
Conflict with or obstruct implementation of the applicable air quality plan	The proposed project does not involve an expansion of the existing facility and would not interfere with the Bay Area Air Quality Management District (BAAQMD)’s 2010 Clean Air Plan.				No impact	None
Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	The Alameda Creek Bridge Replacement Project is exempt from regional and project-level air quality conformity requirements under 40 Code of Federal Regulations (CFR) 93.126 as it is to reconstruct a bridge with no additional travel lane/lanes (see §93.126, Table 2 – Exempt Projects). The proposed project would not cause exceedances or new violations of the National or California Ambient Air Quality Standards. The proposed project would generate air pollutants during the construction period, which is expected to last a total of three years. Trucks and construction equipment emit hydrocarbons, oxides of nitrogen, carbon monoxide and particulates associated with grading, hauling and various other activities. The impacts from the above activities are considered temporary and would vary from day to day as construction progresses.				No impact	None
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)?	The proposed project does not involve an expansion of the existing facility and would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard.				No impact	None
Expose sensitive receptors to substantial pollutant concentrations?	The nearest sensitive receptor is more than 3,000 feet away from the construction area. There are no sensitive receptors close enough to the project to be affected by emissions generated by trucks and equipment during project construction.				No impact	None
Create objectionable odors affecting a substantial number of people?	No impact					None
Noise						
No impact; project is not considered to be a Type 1 Project (as defined in 23 CFR 772).						
Energy						
No impact						
Biological Resources						
Effects to habitat or sensitive natural communities	Direct impacts to 7.428 acres of various habitat types (2.817 acres of permanent	Direct impacts to 6.809 acres of various habitat types (2.194 acres of permanent	Direct impacts to 7.796 acres of various habitat types (2.897 acres of permanent impacts	Direct impacts to 6.333 acres of various habitat types (2.072 acres of permanent impacts	No impact	UPLAND TREES-1, RIPARIAN TREES-1, NATURAL COMMUNITIES-1 through NATURAL

Environmental Topic	Alternative 1	Alternative 2	Alternative 3A	Alternative 3B	No Build	Avoidance, Minimization, and/or Mitigation Measure <sup>9</sup>
	impacts and 4.6 10 acres of temporary impacts) and would impact* approximately 415 trees.	impacts and 4.615 acres of temporary impacts) and would impact* approximately 408 trees.	and 4.898 acres of temporary impacts) and would impact* approximately 444 trees.	and 4.261 acres of temporary impacts) and would impact* approximately 296 trees.		COMMUNITIES-21, and VISUAL-6 through VISUAL-7.
* During the design phase, Caltrans' Office of Biological Science, and Permits and Caltrans' Office of Design would make an effort to reduce impacts to natural communities in temporary impact areas to the greatest extent possible by designating environmentally sensitive areas on plan sheets and marking those locations in the field.						
Effects to wetlands and other waters	Potential permanent impacts to 0.002 acres and potential temporary impacts to 1.210 acres of wetlands and other waters.	Potential permanent impacts to 0.171 acres and potential temporary impacts to 1.338 acres of wetlands and other waters.	Potential permanent impacts to 0.121 acres and potential temporary impacts to 1.332 acres of wetlands and other waters.	Potential permanent impacts to 0.002 acres and potential temporary impacts to 1.146 acres of wetlands and other waters.	No impact	WETLANDS-1 and WETLANDS-2, WATER-1 through WATER-4, NATURAL COMMUNITIES-5, NATURAL COMMUNITIES-6, and NATURAL COMMUNITIES-13.
Effects to sensitive or special status species	Direct impacts to 7.428 acres of various habitat types (2.817 acres of permanent impacts and 4.610 acres of temporary impacts) with the potential to support river and pacific lamprey, western pond turtle, San Francisco dusky-footed woodrat, migratory birds, and roosting bats.  Potential effects to California red-legged frog	Direct impacts to 6.809 acres of various habitat types (2.194 acres of permanent impacts and 4.615 acres of temporary impacts) with the potential to support river and pacific lamprey, western pond turtle, San Francisco dusky-footed woodrat, migratory birds, and roosting bats.  Potential effects to California red-legged frog	Direct impacts to 7.796 acres of various habitat types (2.897 acres of permanent impacts and 4.898 acres of temporary impacts) with the potential to support river and pacific lamprey, western pond turtle, San Francisco dusky-footed woodrat, migratory birds, and roosting bats.  Potential effects to California red-legged frog habitat (4.205 acres of temporary impacts,	Direct impacts to 6.333 acres of various habitat types (2.072 acres of permanent impacts and 4.261 acres of temporary impacts) with the potential to support river and pacific lamprey, western pond turtle, San Francisco dusky-footed woodrat, migratory birds, and roosting bats.  Potential effects to California red-legged frog habitat (0.753 acres of temporary impacts, 2.798 acres of prolonged	No impact	WOODRAT-1, BATS-1, BATS-2, BATS-3, CRLF-1, AWS-1, STEELHEAD-1, LAMPREY-1, WESTERN POND TURTLE-1, THREATENED&ENDANGERED-1 through THREATENED&ENDANGERED-7, WATER-1 through WATER-4, and VISUAL-6 through VISUAL-7.

Environmental Topic	Alternative 1	Alternative 2	Alternative 3A	Alternative 3B	No Build	Avoidance, Minimization, and/or Mitigation Measure <sup>9</sup>
	habitat (3.988 acres of temporary impacts, 2.542 acres of permanent impacts), Alameda whipsnake habitat (3.424 acres of temporary impacts, 2.540 acres of permanent impacts), and Steelhead habitat (2.358 acres of temporary impacts, 0.784 acres of permanent impacts).	habitat (3.959 acres of temporary impacts, 1.902 acres of permanent impacts), Alameda whipsnake habitat (3.370 acres of temporary impacts, 1.901 acres of permanent impacts), and Steelhead habitat (2.296 acres of temporary impacts, 0.681 acres of permanent impacts).	2.471 acres of permanent impacts), Alameda whipsnake habitat (3.611 acres of temporary impacts, 2.470 acres of permanent impacts), and Steelhead habitat (2.595 acres of temporary impacts, 0.819 acres of permanent impacts).	temporary impacts, 1.663 acres of permanent impacts), Alameda whipsnake habitat (0.161 acres of temporary impacts, 2.798 acres of prolonged temporary impacts, 1.662 acres of permanent impacts), and Steelhead habitat (2.158 acres of temporary impacts, 0.315 acres of permanent impacts). <sup>10</sup>		
Conflict with local policies/plans	Minimal inconsistencies with the East Alameda County Conservation Strategy.				No impact	UPLAND TREES-1, RIPARIAN TREES-1, NATURAL COMMUNITIES-9, AWS-1, CRLF-1, and INVASIVE-1 through INVASIVE-3

<sup>10</sup> The proposed compensation impact ratios for California red-legged frog and Alameda whipsnake have been updated to reflect the Biological Opinion (BO) number 08ESMF00-2015-F-0073-2, obtained from the USFWS on May 4, 2017 for this project. The BO divides the impacts up into three categories: temporary, prolonged temporary, and permanent. The prolonged temporary category was defined as an area that was either subjected to multiple years of disturbance or would take over a year to restore to baseline conditions present prior to construction.

## Coordination with Public and Other Agencies

### *Permits and Approvals Needed*

The following permits, reviews, and approvals identified in Table S-4 are required for project construction.

**Table S-4. Permits and Approvals Needed**

<b>Agency</b>	<b>Permit/Approval</b>	<b>Status</b>
<b>United States Fish and Wildlife Service (USFWS)</b>	Section 7 Consultation for Threatened and Endangered Species	Biological Opinion, 08ESMF00-2015-F-0073-2, signed on May 4, 2017. (Appendix J)
<b>United States Army Corps of Engineers (USACE)</b>	CWA Section 404 permit for filling or dredging waters of the United States.	This project would require two CWA Section 404 nationwide permits; the first permit for the geotechnical borings was acquired on July 27, 2017. The second permit would be acquired prior to the construction of the Alameda Creek Bridge.
<b>California Department of Fish and Wildlife (CDFW)</b>	1602 Agreement for Streambed Alteration	This project would require two 1602 Agreements; the first agreement for the geotechnical borings was acquired on July 27, 2017. The second agreement would be acquired prior to the construction of the Alameda Creek Bridge.
<b>California Department of Fish and Wildlife (CDFW)</b>	Incidental Take Permit for Threatened and Endangered Species	An Incidental Take Permit would be acquired prior to the construction of the Alameda Creek Bridge. Coordination with CDFW would be conducted prior to the geotechnical borings.
<b>Regional Water Quality Control Board (RWQCB)</b>	CWA Section 401	A CWA Section 401 Water Certification would be acquired prior to the construction of the Alameda Creek Bridge. Notification for the geotechnical borings has been completed with the RWQCB.
<b>National Marine Fisheries Service (NMFS)</b>	Section 7 Consultation for Threatened and Endangered Species	Consultation to occur prior to the construction of the Alameda Creek Bridge. <sup>11</sup>
<b>Alameda County Water District (ACWD)</b>	Drilling permit as required by ACWD Ordinance No. 2010-01	A Drilling permit would be obtained prior to the geotechnical borings.

<sup>11</sup> The project will have “No Effect” on the Central California Coast Distinct Population Segment (DPS) Steelhead. Refer to Section 2.3.5 regarding project impacts to Central California Coast DPS Steelhead.

### *Scoping Process*

Caltrans began the formal environmental review process for this project by filing a Notice of Preparation (NOP) with the State Clearinghouse on February 18, 2014. The opportunity for public comment on the scope of the project ended on March 23, 2014. Caltrans held two public meetings during the scoping period. The first meeting was held in Sunol at the Sunol Glen Elementary School, located at 11601 Main Street, on Tuesday, February 25, 2014 from 7-9 PM. The second meeting was held in Fremont at the Niles Elementary School, located at 37141 Second Street, on Tuesday, March 4, 2014 from 7-9 PM. Caltrans personnel presented informational boards and answered questions from the public in an open-house style format at the first meeting. Members of the public requested a change in meeting format for the second meeting. The second meeting at the Niles Elementary School included a project presentation given by the Caltrans Project Manager, Jack Siau, followed by a formal question-and-answer session with a panel of project personnel.

Caltrans advertised the scoping meetings in a variety of formats two weeks prior to the scheduled dates. Distribution methods included postcard mailings, letter notifications, and email notifications to the Niles Canyon Stakeholder Listserve. Information was also posted on the Niles Canyon Projects website (<http://www.dot.ca.gov/dist4/nilescanyon/>). The advertisements provided public meeting logistics, explained the purpose of the public meetings, gave the schedule for the public scoping comment period, outlined additional ways to comment, and provided methods for obtaining more project information.

### *Public Review of the Previously Circulated Draft EIR*

Caltrans released the previously circulated Draft EIR on February 3, 2015, marking the start of the 45-day public review period. Caltrans announced the release of the Alameda Creek Bridge Replacement Project Draft EIR and opportunity to attend a public open-forum hearing on February 3, 2015 through e-mail notification to Niles Canyon stakeholders as well as members of the public who requested e-mail notification of Niles Canyon projects. In addition to the e-mail notification, Caltrans mailed notification announcements to the residents of Niles in Fremont (who live within a five miles radius of the project limits) and the town of Sunol and published newspaper advertisements in the Fremont Argus and the Pleasanton Independent. The Fremont Argus printed the advertisement on February 7, 2015 and February 18, 2015, and the Pleasanton Independent printed the advertisement on February 12, 2015 (refer to Appendix G). The notification e-mail, mailed announcements, and newspaper advertisements identified the website address where members of the public could view the Draft EIR online, the locations where hard copies of the Draft EIR were available, detailed information about the public open-forum hearing, and how to submit a comment on the Draft EIR.

In response to public input, Caltrans extended the deadline for comments from 5 PM on March 20, 2015 to 5 PM on April 3, 2015. Caltrans announced the extension of the comment period as well as the addition of a second public open-forum hearing on March 9, 2015 through an e-mail notification to Niles Canyon stakeholders and members of the public who requested e-mail notification of Niles Canyon project updates. In addition to the e-mail notification, Caltrans sent a second notification mailer to the residents of Niles in Fremont and the town of Sunol. The second notification e-mail and mailer identified the

website address where members of the public could view the Draft EIR online, the locations where hard copies of the Draft EIR were available, detailed information about the public open-forum hearing, and how to submit a comment on the Draft EIR.

#### *Public Open-Forum Hearings*

Caltrans held a public open-forum hearing for the Alameda Creek Bridge Replacement Project at Niles Elementary School (37141 2<sup>nd</sup> Street, Fremont, CA) on February 23, 2015. Approximately 20 people attended the meeting. Poster boards around the room displayed the Alternative alignments, visual simulations from various key viewpoints, and proposed biological/cultural mitigation measures. Jack Siau, the Caltrans Project Manager for the Alameda Creek Bridge Replacement Project, gave a brief presentation at 6:30 PM. A question and answer session followed the presentation during which members of the public could ask questions about the project and Environmental Document of Caltrans staff.

In response to the public's input on the project, Caltrans held a second public open-forum hearing at Sunol Glen Elementary School, 11601 Main Street, Sunol, CA, on March 23, 2015. Approximately 31 people attended the second public open-forum hearing. The second meeting followed the format of the first meeting.

#### *Comments Received on the Draft EIR*

The public provided comments on the Alameda Creek Bridge Replacement Project Draft EIR in the form of comment cards at the public open-forum hearings as well as through letters and e-mails to Caltrans. Of the approximately 60 comment cards, letters, and e-mails received, many expressed concerns about the range of alternatives considered, traffic safety, mitigation for biological impacts, and outstanding mitigation requirements for a previous Caltrans safety project, which was terminated in 2011. As previously mentioned, the comments received during the earlier circulation period are considered to be part of the project record, however, only comments submitted for the Revised Draft EIR/EA received a written response in this Final EIR/EA.

#### *Recirculation*

The Revised Draft EIR/EA for the Alameda Creek Bridge Replacement Project provided new information relevant to the proposed project. CEQA guidelines specify that the lead agency must recirculate an EIR when there is significant new information added to the project analysis after public notice of the Draft EIR. Per CEQA Guideline 15088.5 (g), a summary of revisions to the previously circulated Draft EIR were located in the Preface of the Revised Draft EIR/EA.

#### *External Agency Coordination*

The following provides a summary of agency consultation and professional contacts in advance of the Draft Environmental Document's release:

- July 26, 2010 – Caltrans contacted the Native American Heritage Commission (NAHC) regarding the presence of sacred lands in the project area and asked the NAHC to provide a list of Native American contacts.

- March 6, 2014 – A technical assistance meeting was held in the field with Joe Heublein (NMFS) to discuss the project and the potential removal of the concrete weir upstream of the current bridge.
- March 26, 2014 – A technical assistance meeting was held in the field with Melissa Escaron (CDFW) and John Cleckler (USFWS) to describe the proposed project.
- June 4, 2014 – A meeting was held at Caltrans District 4 Office to discuss the proposed project. Attendees included John Cleckler (USFWS), Melissa Escaron and Marcia Grefsrud (CDFW), Holly Costa (USACE), Derek Beauduy (RWQCB), and Joe Heublein (NMFS). Discussion on the potential occurrence of California tiger salamander (CTS) occurred. Staff from USFWS and CDFW concluded that CTS would not likely be present in the proposed project vicinity and that mitigation would not be required. Caltrans' proposed compensatory mitigation strategy for the project was also discussed with agencies.
- July 28, 2014 – A technical assistance meeting was held in the field with Holly Costa (USACE), Derek Beauduy (RWQCB), and John Cleckler (USFWS).
- June 18, 2015 – The State Historic Preservation Officer (SHPO) concurred that the Alameda Creek Bridge Replacement Project would have no adverse effect on the Sunol Aqueduct and the Niles Canyon Transcontinental Railroad Historic District.
- January 13, 2016 – Caltrans received an updated USFWS species list.
- January 13, 2016 – Caltrans received an updated NMFS species list.
- March 3, 2017 – John Cleckler (USFWS) submitted a draft copy of the Alameda Creek Bridge Replacement Project Biological Opinion (BO) to Caltrans for review.
- April 4, 2017 – Caltrans returned the BO to USFWS containing edits and comments. John Cleckler (USFWS) responded that the edits were made and the draft was submitted to senior review.
- April 5, 2017 – Caltrans reached out to Marcia Grefsrud (CDFW) to discuss the permits required for all of the projects within the Niles Canyon corridor, including the Alameda Creek Bridge Replacement Project. This correspondence includes a list of the special-status species to be protected (Alameda whipsnake [AWS]), permits required, and the general estimated construction timeframe for each project.
- April 14, 2017 – A phone meeting was held with Marcia Grefsrud (CDFW) to discuss the impacts of the geotechnical borings in Alameda Creek. Marcia requested the review of the draft Biological Opinion from USFWS and explained that Caltrans has the option of pursuing the geotechnical boring portion of the project under a categorical exemption.
- April 17, 2017 – Caltrans reached out to Janelle Leeson (USACE) on the phone to discuss the Nationwide Permit (NWP) requirements for the geotechnical boring work.
- April 18, 2017 – Marcia Grefsrud (CDFW) explained further that Caltrans has two options: 1) Caltrans can wait for the current CEQA document to be certified and issue the NOD or proceed with a Notice of Exemption specifically for the geotechnical borings.
- April 21, 2017 – After discussing the options among the project team, Caltrans informed Marcia (CDFW) that Caltrans will proceed with the categorical exemption option (Notice of Exemption).
- May 4, 2017 – Caltrans received the Biological Opinion from USFWS.

- May 10, 2017 – Caltrans submitted an ITP application withdrawal request to Scott Wilson, the regional manager of CDFW.
- May 11, 2017 – Caltrans submitted an updated transmittal letter to CDFW in response to Marcia Grefsrud’s inquiry for the permit numbers of the draft ITP and Streambed Alteration Agreement.
- June 8, 2017 – Caltrans received an updated USFWS species list.
- June 8, 2017 – Caltrans received an updated NMFS species list.
- June 21, 2017 – Caltrans submitted the Notice of Exemption for the geotechnical boring work to the State Clearinghouse.
- July 27, 2017 – Caltrans received the 1602 Agreement from CDFW and the Section 404 nationwide permit from USACE for the geotechnical boring work.



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## LIST OF ABBREVIATED TERMS

AADT	Average Annual Daily Traffic
AB	Assembly Bill
ABAG	Association of Bay Area Governments
ACFCD	Alameda County Flood Control and Water Conservation District
ACM	asbestos-containing material
ACRCD	Alameda County Resource Conservation District
ACTC	Alameda County Transportation Commission
ACWD	Alameda County Water District
ADL	aerially deposited lead
APE	Area of Potential Effect
ARB	Air Resources Board
ASR	Archeological Study Report
AT&T	American Telephone and Telegraph Company
AWS	Alameda whipsnake
BAAQMD	Bay Area Air Quality Management District
BAHM	Bay Area Hydrology Model
BART	Bay Area Rapid Transit
BAT	best available technology
BDPL	Bay Development Pipeline
BFE	base flood elevation
BMP	best management practices
BO	Biological Opinion
BT&H	Business, Transportation, and Housing Agency
CalEPA	California Environmental Protection Agency
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CDFW	California Department of Fish and Wildlife
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CERFA	Community Environmental Response Facilitation Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CH <sub>4</sub>	methane
CHP	California Highway Patrol
CIDH	cast-in-drilled-hole
CIP	cast-in-place
CNDDb	California Natural Diversity Database
CNPS	California Native Plant Society

CO-CAT	Coastal Ocean Climate Action Team
CO	Carbon monoxide
CO <sub>2</sub>	Carbon dioxide
CHBC	California Historical Building Code
CRHR	California Register of Historical Resources
CRLF	California red-legged frog
CTP	California Transportation Plan
CTS	California tiger salamander
CWTP	Alameda Countywide Transportation Plan
CWA	Clean Water Act
DNA	dioxyribonucleic acid
DPS	Distinct Population Segment
DSA	disturbed soil area
DUI	Driving Under the Influence
EACCS	East Alameda County Conservation Strategy
EB	eastbound
EBRPD	East Bay Regional Parks District
ECAP	East County Area Plan
EIR	Environmental Impact Report
EO	Executive Order
ESA	environmentally sensitive area
FGC	California Fish and Game Code
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FHWA	Federal Highway Administration
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FIRMS	Federal Insurance Rate Maps
FTIP	Federal Transportation Improvement Program
GHG	green-house gas
HM	hydromodification
HOV	high-occupancy vehicle
HPSR	Historic Property Survey Report
HRER	Historic Resources Evaluation Report
HAS	Hydrologic Sub-Area
H&SC	Health and Safety Code
I-580	Interstate 580
I-680	Interstate 680
I-80	Interstate 80
I-880	Interstate 880
IGR	intergovernmental review
IPCC	Intergovernmental Panel on Climate Change

ITP	Incidental Take Permit
ITS	Intelligent Transportation System
KVP	key view point
LBP	lead based paint
LEDPA	Least Environmentally Damaging Practicable Alternative
LOTB	log of test borings
MBTA	Migratory Bird Treaty Act
MLD	Most Likely Descendent
MOU	Memorandum of Understanding
MTC	Metropolitan Transportation Plan
RTP	Regional Transportation Plan
MMT	million metric tons
mph	miles per hour
MPO	Metropolitan Planning Organization
MS4s	Municipal Separate Storm Sewer Systems
NAHC	Native American Heritage Commission
N <sub>2</sub> O	nitrous oxide
NCTR	Niles Canyon Transcontinental Railroad
NEPA	National Environmental Policy Act
NES	Natural Environment Study
NHPA	National Historic Preservation Act
NHTSA	National Highway Traffic Safety Administration
NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NOAA	National Oceanic and Atmospheric Administration
NOD	Notice of Determination
NOP	Notice of Preparation
OPR	Office of Planning and Research
OSHA	Occupational Safety and Health Act
OSTP	Office of Science and Technology Policy
PA	Programmatic Agreement
PCE	primary constituent elements
PDT	Project Development Team
PG&E	Pacific Gas & Electric
PIR	Paleontological Identification Report
PLA	Pacific Locomotive Association
PM <sub>2.5</sub>	Particulate matter less than 2.5 micrometers in diameter
PM <sub>10</sub>	Particulate matter less than 10 micrometers in diameter
PMP	Paleontological Mitigation Plan
PRC	Public Resources Code

QRSA	Quantitative Road Safety Analysis
RCRA	Resource Conservation and Recovery Act
ROW	right-of-way
RSA	Resource Study Area
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SCS	Sustainable Communities Strategy
SDC	Seismic Design Criteria
SFPUC	San Francisco Public Utilities Commission
SF <sub>6</sub>	sulfur hexafluoride
SHPO	State Historic Preservation Officer
SHOPP	State Highway Operation and Protection Program
SR	State Route
SR-238	State Route 238 / Mission Boulevard
SR-84	State Route 84
Sta.	station
SVWC	Spring Valley Water Company
SWITRS	California Statewide Integrated Traffic Records System
SWMP	Storm Water Management Plan
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TASAS	Traffic Accident Surveillance and Analysis System
TCE	temporary construction easement
TIMS	Transportation Injury Mapping System
TIP	Transportation Improvement Program
TMDLs	total maximum daily loads
TMP	Traffic Management Plan
TSCA	Toxic Substances Control Act
U.S. EPA	United States Environmental Protection Agency
UCMP	University of California Museum of Paleontology
USACE	United States Army Corps of Engineers
USC	United States Code
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VIA	Visual Impact Assessment
WB	westbound
WDRs	Waste Discharge Requirements
WPCP	Water Pollution Control Plan

## CHAPTER 1. PROPOSED PROJECT

### 1.1 Introduction

The California Department of Transportation (Caltrans) proposes to replace the Alameda Creek Bridge and realign the bridge approaches on State Route 84 (SR-84) from postmile 13.0 to 13.6 in southern Alameda County. Caltrans is proposing to replace the existing 1928, two-lane bridge with a new, two-lane structure with standard eight-foot wide shoulders, approximately 75 feet north of the existing bridge (refer to Figure 1. Project Map). The Alameda Creek Bridge is located in a scenic part of SR-84, known as Niles Canyon. This stretch of SR-84, from the City of Fremont to the town of Sunol, is considered part of the State's Scenic Highway System.

Caltrans is the lead agency responsible for preparing the environmental document in compliance with the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). The proposed project was programmed in the 2008 State Highway Operation and Protection Program (SHOPP) under the 110 Bridge Rehabilitation Category. This project is included in the most current conforming 2015 Transportation Improvement Program (TIP) as a project in the grouped listings under SHOPP - Bridge Preservation (VAR110044). As of July 2017, the construction cost was estimated at \$24 million and right-of-way cost was estimated at \$244,000. Right-of-way is required from Alameda County, San Francisco Public Utilities Commission (SFPUC), and Alameda County Water District (ACWD).

Caltrans first identified the need to replace the Alameda Creek Bridge in a 1997 Advanced Planning Study. Although the original project scope was to upgrade the existing nonstandard bridge railings and construct standard shoulders on the Alameda Creek Bridge, Caltrans' Headquarters Division of Engineering Services concluded that the existing bridge was not adaptable to staged removal and involved excessive complications associated with the fatigue analyses of the structure<sup>12</sup> (Caltrans, 2003). In 2012, Caltrans sponsored the Road Safety Analysis and Quantitative Road Safety Analysis (QRSA) study using Value Analysis/Explicit Road Safety processes and techniques. The results of the study focused on safety and included recommendations for roadway improvements in the Niles Canyon Corridor while minimizing the impacts to the environment where possible and prudent. Caltrans held a public meeting on July 30, 2012 allowing the Value Analysis team to present the findings of the study to interested parties. The Road Safety Analysis identified the existing Alameda Creek Bridge as a location in the Niles Canyon corridor where traffic safety could be improved by correcting existing deficiencies.

The purpose of the proposed Alameda Creek Bridge Replacement Project is to correct structural deficiencies of the Alameda Creek Bridge and its approaches while providing a facility that meets driver expectations of SR-84's operating speed, all of which improve safety (definition of terms included in Appendix H).

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<sup>12</sup> The purpose of this analysis is to determine internal forces, stresses, and deformations of structures under various load effects (Caltrans, 2015h).

In February 2015, Caltrans released the Alameda Creek Bridge Replacement Project Draft Environmental Impact Report (EIR) for public review and comment. CEQA guidelines specify that the lead agency must recirculate an EIR when there is significant new information added to the EIR after public notice of the Draft EIR. The Revised Draft EIR/Environmental Assessment (EA) for the Alameda Creek Bridge Replacement Project provided new information relevant to the proposed project. Per CEQA Guideline 15088.5 (g), a summary of revisions to the previously circulated Draft EIR was located in the Preface of the Revised Draft EIR/EA.

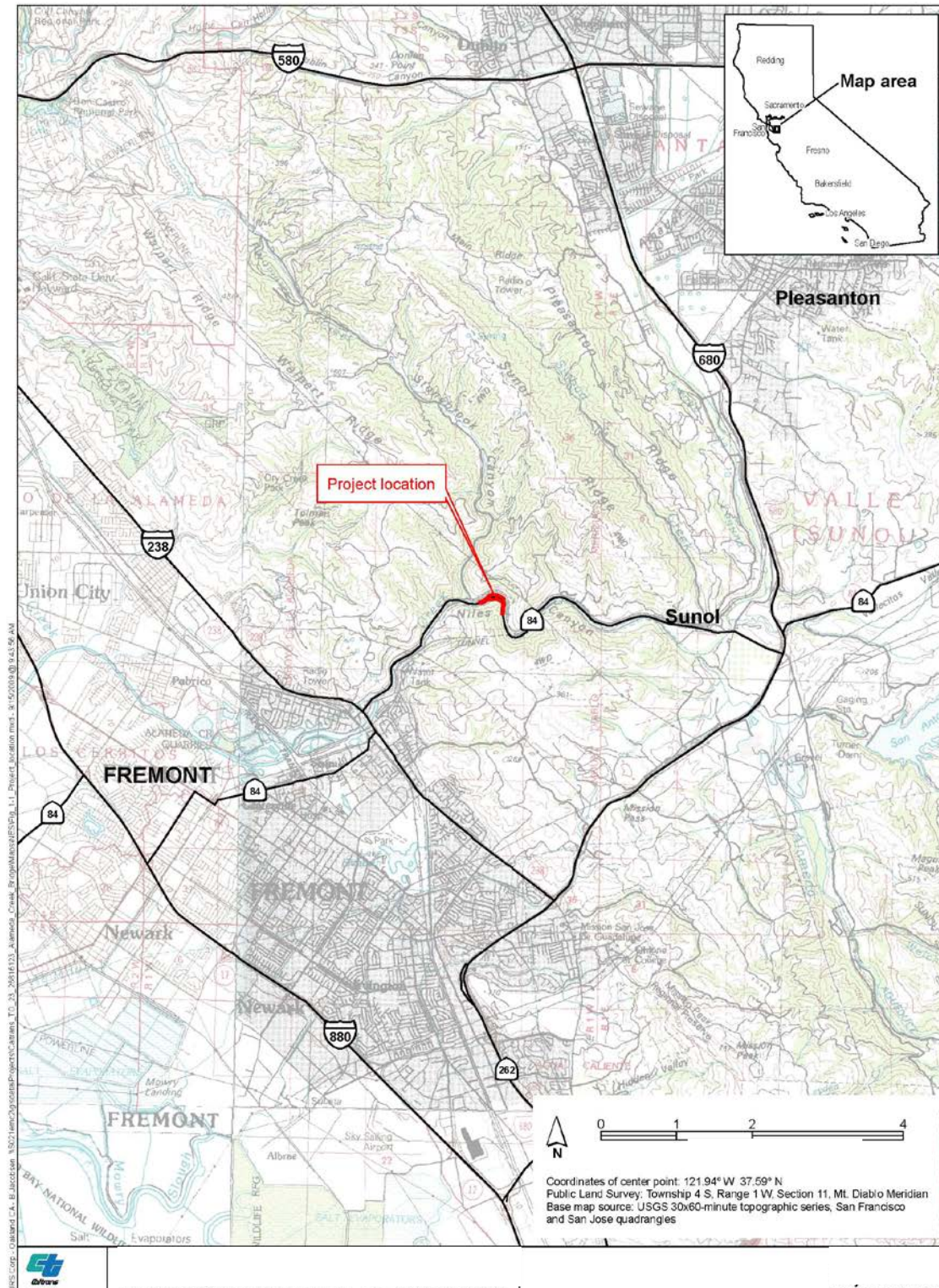
Comments received during the earlier circulation period are considered to be part of the project record, however, these comments will not receive a written response in the Final EIR/EA. Only comments submitted for the Revised Draft EIR/EA received a written response in the Final EIR/EA.

In addition to the Alameda Creek Bridge Replacement Project, Caltrans is also proposing the Niles Canyon Safety Improvements (Medium-Term Improvements) Project, which involves several spot safety improvements along SR-84, from Mission Boulevard (SR-238) to I-680. The Niles Canyon Safety Improvements Project (Medium-Term Improvements) involves the construction of various safety improvements including, but not limited to, the installation of two rock drapery systems, one location of curve correction, spot shoulder widening, and the signalization of the Pleasanton-Sunol intersection. Caltrans circulated the Draft EIR/EA for this project in October 2016 and held two public open forum hearings prior to the conclusion of the 45-day comment period on December 2, 2016. Within the Alameda Creek Bridge Replacement Project area, the Niles Canyon Safety Improvements Project (Medium-Term Improvements) is proposing to add safety lighting

In September 2016, Caltrans completed the Niles Canyon Safety Improvements Project (Short-Term Improvements) which involved several localized safety improvements along SR-84, from Mission Boulevard (SR-238) to I-680. These localized improvements included pavement markings (including bicycle sharrows, reflective roadside delineators, and object markings). All work associated with the Niles Canyon Safety Improvements project (Short-Term Improvements) occurred on pavement. A list of projects considered as part of the Alameda Creek Bridge Replacement Project's cumulative impact analysis is located in Section 2.4.2.



### Figure 1. Project Map



## 1.2 Purpose and Need

For Caltrans projects, a project's "Need" is an identified transportation deficiency or problem, and its "Purpose" is the set of objectives that will be met to address the transportation deficiency. A reasonable solution or range of solutions is developed and evaluated based on these objectives.

### 1.2.1 Project Purpose

The purpose of the proposed Alameda Creek Bridge Replacement Project is to correct structural and geometric deficiencies of the Alameda Creek Bridge and its approaches while providing a facility that meets driver expectations of SR-84's operating speed, all of which improve safety. A definition of terms used in the Project's Purpose and Need statement are included in Appendix H.

### 1.2.2 Project Need

The proposed action is intended to meet the following needs:

#### **Deficiencies of the Alameda Creek Bridge**

The original project scope was to upgrade the existing nonstandard bridge railings and construct standard shoulders on the Alameda Creek Bridge (Caltrans, 2003). On September 10, 1997, Caltrans' Headquarters Division of Engineering Services completed an Advance Planning Study with the objective of improving the operation and safety at the Alameda Creek Bridge location by upgrading to current design standards (Caltrans, 1997). Although the original project scope was to upgrade the existing nonstandard bridge railings and construct standard shoulders on the Alameda Creek Bridge, Caltrans' Headquarters Division of Engineering Services concluded that the existing bridge was not adaptable to staged removal and involved excessive complications associated with the fatigue analyses of the structure<sup>13</sup> (Caltrans, 2003). Staged removal of the Alameda Creek Bridge would entail the removal of half of the bridge in the longitudinal direction, construction of a wider replacement bridge in its place, transfer of vehicular traffic to the new bridge, removal of the remaining half of the existing bridge, and construction of the second half of the wider bridge. Removal of the existing bridge in stages would result in the bridge not being structurally adequate to carry traffic loads and would require the complete closure of SR-84 for an extended period of time. The route serves a large volume of regional traffic between the East Bay Area on the west and the Tri-Valley area on the east (Caltrans, 2012). Complete closure of SR-84 at the project location would sever the main regional connection between I-880 and I-680.

The bridge is not adaptable to staged removal and would not have the structural capacity to carry the additional weight of widening to provide standard shoulders. As a result, Caltrans' Division of Engineering Services determined it was more cost-effective to replace rather than upgrade the existing structure and recommended the construction of a new replacement bridge with a revised alignment. Reconstructing a new bridge at the existing location would involve long-term closures and would not

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<sup>13</sup> The purpose of this analysis is to determine internal forces, stresses, and deformations of structures under various load effects (Caltrans, 2015h).

address the geometric deficiencies that exist with the current Alameda Creek Bridge and its approaches.

In 2012, Caltrans conducted a Road Safety Analysis study on SR-84 between post miles 10.8 and 18.0, using Value Analysis/Explicit Road Safety processes and techniques. Using collision data supplied by Caltrans (from November 2007 to September 2010), the Road Safety Analysis identified five locations within the SR-84 corridor between Mission Boulevard (SR-238) and I-680 with safety needs. The Alameda Creek Bridge was identified as a location in Niles Canyon with unmet safety needs. In order to achieve the connectivity and safety goals of system planning, the deficiencies of the bridge should be addressed, which would also provide the safety benefits of a structure with improved geometry. Factors contributing to this assessment include the following facility deficiencies:

- *Restricted sight distances*
  - Restricted sight distance occurs when the continuous length of highway ahead is not visible to the highway user. The existing conditions at the Alameda Creek Bridge are considered to have restricted sight distance because of the tight radius curve on the approaches to the bridge. Due to the tight radius curve at this location, motorists driving the 45 mph speed limit do not have enough time to adjust to the tight curve, which is advised at 30 mph.
- *Low design speeds due to sharp curve radii at bridge approaches*
  - Although the speed limit of the Niles Canyon corridor is 45 mph, the existing conditions at the Alameda Creek Bridge have posted advisory signs that recommend that the bridge be driven at 30 mph going eastbound and 35 mph going westbound. Motorists driving at the 45 mph speed limit through the Niles Canyon corridor are not anticipating the 30 mph and 35 mph curves and as a result, do not have enough time to adjust to the tight curve radii at the Alameda Creek Bridge.
- *Bridge railings that do not offer the structural integrity of modern railing*
  - Unlike modern railing, the existing 1928 bridge railings do not provide the capability to redirect vehicles back into the roadway in the event of a collision.
- *Lack of width for vehicular maneuvers to avoid collisions and room for bicyclists to share the roadway*
  - The existing Alameda Creek Bridge has no shoulders. Eight-foot shoulders are an important safety feature that allow vehicles to take corrective action to avoid collisions, provide room for disabled vehicles, and provide width for bicyclists to ride in if they do not wish to take the travel lane.

The Alameda Creek Bridge has exceeded its useful service life and, at 89 years old (as of 2017), has exceeded the original 50-year design life of the structure. The bridge exhibits signs of structural deterioration with spalling concrete exposing the underlying reinforcing steel to the elements and to rusting. Although the bridge is structurally adequate as of 2017, it is currently classified as “functionally obsolete”, meaning it is no longer functionally adequate for its task due to the design deficiencies listed above.

The existing railing does not perform as well as modern railing when hit, and, with the lack of shoulders, there is no space provided for motorists maneuvering to avoid collisions.

### **Safety**

The safety deficiencies of the Alameda Creek Bridge include the sharp curve radii at the western and eastern approaches to the bridge, the non-standard shoulder width at the bridge, lack of median buffer/centerline rumble, and the non-standard bridge railing.

From 1/1/2003 to 12/31/2013<sup>14</sup>, there were a total of 23 traffic collisions reported at the Alameda Creek Bridge from postmile 13.2 to 13.6<sup>15</sup>. Of the 23 traffic collisions, none resulted in fatalities and 12 resulted in injuries (Caltrans, 2016b). There were four (17%) cross-centerline, two (9%) head-on, three (13%) sideswipe, and seven (30%) run off the road collisions (Caltrans, 2015a). These types of collisions were associated with most of the serious injury accidents along the corridor. Significant numbers of collisions (44%) were hit-object type collisions (Caltrans, 2016b). Objects hit included side of bridge railing, bridge approach guardrail, cut slope or embankment, natural material on roads, other vehicles, etc. (Caltrans, 2016b). In addition, there were four (17%) Driving Under the Influence (DUI) related accidents, and one (4%) accident involved a pedestrian or bicyclist (Caltrans, 2016b).

In 2007, Caltrans installed grooved centerline rumble strips from just east of Route 238 (Mission Boulevard) (PM 11.1) to just west of the Silver Springs Underpass (PM 16.7) as part of a safety improvement project along the Niles Canyon Corridor. Caltrans excluded the Alameda Creek Bridge and its approaches (PM 13.314/13.501) from the grooved centerline rumble strip installation as there is not sufficient lane width on the bridge for rumble strips; instead, only modified median striping details were placed on the bridge.

Accident data were further analyzed during the pre-rumble strip installation period (available 58 months, from 1/1/2003 to 10/31/2007) and the post-rumble strip installation period (available 74 months, from 11/1/2007 to 12/31/2013), by looking at the accident patterns within the project limits separately<sup>16</sup>. A breakdown of the accident

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<sup>14</sup> As of January 2016, the latest Traffic Accident Surveillance and Analysis System (TASAS) accident data available is through up to 12/31/2013. TASAS data are continuously updated to California Highway Patrol (CHP)'s reported accident data. The time lag for the latest available values is the data processing time required to convert the CHP's California Statewide Integrated Traffic Records System (SWITRS) to Caltrans' TASAS System.

<sup>15</sup> Although the project limits for the Alameda Creek Bridge Replacement Project extend from 13.0 to 13.6, postmile 13.0 to postmile 13.2 (extending all the way to the Palomares Road intersection and the Farwell Union Pacific Railroad Underpass), these locations have different geometrics than the subject Alameda Creek Bridge Replacement Project location. Extending the traffic safety analysis to the Palomares Road Intersection would therefore include accident data that are not relevant to the Alameda Creek Bridge Replacement Project. For this reason, PM 13.2 was selected as the appropriate beginning postmile for the traffic safety analysis.

<sup>16</sup> Caltrans TASAS Office only keeps 10-year data; older data are discarded. As of January 2016, the earliest data that is available is dated 1/1/2003 and the latest data that is available is up to 12/31/2013.

data within the project limits (PM 13.2/13.6) during the pre- and post-rumble strip installation period is provided below:

Pre-rumble Strip: There were a total of 10 accidents out of which seven involved injuries in the 58 months of pre-rumble strip installation period from 1/1/2003 to 10/31/2007. The actual total accident rate (0.93) was less than the statewide average (1.30) during the three-years of pre-rumble strip installation period (11/1/2004 to 10/31/2007). However, the actual Fatal + Injury (F +I) rate (0.78) was higher than the state average rate of 0.55 during the same three-year study period for similar facilities<sup>17</sup> of the State Highway System.

Post-rumble Strip: There were a total of 13 accidents out of which five involved injuries in the 74 months of post-rumble strip installation period from 11/1/2007 to 12/31/2013. The actual total accident rate (1.33) was slightly higher than the statewide average (1.30) during the three-years of post-rumble strip installation period (11/1/2007 to 10/31/2010). Also the actual F+I rate (0.67) was higher than the state average rate of 0.55 during the same three-year study period for similar facilities of the State Highway System.

#### **Driver Expectations of SR-84 Operating Speed**

In 2008, Caltrans conducted a speed survey within the corridor between post miles 10.83 and 17.98 so that radar enforcement could be utilized to identify the Critical Speed. The Critical Speed is defined as the 85<sup>th</sup> percentile speed which is the speed at or below which 85% of vehicles travel (California Vehicle Code Section 22354). Although the existing speed limit in the Niles Canyon corridor is 45 mph, the survey concluded that the average Critical Speed between post mile 10.83 and 17.98 is 47.8 mph in the eastbound direction and 47.7 mph in the westbound direction within those limits. Various speed survey points within the immediate Alameda Creek Bridge Replacement Project vicinity (post miles 13.0 to 13.6) identify that the Critical Speed is 45 mph and above (even though there are advisory speed signs at both approaches to the Alameda Creek Bridge).

Driver expectations play a large role in the accident pattern at the Alameda Creek Bridge. There are posted advisory speed signs recommending that the bridge be driven at 30 miles per hour (mph) going eastbound and 35 mph going westbound. Even though these advisory speed warning signs are at both approaches to the Alameda Creek Bridge, there is a pattern of drivers leaving the roadway on the outside of the curve due to the tight-curve radius on the western end of the Alameda Creek Bridge. This history of accidents indicates that the existing conditions of the roadway alignment are inconsistent with driver expectations of SR-84's operating speed. Research by the Federal Highway Administration (FHWA) suggests risks of crashes increase with increasing differentials in speed. Such differentials can be between adjoining highway

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<sup>17</sup> Similar facilities pertinent to this segment of SR-84 refer to existing roadways with similar characteristics/geographical suburban/urban conventional two-lane highways in the California Highway System.



sections (change in 85th percentile speeds due to changes in roadway geometry) or between speeds of vehicles in the same traffic stream (FHWA, 2014).

**Table 1. Relative Risk of Differential Speed Caused by Changes in Roadway Geometry**

Speed Differential ( $\Delta V$ =Change in Velocity)	Safety Risk
$\Delta V < 5$ mi/hr	Low
$5 \text{ mi/hr} < \Delta V < 15$ mi/hr	Medium
$\Delta V > 15$ mi/hr	High

Table 1 classifies the relative risks of differential speed caused by changes in roadway geometry. Research suggests that crash rates may rise with increasing differential speed (FHWA, 2014a). This table informs Caltrans of design standards to address relative risks. According to Table 1, the speed differential caused by the changes in roadway geometry between adjacent sections of the roadway and the existing 30 mph curve on the westbound Alameda Creek Bridge approach categorizes the existing condition as a “high” safety risk (FHWA, 2014a). The speed differential between adjacent sections of the roadway and the existing 35 mph curve on the eastbound Alameda Creek Bridge approach categorizes the existing condition as a “medium” safety risk.

### 1.2.3 Independent Utility and Logical Termini

Logical termini for a project are defined as rational end points for transportation improvements. These rational end points should facilitate a thorough review of the environmental impacts. A project with independent utility is defined as improvements that are usable and provide a reasonable expenditure even if no additional transportation improvements are made in the area.

The Alameda Creek Bridge is considered “functionally obsolete”, meaning it is no longer functionally adequate for its task due to various design deficiencies. These design deficiencies include bridge railing that does not offer the structural integrity of modern railing, the lack of width for maneuvers to avoid collisions, and lack of width for bicyclists to ride in if they do not wish to take the travel lane.

As discussed in Sections 1.2.1 and 1.2.2, Purpose and Need, there is a pattern of drivers leaving the roadway on the outside of the curve due to the tight-curve radius on the western end of the Alameda Creek Bridge. This history of accidents indicates that the existing conditions at this section of the roadway alignment are inconsistent with driver expectations of SR-84’s operating speed. Furthermore, various speed survey points within the immediate Alameda Creek Bridge Replacement Project vicinity identify that the Critical Speed is 45 mph and above (even though there are advisory speed signs at both approaches to the Alameda Creek Bridge). The proposed project would replace the existing Alameda Creek Bridge and realign the bridge approaches while maintaining the existing two-lane SR-84 highway configuration. Post miles 13.0 and 13.6 were selected as the beginning and end points, respectively, for the project, as these are the locations where the profile of the new roadway matches the profile of the existing SR-84 alignment. The proposed project is not dependent on other capacity increasing or operational

improvements in the vicinity. Therefore, it was determined that the project has independent utility and logical termini.

### 1.3 Project Description

The Alameda Creek Bridge Replacement Project proposes to replace the Alameda Creek Bridge and realign the bridge approaches on SR-84 from postmile 13.0 to 13.6. The purpose of the proposed Alameda Creek Bridge Replacement Project is to correct structural deficiencies of the Alameda Creek Bridge and its approaches while providing a facility that meets driver expectations of SR-84's operating speed, all of which improve safety (definition of terms included in Appendix H). Four build alternatives have been carried forth for further analysis in this Revised Draft EIR/EA and are described in greater detail in Section 1.4. As a point of clarification, the No-Build Alternative is considered one of the alternative options that Caltrans could select. Other alternatives were previously considered but eliminated from further discussion, as described in Section 1.4.8.

### 1.4 Alternatives

Section 1.4 discusses the range of alternatives that would meet the purpose and need of the project. These alternatives include four Alternatives and the No-Build Alternative. After comparing and weighing the benefits and impacts of all feasible alternatives, the Caltrans Project Development Team (PDT) identified Alternative 3B as the Preferred Alternative, subject to public review. Alternative 3B is the preferred alternative because it meets the project's purpose and need while minimizing and avoiding environmental impacts to natural communities and habitats. Final selection of the Preferred Alternative will occur after public review and comment.

#### 1.4.1 Common Features of all Build Alternatives

##### *Traffic Safety Features*

The project would install enhanced thermoplastic striping with high-visibility glass beads, shadow striping on the concrete deck, standard bridge railing and delineators on railing, sharrow (refer to Figure 2) pavement markings on the bridge roadway and approaches, a two-foot median soft barrier (suitable for a rumble strip), and rumble strips on the shoulders of the newly aligned portions of SR-84. The existing black and yellow 30 mph advisory sign going eastbound on the Alameda Creek Bridge would be replaced with a 35 mph advisory sign and the existing 35 mph advisory sign going westbound on the Alameda Creek Bridge would remain.

**Figure 2. Sharrow**



##### *Geotechnical Investigations*

The locations for geotechnical investigations would be the same under all four Alternatives and these investigations would be completed in order to obtain geotechnical and geologic samples of the supporting strata for the new bridge structures. Caltrans plans to sample at approximately thirteen locations within the project limits; borings would be conducted at

the locations of the two proposed bridge abutments, two of the concrete support columns, western bridge approach and eastern bridge approach. Drill holes would be closed using backfill with neat cement grout by tremie method in accordance with Alameda County Water District (ACWD) requirements. The tremie method consists of using a pipe, through which concrete would be placed below water level. The lower end of the pipe would be kept immersed in fresh concrete so that the rising concrete from the bottom displaces the water without washing out the cement content.

Although the impacts from the geotechnical investigations were analyzed in this project and included in this environmental document, a separate Categorical Exemption/Categorical Exclusion (CE/CE) was prepared based on this analysis. The stand-alone CE/CE and applications for the geotechnical investigation permits were submitted independently prior to the completion of this Final EIR/EA. Permits issued by resource agencies would authorize the completion of the geotechnical investigations within the allowed work window to avoid species impacts.

#### *Temporary Creek Diversion*

A temporary creek diversion<sup>18</sup> is proposed to create a dry working environment within the creek bed during each of the three annual construction windows proposed over the duration of the project. A dry working environment for the column and foundation concrete operations would prevent alkaline concrete materials from entering Alameda Creek. All work within suitable aquatic habitat for steelhead and California red-legged frog would occur between June 1 and October 15, when there is less potential for these species to enter the work area.

The same temporary creek diversion limits are proposed for each construction window. The temporary creek diversion involves the installation of two temporary earthen dams, one upstream of the work area to prevent inflow, and one downstream to prevent backflow. Temporary impacts to construct and maintain the temporary creek diversion would extend 54 feet upstream of the remnants of the former bridge footings and concrete wall (weir) and 54 feet downstream from the drip line of the existing Alameda Creek Bridge. All construction equipment used for the construction of the creek diversion would use the construction access roads created for geotechnical borings.

The means and methods of the installation may include installation of temporary berms (plastic-wrapped gravel bags or Aquadams) to create a dry working environment for the installation of the temporary earthen dams, and to control sediment dispersal within the creek. In addition, a cutoff wall may be necessary to reduce the flow of water through the substrate under the upstream dam and/or temporary berms. The cutoff wall would consist of a two-foot deep by two-foot wide trench, spanning the width of the creek, with impermeable material placed below grade to reduce seepage into the work area. The trenching and construction of the cut off wall would not occur in the flowing Alameda

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<sup>18</sup> All technical studies associated with the Alameda Creek Bridge Replacement Project evaluated the environmental impacts associated with the construction of the temporary creek diversion as it would be constructed as part of the project.



Creek; the berm would be built first, followed by the trenching and construction of the cut off wall.

The temporary earthen dam would be constructed 30-foot wide at the base, approximately six-feet tall, with 2:1 side slopes. Prior to placement of the dam, sharp objects, boulders, and cobbles would be removed from the dam area to create a smooth streambed and prevent channels by which water can pass beneath the dam after it is built; these objects would be removed by hand or, if necessary, by a grapple located on either side of the creek. The water would flow by gravity through the construction site in a single, four foot-diameter pipe; the pipe would run along the southern bank of the creek as to not impede access across the construction area.

An additional area of 12 feet upstream from the upstream base of the dam, and 12 feet downstream from the downstream base of the dam, is proposed for access to construct the temporary dam, and may have temporary impacts due to construction/equipment staging.

A temporary roadway/ramp would be constructed in the dry creek bed for each individual creek diversion construction window and would be constructed of native creek material. Heavy equipment, trucks, the drill rig, and other construction equipment would use this temporary roadway/ramp while working in the creek area. All work within suitable aquatic habitat for steelhead and California red-legged frog would occur between June 1 and October 15, when there is less potential for these species to enter the work area.

During the demolition of the existing Alameda Creek Bridge, the area underneath the bridge and extending approximately 10 feet from either edge of the bridge would be covered with a temporary ground cover consisting of plastic sheets, tarps, and/or plywood sheets. No temporary stockpiling of material in the creek is proposed; if any material falls into the creek during the demolition of the bridge, it would be removed immediately.

#### *Storm Water Treatment*

Storm Water Treatment is considered part of every Caltrans project and as such, Caltrans would incorporate stormwater treatment system(s) within the project area to treat the roadway runoff to remove pollutants. During the design phase of the project, Caltrans would consider best practice and best available technology (BAT) in selecting the stormwater treatment system. The Alameda Creek Bridge Replacement Project's conceptual drainage consists of sheet flow down the side slopes with no new outfalls anticipated for drainage. The preferred technology at this location would be bioretention systems because this system addresses both treatment and hydromodification. Hydromodification refers to the changes in natural watershed hydrological processes and runoff characteristics caused by urbanization or other land use changes.

It is anticipated that bioretention systems would be located at two locations along the realigned western approach to the Alameda Creek Bridge. Consideration is also being given to an alternative outfall at the western alignment approach, which appears to be a natural depression with high infiltration capacity. This natural depression currently serves as an outfall for a large portion of runoff from the adjacent railroad embankment and

beyond. This complication may render this natural depression unusable as a new outfall. The project would require a new drainage outfall on the new western alignment to accommodate bioretention systems. Biostrips would also be considered because they can be placed in the clear recovery zone (defined as an area clear of fixed objects adjacent to the traveled way).

The runoff collection system off the roadway would consist of either dikes and downdrains or sheetflow down the sideslopes to toe-of-slope ditches.

Standard stormwater measures, implemented as part of all Caltrans projects, would be implemented as part of the Alameda Creek Bridge Replacement Project and include the following:

- A Storm Water Pollution Prevention Plan (SWPPP), presenting the strategy for implementation of temporary construction site BMPs, will be prepared by the contractor and approved by Caltrans.
- Water samples will be taken upstream and downstream of the Alameda Creek Bridge Replacement Project to establish a baseline to limit the amount of pollutants that leave the project site in accordance with the State Water Resources Control Board (SWRCB) Construction General Permit (Order No. 2012-006-DWQ),
- Stockpiling of areas for construction materials, equipment, and debris will avoid the removal of riparian and upland vegetation.
- Caltrans Standard Best Management Practices (BMPs) will be implemented to avoid or minimize the pollutant discharge during and after construction to the maximum extent practicable. These BMPs are grouped by the following categories:
  - Design Pollution Prevention BMPs are post-construction measures that improve runoff quality by reducing erosion, stabilizing disturbed soil areas, and maximizing vegetated surfaces. Design Pollution Prevention BMPs may include riprap for drainage improvements. Erosion control measures will be provided on all disturbed areas.
  - Temporary Construction Site BMPs are implemented during construction activities, to avoid and minimize pollutant loads in stormwater/non-stormwater discharges. Construction Site BMPs strategies for this project include:
    - Soil Stabilization: scheduling, preservation of existing vegetation, slope protection, slope interrupter devices, and channelized flows;
    - Perimeter control: Silt fences and inlet protection
    - Tracking Controls: stabilized construction entrance and exits; and street sweeping
    - Wind Erosion Controls: temporary covers;
    - Non-Stormwater Management: vehicle and equipment operations (fueling, cleaning and maintenance), and material and equipment use;
    - Waste management and Materials Pollution Control: concrete wash-out, material delivery and storage, material use, stockpile management, spill prevention and control, soil waste management, hazardous waste and/or contaminated soil management, liquid waste management and lead abatement and containment.

- Permanent Treatment BMPs are post-construction quality control measures used to remove pollutants from stormwater runoff prior to being discharged from Caltrans right-of-way. Treatment BMPs will include biofiltration strips or swales with or without soil amendment.
- Hydromodification Management (HM) Controls are permanent measures used to control increases in peak runoff flow and volume from the project's new impervious surfaces. HM controls include infiltration trenches and bio-retention systems, which are not a standard Caltrans BMP.

The Regional Water Quality Control Board determines treatment and hydromodification requirements on a project by project basis for projects requiring 401 certifications. The San Francisco Bay Regional Water Quality Control Board typically accepts bio-retention systems for addressing hydromodification and treatment. These provide storage for runoff that helps to attenuate peak flows and maintain an acceptable flow-duration regime. Accommodation of bioretention systems as well as infiltration trenches and enlarged drainage pipes will be employed to address hydromodification fully.

### *Bridge Demolition*

Demolition of the existing Alameda Creek Bridge would occur following the transfer of traffic to the new Alameda Creek Bridge. The existing bridge would be demolished beginning in the middle of the bridge span and working outwards. A falsework platform structure would be installed below the bridge prior to dismantling to prevent debris from falling into Alameda Creek. The existing concrete railings would be jack hammered and removed in smaller pieces. It is anticipated that segments of the Alameda Creek Bridge superstructure would be saw cut into relatively large pieces and removed by a crane situated on the abandoned SR-84 road alignment. Following the removal of the bridge, construction equipment would access Alameda Creek using the abandoned SR-84 alignment and a ramp down into the dry streambed in order to remove the columns. The columns would be jackhammered and cut down to approximately two feet below streambed elevation with a hoe ram (a piece of equipment similar to a jackhammer). The steel portions would be reclaimed and recycled.

For demolition work, a backhoe or excavator with a fitted hoe ram would be used to break up the abutments. A loader would then be used to collect the debris to be hauled away by trucks. During the demolition of the old Alameda Creek Bridge, the area underneath the bridge deck and extending approximately 10 feet from either edge of the bridge would be covered with a temporary ground cover consisting of plastic, sheets, tarp, and/or plywood sheets. No temporary stockpiling of material in the creek would be proposed; if any material falls into the creek during the demolition of the bridge, it would be removed immediately.

The final stage of the proposed project would be the removal of the old approach pavement on either side of the bridge, down to the subbase with an excavator. The road surface and road foundation materials from the abandoned SR-84 alignment would be removed and

disposed of off-site. After clearing and removal, the old road grade would be re-contoured to match the surrounding area, restored, and planted with native vegetation.

#### *Weir Removal*

The project also proposes to remove the existing footings and wall of a former bridge, located approximately 100 feet upstream of the existing Alameda Creek Bridge (refer to Figures 3 and 4). These bridge footings and concrete wall act as a weir and serve as a low-flow fish passage barrier. Per preliminary discussion and consultation with the United States Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), California Department of Fish and Wildlife (CDFW), and National Marine Fisheries Service (NMFS), the removal of these bridge footings would address anticipated compensatory mitigation requirements for project impacts under the federal Endangered Species Act (ESA) consultation and the following permits: 1602 Streambed Alteration Agreement and Clean Water Act (CWA) Section 404 and 401 permits

Currently, two bridge footings and a concrete weir (wall) are located in the creek.

**Figure 3. Location of Weir in proximity to Alameda Creek Bridge**



**Figure 4. Old Bridge footings and Wall (Concrete Weir) Proposed for Removal****Table 2. Dimensions for Existing Weir**

Description	Length (feet)	Width (feet)	Height (feet)	Concrete removal (cubic yards)*
Footing 1	33	14	6	103
Footing 2	30	14	6	94
Wall	152	3	6	102
<b>Total concrete removal:</b>				<b>299</b>

\*The concrete removal quantities assume a four foot height for each of the bridge footings and for the concrete wall and two feet below original ground.

Access to the creek bed for weir removal would be via construction access roads or already existing roads created to conduct geotechnical borings. With the temporary creek diversion in place for the demolition of the existing Alameda Creek Bridge, the demolition of the concrete weir would occur simultaneously. Caltrans water quality BMPs would be implemented to minimize creek impacts (Caltrans, 2010b). A temporary ground cover would be used to minimize debris in the creek during weir demolition. A backhoe or excavator with fitted hoe ram would be used to break up the weir wall and foundations. A loader would be used to collect debris to be hauled away by trucks.

#### *Bridge Railing*

ST-70 is proposed as the bridge railing option for the Alameda Creek Bridge. ST-70 is a metal, see-through rail. Refer to Section 2.1.4 Visual/Aesthetics for visual simulations of the proposed Alameda Creek Bridge with the ST-70 bridge railing.

*Width of the new bridge structure and east/west bridge approaches*

The total width of the new bridge would be 46 feet, consisting of a two-foot wide median barrier, two 12-foot wide travel lanes, two eight-foot shoulders, and two feet on either side of the bridge for the installation of the bridge railing. The new east and west bridge approach alignments would be 48-feet wide consisting of a two-foot soft median barrier (suitable for a rumble strip), two lanes that are 12 feet wide with eight-foot shoulders in each direction, and two, three-foot unpaved “chokers” (also known as an unpaved three-foot shoulder).

*Utility Relocation*

It is anticipated that two utility poles within the project limits would need to be relocated. Construction impacts associated with pole relocation would be the auguring of holes (from the roadway) and installation of new poles in these holes. The auguring would create holes approximately 18-inch-in-diameter and seven-feet deep.

*Revegetation*

In areas of temporary construction impact, appropriate replacement native vegetation would be planted in locations where it would not affect roadway safety. The old alignment would be remediated and replanted with appropriate native vegetation/trees. Specifications regarding vegetation and tree replacement would be provided during the design phase of the project.

Invasive giant reed (*Arundo donax*) and pampas grass populations located within the project footprint would be removed and replaced with native vegetation.

*Right-of-Way Requirements*

Where construction activities would occur outside of existing Caltrans Right-of-Way, appropriate fee or easement acquisitions would be acquired prior to project implementation. Table 3 summarizes the proposed permanent right-of-way acquisitions (fee), temporary construction easements (TCEs), and the agencies associated with the property acquisitions or easements.



**Table 3. Proposed Right-of-Way Requirements by Alternative**

Alt.	Alameda County Railroad (sq. feet)		Alameda County Water District (sq. feet)		San Francisco Public Utility Commission (sq. feet)		Total R/W Partial Acquisition Fee (sq. feet)	Total Area TCE (sq. feet)
	Fee	TCE	Fee	TCE	Fee	TCE		
1	97,140	None	13,834	None	23,769	None	134,743	0
2	54,006	None	14,215	None	37,316	None	105,537	0
3A	75,099	4,108	16,161	None	35,538	11,970	126,798	16,078
3B	75,099	3,782	11,230	None	17,106	5,072	103,435	8,854

### 1.4.2 Unique Features of Alternative 1

#### *Box-girder section*

The box-girder section of the bridge would be 410-feet long, 46-feet wide, and six-feet deep. The new bridge would be a three-span concrete structure supported by two on-land abutments and two concrete support columns. One column would be placed in the stream and the other column would be located outside of the stream channel. The concrete girders and the bridge deck would be placed on top following the construction of the abutments and columns. The equipment used for this operation would be placed on the temporary access areas created for the bridge construction. The new bridge surface would be banked through the curve of the bridge traverse to allow for safer travel.

#### *Foundations*

Each of the two columns for the new bridge would be installed using the cast-in-drill-hole (CIDH) method. Each column would be 5.5 feet by 8.0 feet, ship-shaped (flattened oval) in cross section. Each column would be installed using a 10-foot-in-diameter CIDH pile that would be drilled using a rig-mounted auger. Rebar would be placed in the holes and the holes filled with concrete. The rebar would be extended beyond the holes for connection with columns. Isolation casing consisting of a steel cylinder would be placed at the location of the pile hole and driven into the alluvium deposits of Alameda Creek, no deeper than 15 feet. The groundwater from dewatering during the construction of the CIDH piles would be placed into a settling tank before being released at a site downstream. All dewatering would adhere to Caltrans dewatering Best Management Practices (BMPs) Manual (Caltrans, 2010b). Forms would be placed around the rebar extending out of the footings and filled with concrete to construct the columns.

The foundations of the eastern and western bridge abutments would be supported by spread footings. The bridge abutment foundations would also be supported by CIDH piles; each abutment would be supported by a row of fourteen piles, each of which is approximately 16-inch-in-diameter, drilled to a depth that would provide a stable foundation.

#### *Temporary Falsework*

Construction of box-girder sections would involve the placement of falsework within the Alameda Creek channel. With the implementation of the temporary creek diversion, a dry working environment is anticipated to set up the temporary falsework. Access to the creek bed for the construction of the temporary falsework would be via previously constructed access roads used for the geotechnical borings. All falsework installation and removal would be completed between June 1 and October 15.

#### *Pavement Section*

The project would construct a new, two-lane roadway section along a northern alignment, parallel to the existing SR-84 alignment. The new alignments for both the western and eastern bridge approaches would be a maximum distance of 75 feet north of the current SR-84 alignment. The new alignments would connect the new bridge to the existing SR-84 alignment which conforms at the western and eastern project limits. The new western approach alignment would be 1,400-feet long while the new eastern alignment approach would be 1,200-feet long (consisting of both overlay and widening). The western alignment



approach requires embankment fill for its entire length. The embankment would have 2:1 slopes on the northern side (railroad tracks side) and 4:1 slopes on the southern side.

The roadway on the sections of new alignment would consist of a twelve-foot lane in each direction, eight-foot shoulders, a two-foot median soft barrier (suitable for a rumble strip), and an unpaved three-foot “choker” (also known as an unpaved three-foot shoulder) on each side, for a total of 48 feet (42 feet is completely paved; 48 feet total including the unpaved three-foot chokers). In order to connect the bridge with the old alignment, the roadway would go through one curve of radius 705-feet.

To construct the new pavement section, the path of the new alignment would be cleared and grubbed, and the original ground excavated or filled as necessary to create a path traversable at the planned design speed (accomplished with a bulldozer equipped with a scraper), and the area compacted with a compactor. The proposed roadway would be built on the embankment and would be approximately two-feet thick. The structural section would then be built up by placing pavement structural subbase followed by asphalt concrete; each layer would be compacted after having been applied. The existing asphalt concrete would be overlaid with new asphalt concrete at the conform area. Temporary construction impacts for areas not constructed on fill would not extend beyond the edge of the new roadway.

#### *Western Approach: Grading and Fill*

To construct the new western alignment, fill would be used to raise the roadway profile by up to 16.3 feet from the northern edge of the new bridge to the western conform with the existing alignment. Along the new alignment, the area of fill would extend to the south from a minimum of three feet up to a maximum of eight feet from the proposed new east bound (EB) edge of pavement for a distance of 1,400 feet to establish a 4:1 embankment slope. The area of fill would extend to the north from a minimum of three feet up to a maximum of 40 feet from the proposed new westbound (WB) edge of pavement for a distance of 1,400 feet to establish a 2:1 embankment slope. The maximum width of the embankment from toe-of-slope to toe-of-slope is 80 feet. To construct the embankment, no excavation is required. Engineered fill and/or native material would be installed using dump loaders and compactors. Where space allows, the final four inches of fill would be stockpiled native topsoil or imported topsoil. Revegetation of any disturbed areas would occur post-construction in accordance with Caltrans Standard Specifications (Caltrans, 2010b).

#### *Eastern Approach: Type 1 Retaining Wall and Soil-Nail Wall*

As part of the eastern approach realignment component of the project, a 1,090-foot long soil-nail wall and a 1,190-foot long retaining wall would be constructed. The 1,090-foot long soil-nail wall would be constructed east of the existing bridge and immediately south of SR-84, where the hillside adjacent to SR-84 is cut. The soil-nail wall would vary in height from a minimum of four feet to a maximum of 20 feet. The slope above the soil-nail wall would remain at its existing 1½:1 slope. No vegetation above the soil-nail wall would be disturbed. The wall installation would be completed during the first phase of

construction so that two-lane traffic could be maintained during subsequent construction activities.

The eastern approach realignment and widening also requires a Type 1 retaining wall. The Type 1 retaining wall would be approximately 1,190-feet long and 20-feet wide with an average height of 17 feet, a minimum height of 13 feet, and a maximum height of 36 feet, along the northern bank of Alameda Creek. The Type 1 retaining wall would consist of a concrete retaining wall with spread footing that is supported by CIDH piles. Installation of these piles would be similar to the methods discussed above in the design and construction of the new bridge. Although the maximum height of the retaining wall is 36 feet, the footings would be installed approximately five feet below the finished grade so the wall would appear to be a maximum of 31 feet in height.

The existing concrete slope pavement, approximately 16,100 square feet and 8,100 cubic feet, along the west bank of Alameda Creek would be completely removed in order to construct the Type 1 wall footing. Temporary shoring would be used for the Type 1 wall excavation and construction.

Figure 5. Alternative 1 Design Plan

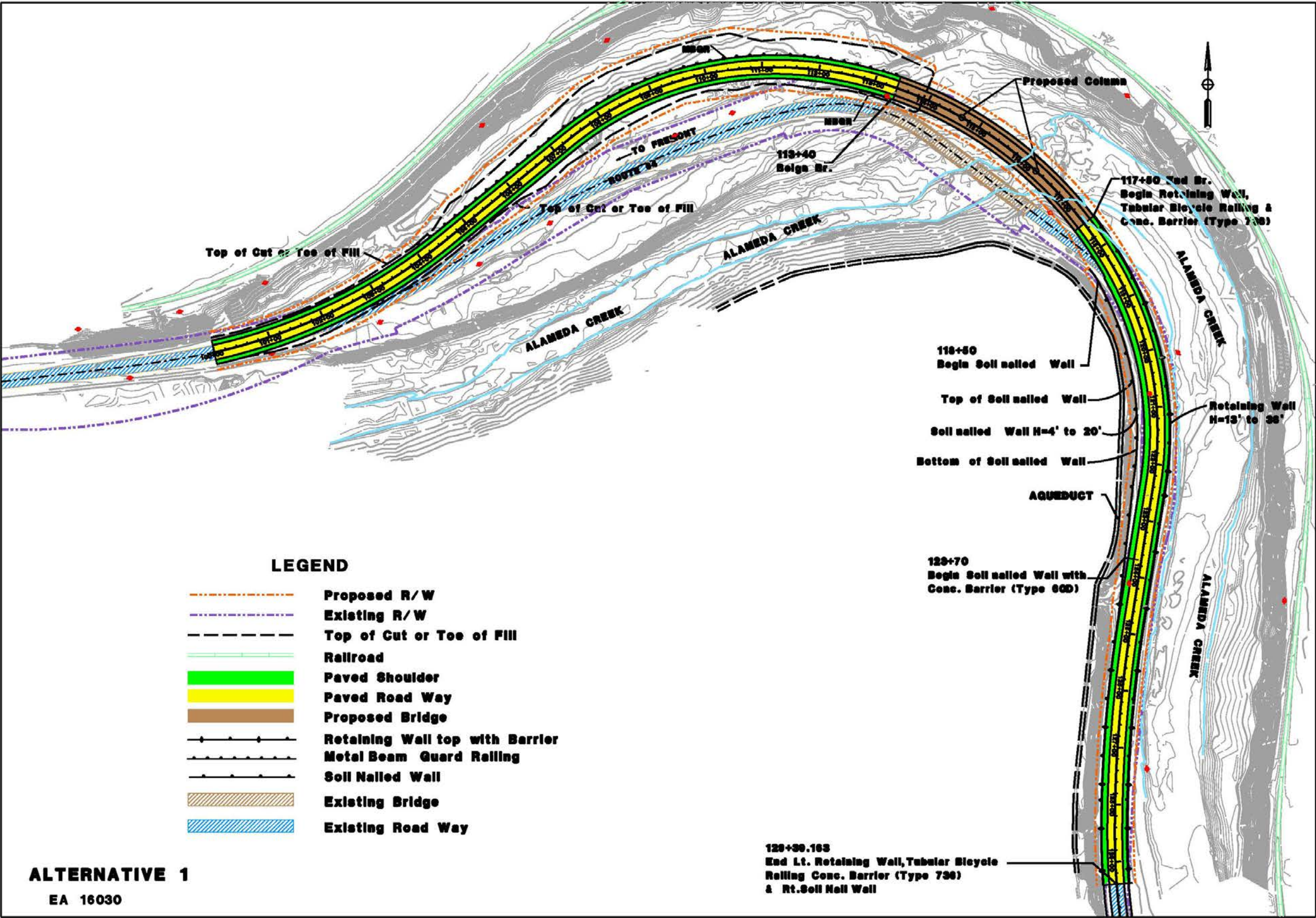
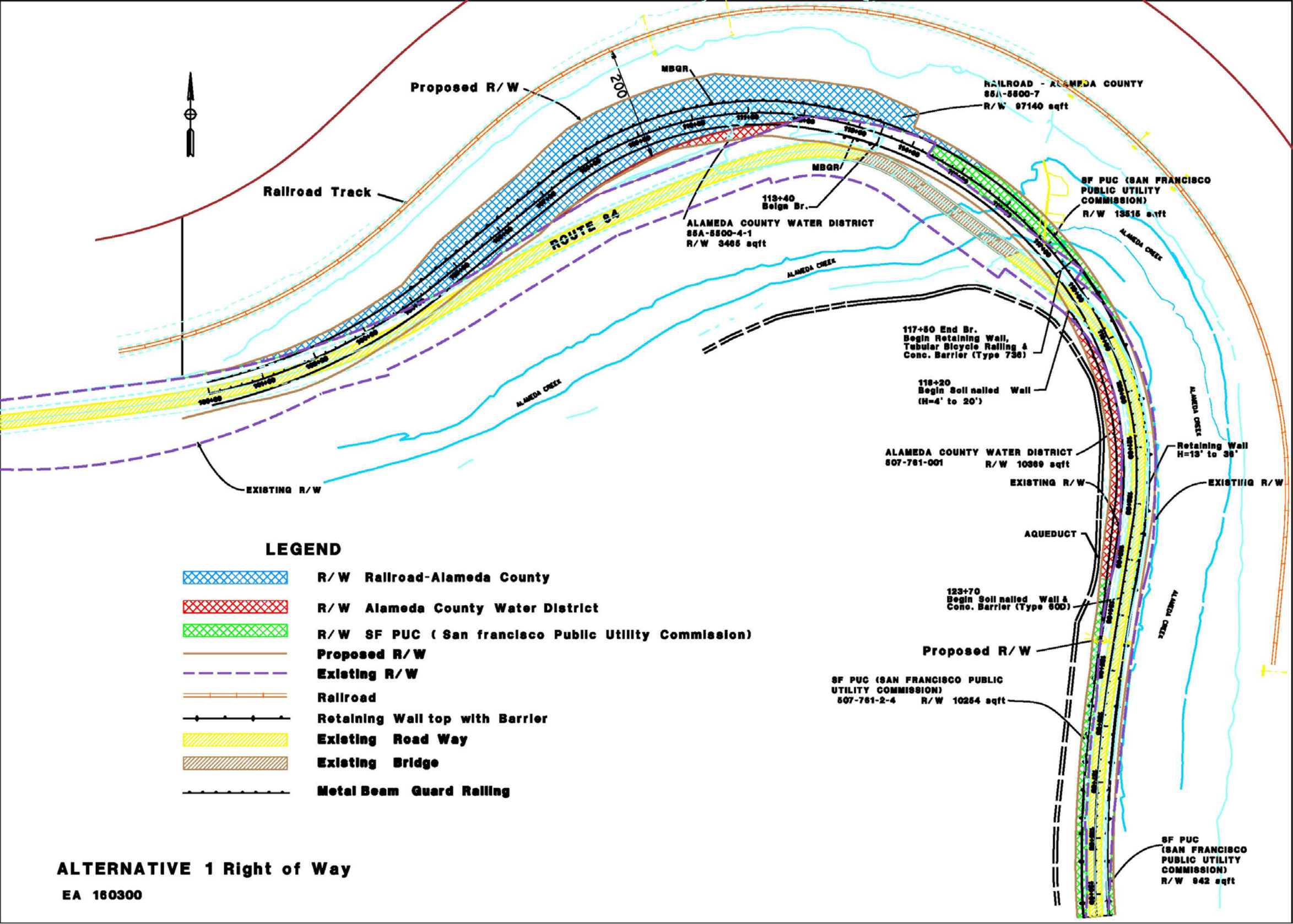




Figure 6. Alternative 1 Proposed Right-of-Way Requirements



### 1.4.3 Unique Features of Alternative 2

#### *Box-girder section*

The box-girder section would be 500-feet long, 46-feet wide, and six-feet deep. The new bridge would be a three-span concrete structure supported by two on-land abutments and three concrete support columns. Two columns would be constructed on either side of the primary creek channel and a third in the secondary channel, closer to the western approach. The concrete girders and the bridge deck would be placed on top following the construction of the abutments and columns. The equipment used for this operation would be placed on the temporary access areas created for the bridge construction. The new bridge surface would be banked through the curve of the bridge traverse to allow for safer travel.

#### *Foundations*

The construction and installation of columns and abutments for the new bridge under Alternative 2 are the same as described for Alternative 1. However, instead of two columns, Alternative 2 would include three columns, each one 5.5 feet by 8.0 feet, ship-shaped (flattened oval) in cross section.

#### *Temporary Falsework*

The location and installation of temporary falsework for the new bridge under Alternative 2 is the same as described for Alternative 1.

#### *Pavement Section*

The construction of new pavement sections for the new bridge approaches under Alternative 2 are the same as described for Alternative 1, but in order to connect Alternative 2 to the bridge with the old alignment, the roadway would go through one curve of radius 650-feet.

#### *Western Approach: Grading and Fill*

To construct the new western alignment, fill would be used to raise the roadway profile by up to 16.3 feet from the northern edge of the new bridge to the western conform with the existing alignment. Along the new alignment, the area of fill would extend to the south from a minimum of three feet up to a maximum of eight feet from the proposed new EB edge of pavement for a distance of 1,400 feet to establish a 4:1 embankment slope. The area of fill would extend to the north up to three feet from the proposed new WB edge of pavement for a distance of 1,400 feet to establish a 2:1 embankment slope. The maximum width of the embankment from toe-of-slope to toe-of-slope is 80 feet.

To construct the embankment, no excavation is required. Engineered fill and/or native material would be installed using dump loaders and compactors. Where space allows, the final four inches of fill would be stockpiled native topsoil or imported topsoil. Re-vegetation of any disturbed areas would occur post-construction in accordance with Caltrans Standard Specifications (Caltrans, 2010b).

Under Alternative 2, an 850-foot long, Type 1 retaining wall would be constructed on the north side of the new embankment on the western approach to minimize the project's footprint from the installation of fill. The retaining wall would vary in height from a

minimum of four feet to a maximum of 20 feet. The wall would be constructed by clearing and grubbing the project area, excavating and compacting the footing location, and constructing the wall using forms, structural steel, and poured concrete.

*Eastern Approach: Type 1 Retaining Wall and Rock Cut with Rock-Anchored Wire Mesh*

As part of the eastern approach realignment, a 470-foot-long rock cut with rock-anchored wire mesh and a 1,150-foot long retaining wall would be constructed. The 470-foot rock cut with rock-anchored mesh would be constructed east of the existing bridge and immediately south of SR-84, where the hillside adjacent to SR-84 is cut. The rock cut with rock-anchored wire mesh would involve cutting the existing hillside to a maximum slope of  $\frac{3}{4}$ :1, ranging in height from two feet to 23 feet. In addition to the wire mesh, a layer of coconut fibers or jute would be placed underneath the wire mesh where hydroseeding would be placed to encourage vegetation regrowth. The rock cut with the rock-anchored wire mesh would be completed during the first phase of construction so that two-lane traffic would be maintained during subsequent construction activities. A mechanical scraper would be used to clear and grub vegetation, and to make the rock slope cut. Excavated material would be used where possible as fill elsewhere in the project area; excess material would be disposed of outside the project location in accordance with Caltrans Standard Specifications (Caltrans, 2010b).

To construct the rock-anchored wire mesh, the slope would first be cut back to a maximum of  $\frac{3}{4}$ :1. A crane would be used for the installation of fabric and mesh. Double-twisted wire mesh would be placed over a coconut fiber layer or jute. The wire mesh is a 12-gauge galvanized, corrosion-resistant wire mesh with a hexagonal opening of 3.3 inches by 4.5 inches, which is attached to the top of the slope using rock anchor bolts or cable anchors. Anchors would be installed by drilling a hole in the slope, placing the anchor in the hole and grouting it into the hole. After the system is installed, hydroseeding would be applied to help stabilize the near-surface slope environment and speed up plant reestablishment.

The eastern approach realignment and widening also requires a Type 1 retaining wall. The Type 1 retaining wall would be approximately 1,150-feet long and 20-feet wide with an average height of 17 feet, a minimum height of 13 feet, and a maximum height of 36 feet. It would be located along the northern bank of Alameda Creek. The Type 1 retaining wall would consist of a concrete retaining wall with spread footing supported by CIDH piles. Installation of these piles would be similar to the methods discussed above in the design and construction of the new bridge. Although the maximum height of the retaining wall is 36 feet, the footings would be installed approximately five feet below the finished grade, so the wall would appear to be a maximum of 31 feet in height. The existing concrete slope pavement, approximately 16,100 square feet and 8,100 cubic feet, along the west bank of Alameda Creek, would be completely removed in order to construct the Type 1 wall footing. Temporary shoring would be used for the Type 1 wall excavation and construction.



Figure 7. Alternative 2 Design Plan

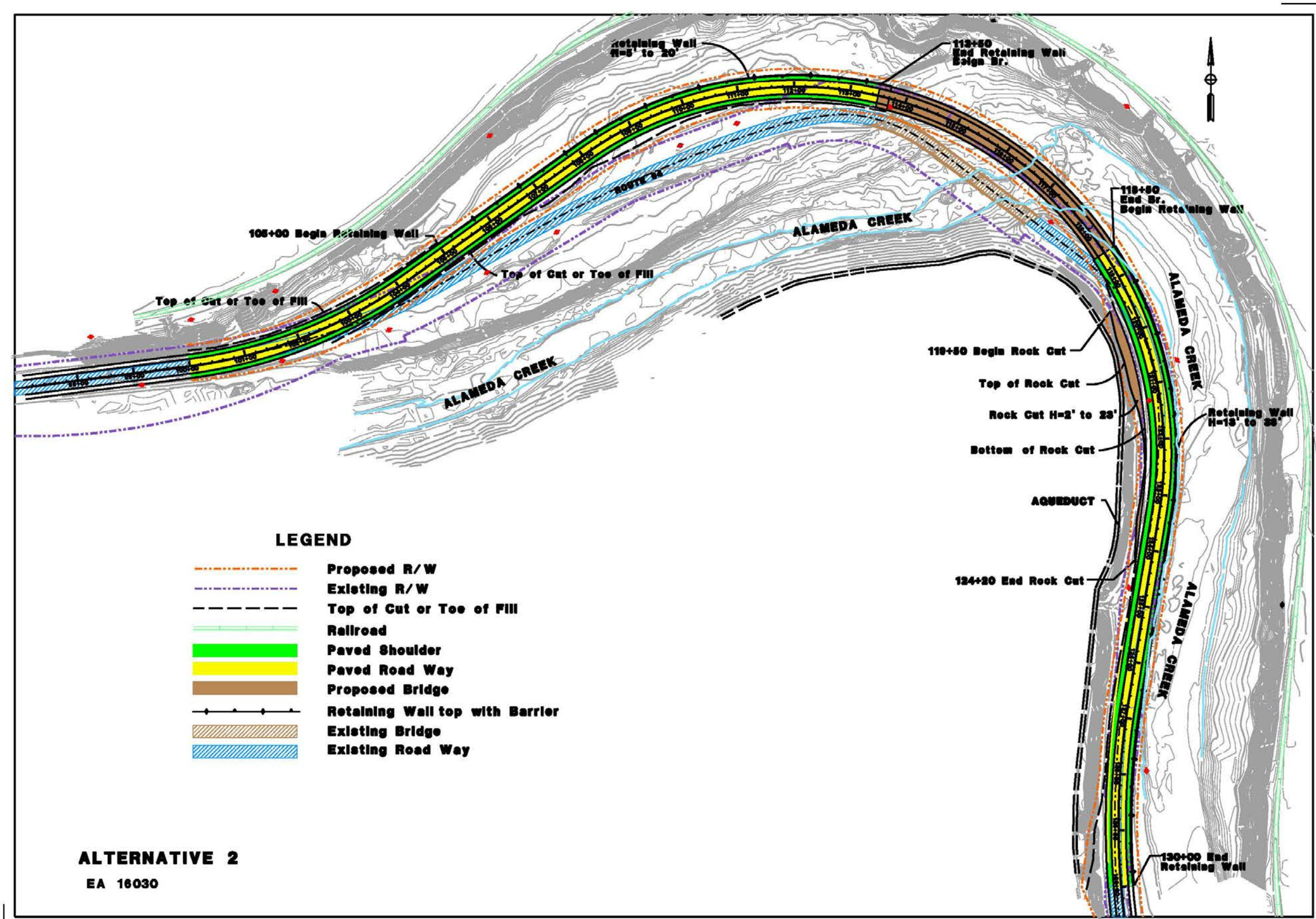
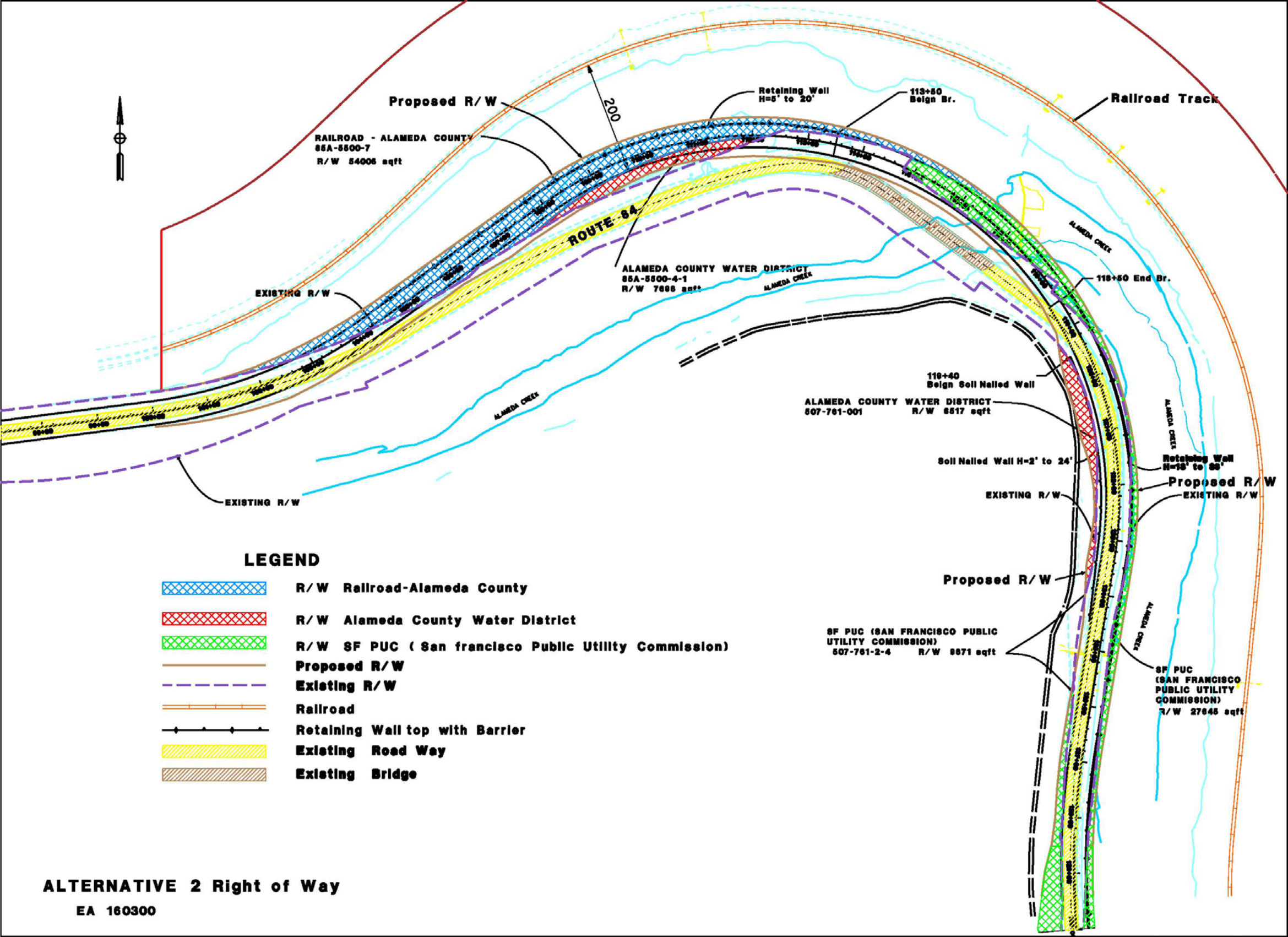




Figure 8. Alternative 2 Proposed Right-of-Way Requirements





#### 1.4.4 Unique Features of Alternative 3A

##### *Box-girder section*

The box-girder section would be 450-feet long, 46-feet wide, and six-feet deep. It would be supported by an abutment foundation at the western approach, constructed on a spread footing, and three columns, each one 5.5 feet x 8.0 feet. The two eastern columns would be located on either side (outside) of the primary creek channel and the western column would be located outside the creek. The eastern approach would be supported by a sidehill viaduct section, and those two sections would abut at a paired-set of columns, rather than at an eastern abutment. Once the western abutment and columns are constructed, concrete girders and the bridge deck would be placed on top. The equipment used for this operation would be placed on the temporary access areas created for the bridge construction. The new bridge surface would be banked through the curve of the bridge traverse to allow for safer travel.

##### *Sidehill Viaduct Section*

A 1,170-foot-long sidehill viaduct section would be constructed, adjoining the eastern end of the box-girder section. It would be between 10-46 feet wide. At its widest point, the sidehill viaduct section would support the entire WB section of the travelway. At its narrowest point, the sidehill viaduct section would support only the shoulder and barrier. The viaduct section would consist of 33 piers on the downslope side, each comprising a rank of one to three columns. The upslope side of the structure would rest directly on the slope or embankment. The roadway deck structure would be constructed of precast slabs.

The viaduct would be supported by 51 CIDH pile extensions, each one 30-inch-in-diameter. The extensions would reach a maximum depth of 15 feet below original ground. Existing concrete slope protection would be demolished at the site of each pile. A drill rig would be used from the roadway to bore holes for the CIDH piles. Rebar would be placed into the hole and the hole filled with concrete. A form would be placed in the hole for the above-ground section of the pile, the form would be filled with concrete, and eventually removed when set. Slope protection would then be repaired. For installation of precast slabs, precast slabs would be brought in by truck and placed. The sidehill viaducts would be constructed from the roadway; there would be no construction impacts beyond the roadway footprint for each viaduct. After the construction of the rock cuts with rock-anchored wire mesh, the traffic would be moved over to the newly widened roadway. Although the existing WB lane would be used for constructing the sidehill viaduct, two lanes of traffic would remain open during the staged construction.

Existing concrete slope pavement along the west bank of Alameda Creek would be removed only at the location necessary to construct the piers to support the sidehill viaduct. The remainder of the existing concrete slope would be left in place to maintain erosion control. Because two existing drainages cross SR-84 in this portion of the project footprint, two new culverts would be installed to convey runoff from these drainages under the SR-84 roadway surface.

### *Foundations*

The methods for construction and installation of columns and the western abutment for the new bridge under Alternative 3A are the same as described for Alternative 2.

### *Temporary Falsework*

The location and installation of temporary falsework for the new bridge under Alternative 3A is generally the same as described for Alternative 1.

### *Pavement Section*

The construction of new pavement sections for the new bridge approaches under Alternative 3A generally are the same as described for Alternatives 1 and 2. Similar to Alternative 2, in order to conform Alternative 3A to the old alignment, the roadway would go through one curve of radius 650-feet. The one difference is that Alternative 3A would require a 1,100-foot-long alignment (consisting only of overlay) for the eastern approach instead of a 1,200-foot-long alignment as required for Alternatives 1 and 2.

### *Western Approach: Grading and Fill*

To construct the new western alignment, fill would be used to raise the roadway profile by up to 15.4 feet from the northern edge of the new bridge to the western conform with the existing alignment. Along the new alignment, the area of fill would extend to the south from a minimum of three up to a maximum of eight feet from the proposed new EB edge of pavement for a distance of 1,400 feet to establish a 4:1 embankment slope. The area of fill would extend to the north from a minimum of three feet up to a maximum of 40 feet from the proposed new WB edge of pavement for a distance of 1,400 feet to establish a 2:1 embankment slope. The maximum width of the embankment would be 80 feet.

To construct the embankment, no excavation would be required. Engineered fill and/or native material would be installed using dump loaders and compactors. Where space allows, the final four inches of fill would be stockpiled native topsoil or imported topsoil. Construction impacts would extend to a maximum of five feet from the edge of the toe of fill; re-vegetation of any disturbed areas would occur post-construction in accordance with Caltrans Standards Specifications (Caltrans, 2010b).

### *Eastern Approach: Construction of Rock Cuts with Rock-Anchored Wire Mesh*

As part of the eastern approach realignment component of the project, a combination of rock cuts with rock-anchored wire mesh and/or soil-nail wall would be constructed. This combination of rock cuts with rock-anchored wire mesh and/or soil-nail wall would extend for approximately 800 feet. Following construction, the soil-nail walls would be covered with a 2:1 slope embankment and hydroseeded.

A mechanical scraper would be used to clear and grub vegetation, and to make the rock slope cut. Excavated material would be used where possible as fill elsewhere in the project area; excess material would be disposed of outside the project location in accordance with Caltrans Standard Specifications (Caltrans, 2010b). To construct the rock-anchored wire mesh, the slope would first be cut back to a maximum of  $\frac{3}{4}$ :1. A crane would be used for the installation of fabric and mesh. Double-twisted wire mesh would be placed over a

coconut fiber layer or jute. The wire mesh is a 12-gauge galvanized, corrosion-resistant wire mesh with a hexagonal opening of 3.3 x 4.5 inches, which is attached to the top of the slope using rock anchor bolts or cable anchors. Anchors would be installed by drilling a hole in the slope, placing the anchor in the hole and grouting it into the hole. After the system is installed, hydroseeding would be applied to help stabilize the near-surface slope environment and speed up plant reestablishment.

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Figure 9. Alternative 3A Design Plan

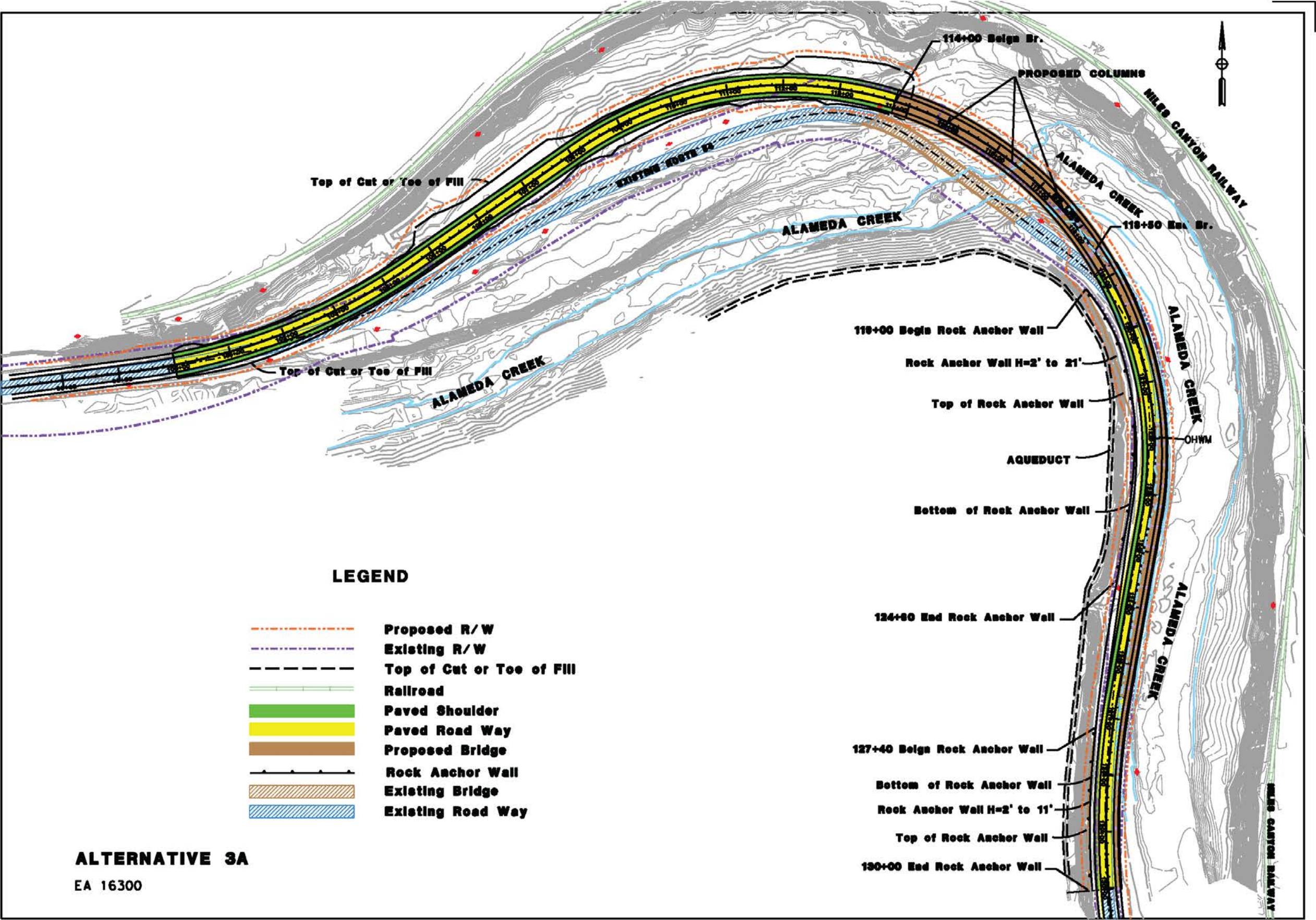
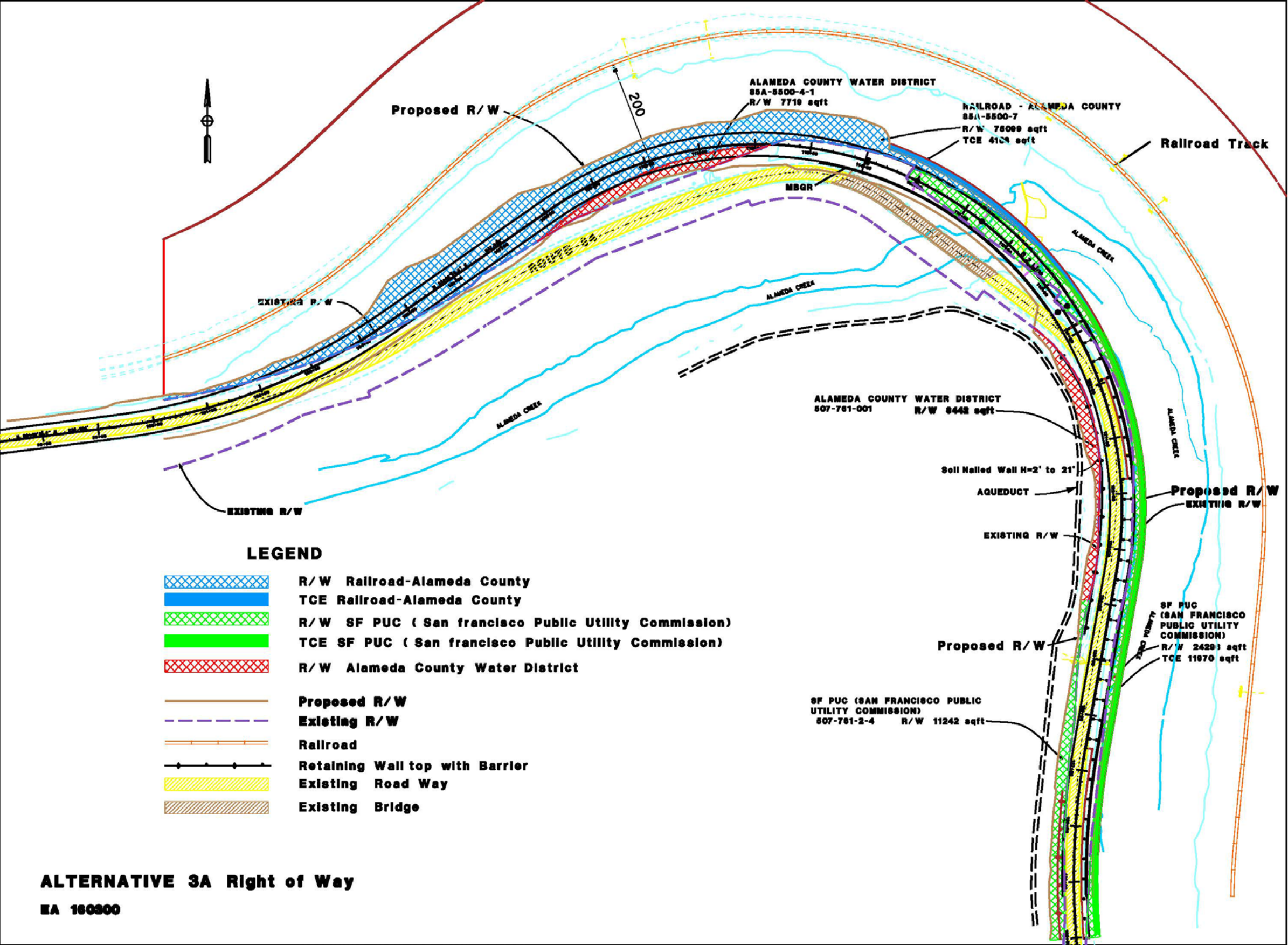




Figure 10. Alternative 3A Proposed Right-of-Way Requirements



### 1.4.5 Unique Features of Alternative 3B

As previously mentioned, the Caltrans PDT identified Alternative 3B as the preferred alternative, subject to public review. The PDT selected Alternative 3B as the preferred alternative because it meets the project's purpose and need while minimizing environmental impacts to natural communities and habitats. Final selection of the preferred alternative will occur after public review and comment.

#### *Box-girder section*

The box-girder section would be 450-feet-long, 46-feet-wide, and six-feet-deep. The new bridge would be supported by an abutment foundation at the west approach on a spread footing and three columns, each one 5.5 feet by eight feet. The two eastern columns would be located on either side (outside) of the primary creek channel and the western column would be located outside the creek. The eastern approach would be supported by a sidehill viaduct section, rather than by an eastern abutment as in Alternatives 1 or 2. Once the western abutment and columns were constructed, the concrete girders and the bridge deck would then be placed on top. The equipment used for this operation would be placed on the temporary access areas created for the bridge construction. The new bridge surface would be banked through the curve of the bridge traverse to allow for safer travel.

#### *Sidehill Viaduct Section*

A 250-foot long sidehill viaduct section would be constructed adjoining the eastern end of the box-girder section. It would be comprised of seven spans, varying between 10-46 feet wide. At its widest point, the sidehill viaduct section would support the entire WB section of the travel way; at its narrowest point, the sidehill viaduct section would support only the shoulder and barrier. Under Alternative 3B, the viaduct section would consist of seven piers on the downslope side, each comprised of a rank of one to three columns. The upslope side of the structure would rest directly on the slope or embankment. The roadway deck structure would be constructed of precast slabs.

The viaduct would be supported by 12 CIDH pile extensions, each one approximately 30 inches in diameter. The extensions would reach a maximum depth of 15 feet below original ground. Existing concrete slope protection would be demolished at the site of each pile. A drill rig would be used from the roadway to bore holes for the viaduct CIDH piles. Rebar would be placed into the hole and the hole filled with concrete. A form would be placed in the hole for the above-ground section of the pile, the form would be filled with concrete, and eventually would be removed when set. Existing slope protection would then be repaired. For installation of precast slabs, precast slabs would be brought in by truck and placed. The sidehill viaduct would be constructed from the roadway; there would be no construction impacts beyond the roadway footprint for the viaduct. After the completion of the rock cut with rock-anchored wire mesh, the traffic would be moved over to the newly widened roadway. Although the existing WB lane would be used for constructing the sidehill viaduct, two lanes of traffic would remain open during the staged construction.

Existing concrete slope pavement along the west bank of Alameda Creek would be removed only at the location necessary to construct the piers to support the sidehill viaduct. The remainder of the existing concrete slope would be left in place to maintain erosion

control. Because two existing drainages cross SR-84 in this portion of the project footprint, two new culverts would be installed to convey runoff from these drainages under the SR-84 roadway surface.

#### *Foundations*

The methods for construction and installation of columns and the western abutment for the new bridge under Alternative 3B are the same as described for Alternative 2.

#### *Temporary Falsework*

The location and installation of temporary falsework for the new bridge under Alternative 3B is the same as described for Alternative 1.

#### *Pavement Section*

The construction of new pavement sections for the new bridge approaches under Alternative 3B generally are the same as described for Alternative 1. The one difference is that Alternative 3B would require a 500-foot long alignment (consisting only of overlay) for the eastern approach instead of a 1,200-foot long alignment as required for Alternatives 1 and 2.

#### *Western Approach: Grading and Fill*

To construct the new western alignment, fill would be used to raise the roadway profile by up to 15.6 feet from the northern edge of the new bridge to the western conform with the existing alignment. Along the new alignment, the area of fill would extend to the south from a minimum of three up to a maximum of eight feet from the proposed new EB edge of pavement for a distance of 1,400 feet to establish a 4:1 embankment slope. The area of fill would extend to the north from a minimum of three feet up to a maximum of 40 feet from the proposed new WB edge of pavement for a distance of 1,400 feet to establish a 2:1 embankment slope. The maximum width of the embankment from toe-of-slope to toe-of-slope would be 80 feet.

To construct the embankment, no excavation would be required. Engineered fill and/or native material would be installed using dump loaders and compactors. Where space allows, the final four inches of fill would be stockpiled native topsoil or imported topsoil. Re-vegetation of any disturbed areas would occur post-construction in accordance with Caltrans Standard Specifications (Caltrans, 2010b).

#### *Eastern Approach: Construction of Rock Cut with Rock-Anchored Wire Mesh*

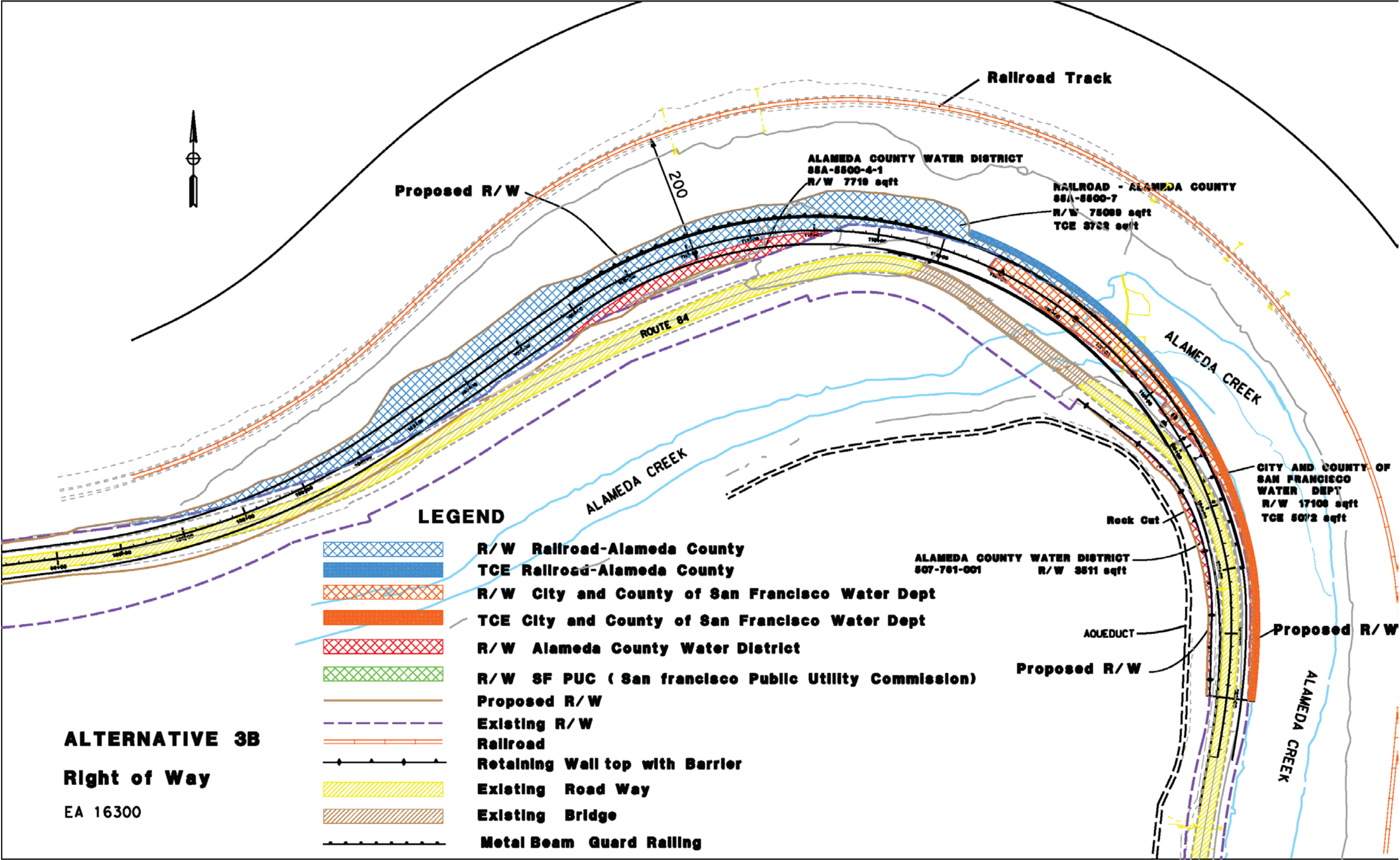
As part of the eastern approach realignment component of the project, a single rock cut (instead of multiple rock cuts and soil-nail walls as described in Alternative 3A) with rock-anchored wire mesh would be constructed. The rock cut would be 300-feet long with heights varying from two to 17 feet. Construction methods for the rock cut are the same as described in Alternative 3A.







Figure 12. Alternative 3B Proposed Right-of-Way Requirements



### 1.4.6 No-Build Alternative

Under the No-Build Alternative, the project would not be constructed. Deficiencies at the Alameda Creek Bridge would remain. The No-Build Alternative is considered the environmental baseline against which potential environmental impacts of the Alternatives are compared.

### 1.4.7 Comparison of Alternatives

Table 4 presents a comparison of the Alternatives.

**Table 4. Summary of Alternatives**

Feature	Alternative 1	Alternative 2	Alternative 3A	Alternative 3B
<b>New Bridge</b>				
Total Length (feet)	410	500	450	450
Columns	2	3	3	3
Bridge Spans	3	4	4	4
<b>Sidehill Viaduct</b>				
Total Length (feet)	None	None	1,170	250
Spans	None	None	30	7
<b>Western Approach</b>				
Embankment fill (feet)	0 to 16.3	0 to 16.3	0 to 15.4	0 to 15.6
Slope				
Eastbound	4 to 1	4 to 1	4 to 1	4 to 1
Westbound	2 to 1	2 to 1	2 to 1	2 to 1
Roadway				
Total Length (feet)	1,400	1,400	1,400	1,400
Retaining Wall				
Type	None	Type 1	None	None
Total Length (feet)	N/A	850	N/A	N/A
Height (feet)	N/A	4 to 20	N/A	N/A
<b>Eastern Approach</b>				
Roadway				
Total Length (feet)	1,200	1,200	1,100 (overlay only)	500 (overlay only)
WB Wall (Creek Side)				
Type	Type 1	Type 1	None	None
Total Length (feet)	1,190	1,150	N/A	N/A
Height (feet)	13 to 36	13 to 36	N/A	N/A
EB Wall (Hill Side)				
Type	Soil-Nail Wall	Rock Cut	Soil-Nail Walls and Rock Cuts	Rock Cut
Total Length (feet)	1,090	470	800	300
Height (feet)	4 to 20	2 to 23	2 to 21	2 to 17

#### 1.4.7.1 Identification of a Preferred Alternative

Alternative 3B was identified as the preferred alternative by the Project Development Team (PDT) on July 7, 2015. After comparing and weighing the benefits and impacts of all feasible alternatives, the PDT identified Alternative 3B as the preferred alternative, subject to public review. Alternative 3B was the preferred alternative because it met the project's purpose and need while minimizing temporary and permanent impacts to natural communities and Alameda Creek. Final identification of the preferred alternative occurred after the public review and comment.

#### 1.4.7.2 Final Decision Making Process

Alternative 3B was identified as the build alternative by the Project Development Team (PDT) on June 2, 2017 after considering the information in the Revised Draft EIR/EA, technical studies, comments received from the public and outside agencies during the 45-day public review period, and discussion and input from PDT members. Compared to the other alternatives, Alternative 3B meets the project's purpose and need while minimizing impacts to visual/aesthetic resources and biological resources. Alternative 3B would have the least amount of impact to visual/aesthetics due to the construction of a sidehill viaduct, less impacts to existing trees and vegetation, and a shorter rock cut. Alternative 3B also minimizes temporary and permanent impacts to natural communities and Alameda Creek. Under the California Environmental Quality Act (CEQA), the Department certified that the project complies with CEQA, prepared findings for all significant impacts identified, prepared a Statement of Overriding Considerations for impacts that will not be mitigated below a level of significance, and certified that the findings and Statement of Overriding Considerations have been considered prior to project approval. The Department will then file a Notice of Determination with the State Clearinghouse that will identify whether the project will have significant impacts, if mitigation measures were included as conditions of project approval, that findings were made, and that a Statement of Overriding Considerations was adopted. Similarly, the Department, as assigned by the Federal Highway Administration (FHWA), has determined that the National Environmental Policy Act (NEPA) action does not significantly impact the environment. Therefore, the Department has issued a Finding of No Significant Impact (FONSI) and an Environmental Impact Statement (EIS) will not be prepared.

#### 1.4.8 Alternatives Considered but Eliminated from Further Discussion

The alternative analysis process initially considered a broad range of alternatives to fulfill the project's purpose and need. These included alternatives and options suggested by the public and other interested parties during the project's scoping process. Ultimately, the following alternatives were evaluated and eliminated from further consideration based on feasibility, costs, environmental and engineering considerations, and failure to meet the project's purpose and need:

*Replace the existing Alameda Creek Bridge and construct a 35 mph alignment approach with advanced warning systems and/or traffic mitigation*

Description: The rejected 35 mph Alignment Alternative would construct a new bridge approximately 83 feet north of the existing SR-84 alignment and realign SR-84 on a 35 mph alignment (approximately a 450-foot-radius curve). Advanced warning measures would also be installed and a new bridge constructed. Following the construction of this

alternative, the existing Alameda Creek Bridge would be demolished. This alternative would have curve radii corresponding to a 35 mph speed at the westbound approach and a 41 mph speed at the center of the bridge and eastbound approach to the bridge (35/41/41). Both Alternative 3B, which has a curve radii of 42/41/41, as well as the rejected 35/41/41 are designed for 41 mph in the center and eastbound approach in order to conform to the existing roadway and minimize environmental impacts. If a proposed alignment of this rejected 35 mph Alignment Alternative was designed at 35 mph at the center and eastern portion of the project, then it would deviate from the existing SR-84 alignment and would result in more environmental impacts.

Reason for rejection: Through analysis of the potential environmental impacts of this alternative and a comparison with the project's preferred build alternative on safety characteristics, it was determined that there would not be a substantial decrease in potential environmental impacts and therefore there is no change to the project's significant impact determinations. The information below only focuses on the variations of potential biological impacts between the rejected 35 mph and 3B alternatives since all other potential significant impacts to environmental resources under CEQA are similar between those two alternatives. A brief summary of the primary potential biological impacts between the two alternatives are compared in the tables below.

**Table 5. Comparison of 35 mph Alternative impacts to Alternative 3B**

**Permanent and Temporary Impacts to Native Trees**

	<b>Permanent Impact</b>	<b>Temporary Impact</b>	<b>Total Impact</b>
35 mph Alternative	63	165	228
Alternative 3B	99	185	284

**Permanent and Temporary Impacts to Riparian Trees**

	<b>Permanent Impact</b>	<b>Temporary Impact</b>	<b>Total Impact</b>
35 mph Alternative	14	99	113
Alternative 3B	20	107	127

**Permanent and Temporary Impacts to Vegetation and Landcover Types**

<b>Vegetation/Landcover Type</b>	<b>Permanent Impact (Acres)</b>	<b>Temporary Impact (Acres)</b>	<b>Total Impact (Acres)</b>
<i>35 mph Alternative</i>			
Annual Grassland	0.298	0.372	0.670
Coastal Oak Woodland	0.414	0.440	0.854
Coastal Scrub	0.190	0.160	0.350
Fresh Emergent Wetland	0.001	0.317	0.318
Riverine	0.000	0.251	0.251
Valley Foothill Riparian	0.067	1.169	1.246
Total	0.97	2.718	3.689

<b>Vegetation/Landcover Type</b>	<b>Permanent Impact (Acres)</b>	<b>Temporary Impact (Acres)</b>	<b>Total Impact (Acres)</b>
<i>Alternative 3B</i>			
Annual Grassland	0.364	0.453	0.817
Coastal Oak Woodland	0.625	0.555	1.180
Coastal Scrub	0.359	0.385	0.744
Fresh Emergent Wetland	0.001	0.332	0.333
Riverine	0.000	0.260	0.260
Valley Foothill Riparian	0.314	1.566	1.880
Total	1.663	3.551	5.214

#### **Permanent and Temporary Impacts to California Red Legged Frog and Alameda Whipsnake Habitat**

	<b>Permanent Impacts (Acres)</b>	<b>Prolonged Temporary Impacts (Acres)</b>	<b>Temporary Impacts (Acres)</b>	<b>Total Impacts (Acres)</b>
<i>California red-legged frog</i>				
35 mph Alternative	0.970	N/A	2.467	3.437
Alternative 3B	1.663	2.798	0.753	5.214
<i>Alameda whipsnake</i>				
35 mph Alternative	0.969	N/A	2.150	3.119
Alternative 3B	1.662	2.798	0.161	4.621

#### **Permanent and Temporary Impacts to AWS Critical Habitat**

	<b>Permanent Impact (acres)</b>	<b>Temporary Impact (Acres)</b>	<b>Total Impacts (Acres)</b>
35 mph Alternative	0.296	0.374	0.670
Alternative 3B	0.605	0.833	1.438

#### **Permanent and Temporary Impacts to Steelhead Habitat**

	<b>Permanent Impact (Acres)</b>	<b>Temporary Impact (Acres)</b>	<b>Total Impacts (Acres)</b>
35 mph Alternative	0.068	1.748	1.816
Alternative 3B	0.315	2.158	2.473

In addition to analyzing the potential environmental impacts, Caltrans also made a comparison of the safety characteristics between the rejected 35 mph alternative and Alternative 3B. At this location an alternative with a design speed of 35mph on any

segment of the bridge and its approaches would reduce the effectiveness of crash reduction even with traffic calming measures. A 35 mph design alternative with advanced warning measures can, at best, potentially reduce crashes by only 22 to 40% (FHWA-HRT-14-020 and FHWA-HRT-15-030). Whereas it has been documented by the National Cooperative Highway Research Program that increasing the radius of a horizontal curve can be very effective in improving the safety performance of a curve, potentially reducing total curve related crashes by up to 80% (NCHRP Report 500, Vol. 7, 2004).

Conclusion: Alternative 3B has already been designed to 41/42/42 mph to lessen potential environmental impacts and both the eastern and western bridge approaches will be signed with 35 mph speed advisory signs to address community concerns of existing traveling speeds along this segment of the corridor. The rejected 35 mph alternative will not reduce the project's potential environmental impacts to a level below significance under CEQA and can only potentially reduce crashes by 22-40% even with traffic calming measures as compared to the 80% improvement with alternative 3B. Based off of this information the 35 mph alternative has been rejected from further consideration.

*Correct the western alignment approach and replace bridge railing*

Description: This alternative would construct a 40 mph alignment approach on the western approach to the existing Alameda Creek Bridge in addition to replacing the bridge railing on the existing bridge. There would be no change to the existing eastern approach to the Alameda Creek Bridge.

Reason for rejection: An alternative that corrects the sharp western curve approach and replaces the bridge railing was rejected from further analysis as this alternative does not meet the fundamental project objective of correcting structural deficiencies of the Alameda Creek Bridge and its approaches as this alternative would not provide shoulders for vehicles and cyclists to maneuver and avoid collisions on the bridge. Full shoulders are important safety features that allow vehicles as well as cyclists to take corrective action to avoid collisions, and provide a safe harbor for disabled vehicles to avoid interference with travel lane traffic. A FHWA study on expected crash reductions for shoulders on two-lane rural highways showed that eight-foot shoulders had the best safety impact on two-lane highways, as far as single-vehicle run-off-road, multiple-vehicle same direction sideswipe, and multiple-vehicle opposite-direction crashes. Shoulder widening has been found to significantly reduce run off the road and head-on collisions by improving horizontal sight distance.

The approaches to and from the Alameda Creek Bridge were designed to provide a smooth and reasonable transition from the bridge to the existing alignment. It would not be prudent to provide an upgraded facility, which includes roadway width and alignment, which leads abruptly into a lesser quality facility. If the eastern approach was left untouched, the driver's expectation of speed will not be met and potential increase in accidents is likely to occur.

Furthermore, the construction of an alternative that corrects the sharp westbound curve approach and replaces the bridge railing would result in continued use of a functionally obsolete structure that would still need to be replaced at some point in the future. Piecemeal improvements that do not fully address the project's purpose and need cannot be supported as the aging and functionally obsolete structure would otherwise remain as-is. Piecemeal improvements would increase the overall cost to the state for design and construction support cost as well as mobilization cost. Additionally, piecemeal improvements result in traffic as well as environmental impacts for every occurrence.

The 35 mph alternative would also require the construction of a compound curve, which can create an unexpected situation for drivers; these types of curves are typically avoided if there are reasonable alternatives.

Table 6 identifies the environmental impacts of this alternative to various resource areas. Traffic impacts would increase with this alternative, but would reduce project impacts to several resource areas including cultural resources (architectural history), water quality and hydrology, natural communities, wetlands and other waters, and as well reduced impacts to several threatened and endangered species. This alternative does not meet the fundamental project objective of correcting structural deficiencies of the Alameda Creek Bridge and its approaches as it does not provide shoulders. As a result, this alternative that involves correcting the western alignment approach and replacing the bridge railing was rejected.

*Construct new bridge at existing location*

Description: This alternative would demolish the existing Alameda Creek Bridge and would construct a new bridge with eight-foot shoulders and new bridge railing in its existing location. There would be no improvement to the existing bridge approaches.

Reason for rejection: This alternative was rejected because it would not meet the fundamental project objective of fully meeting drivers expectations of SR-84's operating speed (85<sup>th</sup> percentile), which has been documented to be at least 45 mph. Constructing a new bridge at the existing location would result in the complete closure of SR-84, severing the main regional connection between I-880 and I-680. Widening the existing bridge and bringing it up to current standards would require approximately two years of complete closure on SR-84. Closure of SR-84 would require motorists to find an alternate route and would result in the dispersal of vehicles to other routes and systems. The two-year closure would require drivers to travel at least 15 minutes more on a daily basis to get to their destination. The economic impact would amount to over 58 million dollars for the anticipated two year closure.

Table 6 identifies the environmental impacts of this alternative to various resource areas. Traffic impacts would increase with this alternative, but would reduce project impacts to several resource areas including cultural resources (architectural history), water quality and hydrology, natural communities, wetlands and other waters, and as well reduced impacts to several threatened and endangered species. This alternative would result in a two-year closure of SR-84 which would affect traffic and transportation in southern Alameda County.



However, this alternative would reduce impacts to natural communities and several threatened and endangered species. Ultimately, this alternative was rejected because it would not meet the fundamental project objective of fully meeting drivers expectations of SR-84's operating speed (85<sup>th</sup> percentile), which has been documented to be at least 45 mph

#### *Southern Alignment*

Description: This alternative would construct a new bridge south of the existing SR-84 alignment and realign SR-84 on a 45 mph alignment. A southern alignment requires the construction of a compound curve; a compound curve is made up of two or more circular arcs of successively shorter or longer radii, joined tangentially without reversal of the curvature. The first circular arc of the curve would have a radius of 800 feet and the second circular arc of the curve would have a radius of 575 feet. Following the construction of the 45 mph alignment and new bridge, the existing Alameda Creek Bridge would be demolished.

Reason for rejection: A southern alignment was rejected from consideration because it would require the removal of portions of the NRHP-eligible Sunol Aqueduct. The Sunol Aqueduct is protected by Section 4(f) of the Department of Transportation Act of 1966. Caltrans developed feasible alternatives that do not impact the NRHP-eligible Sunol Aqueduct and therefore, rejected this alternative from consideration. A southern alignment alternative would also require an increase in right-of-way from Alameda County Water District as well as extensive excavation of the hillside to the east of the bridge resulting in the construction of a 50-foot-high retaining wall at the eastern end of the bridge. The southern alternative would also require the construction of a compound curve, which can create an unexpected situation for drivers; these types of curves are typically avoided if there are reasonable alternatives.

Table 6 identifies the environmental impacts of this alternative to various resource areas. This alternative would reduce project impacts to several resource areas including natural communities, wetlands and other waters, and threatened and endangered species. However, a southern alignment would impact a Section 4(f) resource. Given that there are other reasonable alternatives to a southern alignment that do not impact the Sunol Aqueduct, a Section 4(f) resource, was rejected from further analysis.

#### *Transportation System Management (TSM) and Transportation Demand Management (TDM) Alternative*

Description: TSM strategies increase the efficiency of existing facilities while TDM focuses on regional means of reducing the number of vehicle trips and vehicle miles traveled as well as increasing vehicle occupancy.

Reason for rejection: A TSM and TDM Alternative would not meet the project's purpose and need as this alternative would not improve the structural deficiencies of the Alameda Creek Bridge and its approaches in a manner that improves safety and provides a facility that meets driver expectations of SR-84's operating speed. A TSM and TDM alternative

could not satisfy the purpose and need of the project and therefore, was rejected from further consideration.

Table 6. Comparison of Environmental Impacts across the Alternatives Considered but Rejected

Alternative	Project Impacts								
	Traffic	Cultural Resources (Architectural History)	Water Quality and Hydrology	Paleontology	Natural Communities	Alameda whipsnake Habitat	Wetlands	California Red-legged Frog Habitat	Roosting Bats Habitat
35 mph Alternative	SR-84 would remain open during the construction of the bridge.	Would require the removal of the existing Alameda Creek Bridge.	Would require a creek diversion	Would require excavation in sensitive geologic formations.	Permanent Impacts: .97 acres  Temporary Impacts: 2.718 acres  Anticipated trees impacted: 236 (8 non-native and 228 native)	Permanent Impacts: 0.969 acres  Temporary Impacts: 2.150 acres  Impacts to Critical Habitat: 0.670 acres	No impact	Permanent Impacts: 0.970 acres  Temporary Impacts: 2.467 acres	Would require demolition of the existing Alameda Creek Bridge resulting in impacts to roosting bat habitat.
Correct the western alignment approach and replace bridge railing	One-lane traffic control would be needed for approximately 0.5 miles on SR-84 for approximately 40 working days.	Would require modification of the existing Alameda Creek Bridge.	No impact	Would require excavation in sensitive geologic formations.	Permanent Impacts: 1.275 acres  Temporary Impacts: 1.325 acres  Anticipated trees impacted: 150 (4 non-native and 146 native)	Permanent Impacts: 0.989 acres  Temporary Impacts: 1.077 acres  Impacts to Critical Habitat: 0 acres	No impact	Permanent Impacts: 0.989 acres  Temporary Impacts: 1.079 acres	Would maintain existing roosting bat habitat.
Construct new bridge at existing location	SR-84 would be closed for two years.	Would require the removal of the existing Alameda Creek Bridge.	Would require a creek diversion.	Would require excavation in sensitive geologic formations.	Permanent Impacts: 0.856 acres  Temporary Impacts: 0.714 acres  Anticipated trees impacted: 44 (4 non-native and 40 native)	Permanent Impacts: .401 acre  Temporary Impacts: 0.476 acre  Impacts to Critical Habitat: 0 acres	No impact	Permanent Impacts: 0.404 acre  Temporary Impacts: 0.484 acre	Would require demolition of the existing Alameda Creek Bridge resulting in impacts to roosting bat habitat.
Southern Alignment	SR-84 would remain open during the construction of the bridge.	Would require the removal of the existing Alameda Creek Bridge and would require the demolition of a part of the Sunol Aqueduct. Impacts to the Sunol Aqueduct would be considered a "use" pursuant to Section 4(f). A feasible alternative exists to this use, so the Southern Alignment was eliminated from consideration	Would require a creek diversion	Would require excavation in sensitive geologic formations.	Permanent Impacts: 0.856 acres  Temporary Impacts: 0.714 acres  Anticipated trees impacted: 70 (7 non-native and 63 native)	Permanent Impacts: 0.514 acre  Temporary Impacts: 0.46 acre  Impacts to Critical Habitat: 0.126 acres	No impact	Permanent Impacts: 0.87 acres  Temporary Impacts: 0.684 acres	Would require demolition of the existing Alameda Creek Bridge resulting in impacts to roosting bat habitat.

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## 1.5 Permits and Approvals Needed

The following permits, reviews, and approvals would be required for project construction:

**Table 7. Permits and Approvals Needed**

Agency	Permit/Approval	Status
<b>United States Fish and Wildlife Service (USFWS)</b>	Section 7 Consultation for Threatened and Endangered Species	Biological Opinion, 08ESMF00-2015-F-0073-2, signed on May 4, 2017. (Appendix J)
<b>United States Army Corps of Engineers (USACE)</b>	CWA Section 404 permit for filling or dredging waters of the United States.	This project would require two CWA Section 404 nationwide permits; the first permit for the geotechnical borings was acquired on July 27, 2017. The second permit would be acquired prior to the construction of the Alameda Creek Bridge.
<b>California Department of Fish and Wildlife (CDFW)</b>	1602 Agreement for Streambed Alteration Incidental Take Permit for Threatened and Endangered Species	This project would require two 1602 Agreements; the first agreement for the geotechnical borings was acquired on July 27, 2017. The second agreement would be acquired prior to the construction of the Alameda Creek Bridge.
<b>California Department of Fish and Wildlife (CDFW)</b>	Incidental Take Permit for Threatened and Endangered Species	An Incidental Take Permit would be acquired prior to the construction of the Alameda Creek Bridge. Coordination with CDFW would be conducted prior to the geotechnical borings.
<b>Regional Water Quality Control Board (RWQCB)</b>	CWA Section 401	A CWA Section 401 Water Certification would be obtained for the construction of the Alameda Creek Bridge. Notification for the geotechnical borings has been completed with the RWQCB.
<b>National Marine Fisheries Service (NMFS)</b>	Section 7 Consultation for Threatened and Endangered Species	Consultation to occur prior to construction of the Alameda Creek Bridge. <sup>19</sup>
<b>Alameda County Water District (ACWD)</b>	Drilling permit as required by ACWD Ordinance No. 2010-01	A Drilling permit would be obtained prior to the geotechnical borings.

<sup>19</sup> The project will have “No Effect” on the Central California Coast Distinct Population Segment (DPS) Steelhead. Refer to Section 2.3.5 regarding project impacts to Central California Coast DPS Steelhead.

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## CHAPTER 2. AFFECTED ENVIRONMENT, ENVIRONMENTAL CONSEQUENCES, AND AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES

The following sections are based in large part on the technical reports referenced in Chapter 7 – References. As part of the scoping and environmental analysis conducted for the project, Caltrans considered the following environmental issues, but no adverse impacts were identified. As a result, there is no further discussion of these resources in this document:

**Table 8. Resource Areas with No Adverse Impacts**

Resource Topic	Reason for No Effect
Agriculture/Forestry/ Farmlands/ Timberlands	No agricultural, timberland, or forest land would be lost or converted as part of the proposed project and no prime agricultural land or lands associated with the California Lands Conservation Act of 1965 (also known as the Williamson Act) would be used for this project.
Air Quality	<p>The Alameda Creek Bridge Replacement Project is exempt from regional and project-level air quality conformity requirements under 40 Code of Federal Regulations (CFR) 93.126 as the project is to reconstruct a bridge with no additional travel lane/lanes (see §93.126, Table 2 – Exempt Projects). This project is included in the most current conforming 2017 Transportation Improvement Program (TIP) as a project in the grouped listings under SHOPP - Bridge Preservation (VAR170010). The proposed bridge replacement would not create or alter roadway intersections where localized hot-spots are most likely to occur. The nearest sensitive receptor is more than 3,000 feet away from the construction area. Sensitive receptors are locations where people susceptible to the effects of air pollutants may stay for an extended period of time, which include land uses or facilities such as residences, schools, playgrounds, childcare centers and hospitals. The proposed project would not cause exceedances or new violations of the National or California Ambient Air Quality Standards.</p> <p>The 2017 Bay Area Clean Air Plan, adopted on April 19, 2017 by BAAQMD, is a call to action to “Spare the Air and Cool the Climate”. The plan defines a vision for transitioning the region to a post-carbon economy needed to achieve ambitious greenhouse gas reduction targets for 2030 and 2050, and provides a regional climate protection strategy that will put the Bay Area on a pathway to achieve those GHG reduction targets. The proposed project would not interfere with the plan and would provide transportation benefits that reduce pollutant emissions by improving traffic operations.</p> <p>The proposed project would generate air pollutants during the construction period, which is expected to last a total of three years. Trucks and construction equipment emit hydrocarbons, oxides of nitrogen, carbon monoxide and particulates associated with grading, hauling and various other activities. The impacts from the above activities are considered temporary and would vary from day to day as construction progresses.</p>

	There are no sensitive receptors close enough to the project to be affected by the emissions. However, to minimize air quality impacts from construction activities, control measures would be implemented as specified in the Environmental Stewardship Section of Caltrans Standard Specifications - Section 14-9.02 Air Pollution Control (Caltrans, 2015) No adverse air quality emission impacts are associated with the Alameda Creek Bridge Replacement Project.
Coastal Zone and Wild and Scenic Rivers	The project is not located in the coastal zone and would have no impact to coastal resources protected by the Coastal Zone Management Act (CZMA) of 1972 or the California Coastal Act of 1976. Similarly, there are no wild and scenic rivers that pass through the project area.
Community Impacts – Community Character and Cohesion, and Relocations; Environmental Justice	There are no residential or commercial areas in the Alameda Creek Bridge Replacement Project vicinity. The project would not change public access, divide neighborhoods, separate residences from community facilities, change the quality of life, or increase urbanization or isolation. There would be no relocations as a result of this project. No minority or low-income populations would be adversely impacted by the proposed project and therefore, this project is not subject to the provisions of Executive Order (EO) 12898 – Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations.
Growth/Population/Housing	The project is a highway improvement project that would not alter or increase the capacity of SR-84. The proposed project would maintain the existing two-lane capacity. The project would have no impacts to growth/population/housing in the area.
Mineral Resources	The project does not conflict with any resource recovery plans or operations in the vicinity.
Noise	<p>The Alameda Creek Bridge Replacement Project would not add a through-traffic lane and would not cause substantial horizontal or vertical alterations. This is not a Type I project as defined under 23 CFR 772. The Alameda Creek Bridge Replacement Project would not increase the capacity of SR-84, but would increase the sight distance. The increase in noise levels associated with increasing the curve radii of this section of SR-84 is anticipated to be negligible.</p> <p>Noise levels would increase during the construction of the new Alameda Creek Bridge. The construction noise levels would vary, depending on the specific task and types of equipment being used. The activities anticipated to generate higher noise levels include earthwork, demolition, pile installation, and concrete mixing. The noise levels would be kept under 86 dBA (<math>L_{max}</math>) at 50 feet from the noise source for the majority of the activities involved with the construction of this project. The one exception would be when impact tools are used in the demolition of the existing bridge, which may reach 90 dBA in some incidents. Depending on the positions of the noise source and receptor, sound waves reflecting off canyon cliffs would slightly prolong the noise event as reverberation or, if time delays long enough, would produce faint distinguishable sounds as echoes. Comparing with the original noise source, the reflections are always weaker in energy due to losses in sound propagation, refraction, and diffraction. When reflections are combined with the noise source as in the case of reverberation, they would not cause noise levels to increase</p>



	more than one to two dBA, which are not perceptible to normal human hearing. Although the project would generate noise during construction, the project is located in a remote area of Niles Canyon with no noise sensitive users in the project vicinity. Noise impacts related to biological resources are addressed in Section 2.3 Biological Environment.
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## **2.1 Human Environment**

Human Environment consists of the following sections: Land Use, Utilities/Emergency Services, Traffic and Transportation/Pedestrian Bicycle Facilities, Visual/Aesthetics, and Cultural Resources.

### **2.1.1 Land Use**

Existing and Future Land Use, Consistency with State, Regional, and Local Plans and Programs, and Parks and Recreational Facilities are all discussed under Land Use.

#### **2.1.1.1 Existing and Future Land Use**

This section describes the existing and future regional land use in the immediate project area and the surrounding vicinity.

### **Affected Environment**

The proposed project is located within an undeveloped, rural area of Alameda County, frequently referred to as the Niles Canyon corridor. The Niles Canyon corridor is an east-west canyon formed by Alameda Creek, the largest creek in the San Francisco East Bay Region. Over the last 100 years, land ownership by public agencies has largely protected the entire Niles Canyon corridor from development. The land use surrounding the immediate project study area (SR-84, postmile 13.0 to 13.6) is open space, predominantly owned by public agencies including Caltrans, Alameda County, San Francisco Public Utilities Commission (SFPUC), the Alameda County Flood Control and Water Conservation District (ACFCD), and Alameda County Water District (ACWD). The nearest residential area to the project location is the town of Niles, located at the intersection of SR-84 and Mission Boulevard (SR 238), near the City of Fremont.

The passage of Alameda County's Save Agriculture and Open Space Lands Initiative and the City of Fremont's Hill Area Initiative provide additional layers of protection and further insulate the Niles Canyon corridor from development. The Alameda County electorate passed the Save Agriculture and Open Space Lands Initiative in November 2000 to protect open lands, agriculture spaces, and wildlife habitat. This initiative amended portions of the Alameda County General Plan to conserve and preserve the open spaces of Alameda County while simultaneously confining development of certain portions of Alameda County. Similar to Alameda County's Save Agriculture and Open Space Lands Initiative, the City of Fremont electorate passed the Hill Area Initiative (also known as Measure T) in 2002. The Hill Area Initiative was incorporated into the City of Fremont's Municipal Code to protect open space and prevent over-development in the Fremont Hills. Development within the designated Hillside Area must conform to numerous special restrictions.

According to the Alameda County Planning Department, the majority of the permits issued in the Niles Canyon corridor are for individual projects, not for residential or industrial planned developments (Piñon-Robinson, 2014). The Alameda County Planning Department also stated no residential or industrial developments in the project area and/or around this part of SR-84, from Mission Boulevard (SR-238) in Fremont to the community of Sunol, are planned for the near future. Therefore, there are no immediate development trends in the project vicinity.

### **Environmental Consequences**

#### *All Alternatives*

All of the Alternatives involve property acquisition for the realignment of SR-84 and construction of a new bridge, approximately 75 feet north of the existing Alameda Creek Bridge. Although the proposed project requires additional right-of-way, the project would not result in a change in land use designation. Table 9 quantifies the proposed right-of-way requirements for all Alternatives.

**Table 9. Proposed Right-of-Way Requirements for all Alternatives**

Alt.	Alameda County Railroad (sq. feet)		Alameda County Water District (sq. feet)		San Francisco Utility Commission (sq. feet)		Total R/W Partial Acquisition Fee (sq. feet)	Total Area TCE (sq. feet)
	Fee	TCE	Fee	TCE	Fee	TCE		
1	97,140	None	13,834	None	23,769	None	134,743	0
2	54,006	None	14,215	None	37,316	None	105,537	0
3A	75,099	4,108	16,161	None	35,538	11,970	126,798	16,078
3B	75,099	3,782	11,230	None	17,106	5,072	103,435	8,854

### *No-Build Alternative*

The No-Build Alternative would not result in any changes to land use designations.

### **Avoidance, Minimization, and/or Mitigation Measures**

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

#### **2.1.1.2 Consistency with State, Regional, and Local Plans and Programs**

Planning goals and policies directing the physical development of the area surrounding the Alameda Creek Bridge Replacement Project are described below.

### **Affected Environment**

#### *California Transportation Plan 2040*

The California Transportation Plan (CTP) provides a long-range policy framework to meet California's future mobility needs and reduce greenhouse gas emissions. The CTP defines goals, performance-based policies, and strategies to achieve a collective vision for California's future statewide, integrated, multimodal transportation system. The plan envisions a sustainable system that improves mobility and enhances Californians' quality of life.

#### *Toward an Active California*

Toward an Active California was adopted by Caltrans in May 2017 and is California's first statewide policy-plan to support travel by bicyclists and pedestrians through objectives, strategies, and actions. The plan seeks to fulfill the six goals laid out in the CTP 2040. The plan identifies policies and actions that Caltrans and its partners will take to achieve its goals and improve the safety and comfort of pedestrians and bicyclists through the State, making walking and biking an appealing option for many everyday trips.

#### *City of Fremont General Plan Land Use Element/Hill Area Initiative of 2002*

The City of Fremont electorate passed the Hill Area Initiative (also known as Measure T) in 2002. The Hill Area Initiative was incorporated into the City of Fremont's Municipal Code to protect open space and prevent over-development in the Fremont Hills. Development within the designated Hillside Area must conform to numerous special restrictions.

#### *Alameda County General Plan*

The Alameda County General Plan is a long range policy document approved by the Alameda County Board of Supervisors to guide physical, economic, and environmental growth in Alameda County. The Alameda County General Plan consists of three area plans that address Land Use and Circulation elements for their respective geographic areas, as well as area-specific goals, policies and actions for Circulation, Open Space, Conservation, Safety, and Noise. Although Alameda County addresses Land Use and Circulation Elements on a regional basis, Housing, Conservation, Open Space, Noise, Seismic and Safety and Scenic Route Elements are countywide and contain goals, policies, and actions that apply to the entire unincorporated area.

#### *East County Area Plan*

The East County Area Plan is one of three geographic area plans for Alameda County. The East County Area Plan encompass 418 square miles of eastern Alameda County and includes the cities of Dublin, Livermore, Pleasanton, and a portion of Hayward as well as surrounding unincorporated areas, including most of the Niles Canyon corridor. Alameda County has land use jurisdiction over the unincorporated portion of the East County (those areas outside the boundaries of an incorporated city). In November 2000, the Alameda County electorate approved the Save Agriculture and Open Space Lands Initiative. The Initiative amended portions of the Alameda County General Plan, including the East County Area Plan, with the intent of preserving and enhancing agriculture and agricultural lands, and to protect the natural qualities, wildlife habitats, watersheds, and open space of Alameda County from development (Alameda County, 2002).

#### *State Scenic Highway Program*

SR-84 through Niles Canyon is designated as a State Scenic Highway and protected by the State Scenic Highway Program. The 7.2 mile scenic highway encompasses Niles Canyon Road and Paloma Way Road between Mission Boulevard (SR-238) and I-680.

#### *Alameda Watershed Management Plan*

Lands to the south of Niles Canyon Road are within Alameda County, but are under the ownership and jurisdiction of the SFPUC. In April 2001, the SFPUC adopted the Alameda Watershed Management Plan to guide the management of the SFPUC lands for watershed protection. The purpose of the Alameda Watershed Management Plan is to provide a policy framework for the SFPUC to make consistent decisions about the activities, practices, and procedures that are appropriate on SFPUC watershed lands. To aid the SFPUC in their decision-making, the Plan provides a comprehensive set of goals, policies, and management actions, which integrate all watershed resources and reflect the unique qualities of the watersheds.

#### *The Alameda Countywide Transportation Plan*

The Alameda Countywide Transportation Plan (CWTP) is a long range policy document that guides transportation funding decisions for Alameda County's transportation system over a 25-year horizon. Approved by the Alameda County Transportation Commission in June 2012, the plan lays out a strategy for meeting transportation needs for all users in Alameda County. The plan includes projects and other improvements for new and existing freeways, local streets and roads, public transit (paratransit, buses, rails, ferries), as well as facilities and programs to support bicycling and walking. The CWTP serves as Alameda County's input to the Metropolitan Transportation Commission (MTC) in the development of the Regional Transportation Plan (RTP).

#### *Plan Bay Area*

Plan Bay Area is a state-mandated, integrated long-range transportation, land-use and housing plan that aims to support a growing economy, provide more housing and transportation choices and reduce transportation-related pollution in the nine-county San Francisco Bay Area. Plan Bay Area meets the federal requirements for a RTP.

#### *East Alameda County Conservation Strategy*

The East Alameda County Conservation Strategy (EACCS) is a collaborative effort to preserve endangered species by developing and adopting a shared vision to guide long-term habitat protection. The EACCS is funded by the Alameda County Community Development Agency, Alameda County Congestion Management Agency, Alameda County Waste Management Authority, the cities of Dublin, Livermore and Pleasanton, East Bay Regional Parks District, Zone 7 ACFCF, and by a CALFED grant obtained by the Alameda County Resource Conservation District. The EACCS assesses areas across east Alameda County for their habitat conservation value and establishes guiding biological principles for conducting conservation in this part of Alameda County. The primary objective of developing this conservation strategy is to reduce project delays and consequently, project costs, while facilitating the conservation of biological resources.

## **Environmental Consequences**

### *All Alternatives*

Overall, all Alternatives are consistent with relevant State, Regional, and Local Plans and Programs with minimal inconsistencies with the East Alameda County Conservation Strategy (EACCS). Caltrans' Preferred Alternative, Alternative 3B, achieves Objective 16.1 of Goal 16 which is to "Avoid and minimize direct impacts on Alameda whipsnake (mortality of individuals and loss of habitat) during project construction and indirect impacts that result from post project activities by implementing avoidance measures". As identified in Table 34. Summary of Impacts to AWS Critical Habitat Unit 3 in Section 2.3.5.3, Alternative 3B has similar impacts to AWS Critical Habitat Unit 3 as Alternatives 1, 2, and 3A. However, Alternative 3B has an overall smaller footprint and therefore, less of an impact to AWS habitat as identified in Table 33. Summary of Impacts to AWS by Alternative. Therefore, Alternative 3B achieves Objective 16.1 of Goal 16. Alternatives 1, 2, and 3A are not consistent with Goal 16 of the EACCS because a viable alternative (Alternative 3B) would avoid more impacts.

### *No-Build Alternative*

The No-Build Alternative is not consistent with transportation planning goals set by Plan Bay Area and the Alameda CWTP to provide safe and efficient facilities for East Alameda County.

Table 10 illustrates whether each Alternative is considered "consistent" or "not consistent" with each of the abovementioned plans/programs and individual policies and goals. A brief explanation justifies each "consistent" or "not consistent" determination. Avoidance and minimization measures would be applied, even though the Alameda Creek Bridge Replacement Project is consistent with relevant State, Regional, and Local Plans and Programs.

**Table 10. Consistency with State, Regional, and Local Plans and Policies**

Policy	Alternative 1	Alternative 2	Alternative 3A	Alternative 3B	No-Build Alternative
California Transportation Plan 2040					
Goal 4: Improve Public Safety and Security Policy 1: Reduce fatalities, serious injuries, and collisions.	Consistent. All Build Alternatives are consistent with California Transportation Plan 2040 policies to reduce fatalities, serious injuries, and collisions.				Consistent. The No-Build Alternative is not consistent with the general goals set by the California Transportation Plan 2040 as it would not reduce fatalities, serious injuries, and collisions.
Goal 6: Practice Environmental Stewardship Policy 1: Integrate environmental considerations in all stages of planning and implementation.	Consistent. All Build Alternatives are consistent as integration of environmental considerations occurred throughout the project development process. Environmental considerations would continue to be integrated during the design phase of the project.				Not applicable.
Toward an Active California					
Goal 4: Improve Public Safety and Security	Consistent. All Build Alternatives are consistent with California Transportation Plan 2040 policies to reduce fatalities, serious injuries, and collisions.				Consistent. The No-Build Alternative is not consistent with the general goals set by the California Transportation Plan 2040 as it would not reduce fatalities, serious



Policy	Alternative 1	Alternative 2	Alternative 3A	Alternative 3B	No-Build Alternative
					injuries, and collisions.
Goal 6: Practice Environmental Stewardship Policy 1: Integrate environmental considerations in all stages of planning and implementation.	<b>Consistent.</b> All Build Alternatives are consistent as integration of environmental considerations occurred throughout the project development process. Environmental considerations would continue to be integrated during the design phase of the project.				<b>Not applicable.</b>
<b>City of Fremont General Plan Land Use Element/Hill Area Initiative of 2002</b>					
Policy 2-6.2: Hill Area Initiative. Impose more restrictive requirements on Fremont Hill area development than would otherwise apply in designated open space areas.	<b>Consistent.</b> All Alternatives would realign SR-84 approximately 75 feet from the existing alignment and require some right-of-way acquisition. Although all Alternatives would require right-of-way acquisitions, all Alternatives would not physically encroach onto the Hill Face.				<b>Consistent.</b> The No-Build Alternative would require no acquisition of land.
<b>Alameda County General Plan</b>					
Conservation Element Goal: To protect and enhance wildlife habitats and natural vegetation areas in Alameda County	<b>Consistent.</b> All Alternatives involve the removal of a barrier to fish passage. All Alternatives would landscape the old section of SR-84 with trees and native vegetation to provide restored habitat in the project vicinity (refer to Section 2.3.1.3 Measures UPLAND TREES-1 and RIPARIAN TREES-1).				<b>Consistent.</b> The No-Build Alternative would not impact wildlife habitats and natural vegetation areas in Alameda County.
Conservation Element Goal: To insure and maintain a continuing supply of high water quality for the citizens of Alameda County	<b>Consistent.</b> A stream diversion would be proposed as a BMP to avoid impacts to Alameda Creek and ensure water quality is protected during construction activities (refer to Section 2.2.2.4. Measure WATER-5).				<b>Consistent.</b> The No-Build Alternative would have no impacts to Alameda Creek water quality.

Policy	Alternative 1	Alternative 2	Alternative 3A	Alternative 3B	No-Build Alternative
<b>East County Area Plan</b>					
<p>* Policy 1: The County shall identify and maintain a County Urban Growth Boundary that divides areas inside the Boundary, next to existing cities, generally suitable for urban development from areas outside suitable for long-term protection of natural resources, agriculture, public health and safety, and buffers between communities. In accordance with Measure D, the Initiative does not prohibit public facilities or other infrastructure that have no excessive growth-inducing effect on the East County area and have permit conditions to ensure that no service can be provided beyond that consistent with development allowed by the Initiative.</p> <p>*Policy amended in accordance with Measure D: Save Agriculture and Open Space Initiative</p>	<p><b>Consistent.</b> All Alternatives require acquisition of land designated as open space for transportation use. Although the proposed project requires additional right-of-way, the project would not result in a change in land use designation. All Alternatives are consistent with Measure D: Save Agriculture and Open Space Lands Initiative as the construction of all Alternatives would have no growth-inducing effect on the East County area and would not expand service beyond the capacity of the existing facility.</p>				<p><b>Consistent.</b> The No-Build Alternative would maintain the existing conditions.</p>
<p>Urban and Rural Development Policy 13: The County shall not provide nor authorize public facilities or other infrastructure in excess of that needed for permissible development consistent with the Initiative. This policy shall</p>	<p><b>Consistent.</b> All Alternatives would not increase the capacity of SR-84, but would realign a portion of SR-84 to provide a safer transportation infrastructure for East Alameda County.</p>				<p><b>Not applicable.</b></p>

Policy	Alternative 1	Alternative 2	Alternative 3A	Alternative 3B	No-Build Alternative
not bar 1) new, expanded or replacement infrastructure necessary to create adequate service for the East County, 2) maintenance, repair or improvements of public facilities which do not increase capacity, and 3) infrastructure such as pipelines, canals, and power transmission lines which have no excessive growth-inducing effect on the East County area and have permit conditions to ensure that no service can be provided beyond that consistent with development allowed by the Initiative. “Infrastructure” shall include public facilities, community facilities, and all structures and development necessary to the provision of public services and utilities.					
Sensitive Viewsheds Policy 114: The County shall require the use of landscaping in both rural and urban areas to enhance the scenic quality of the area and to screen undesirable views. Choice of plants should be based on compatibility	<b>Consistent.</b> All Alternatives would landscape the old section of SR-84 with trees and native vegetation to maintain the scenic quality of the area. Invasive giant reed and pampas grass populations within the project limits would be removed and revegetated with native plants (refer to Section 2.3.6.4 Measures INVASIVE-1, INVASIVE-2, and INVASIVE-3).				<b>Not applicable.</b>

Policy	Alternative 1	Alternative 2	Alternative 3A	Alternative 3B	No-Build Alternative
with surrounding vegetation, drought-tolerance, and suitability to site conditions; and in rural areas, habitat value and fire retardance.					
<p>Sensitive Viewsheds Policy 115*: In all cases appropriate building materials, landscaping and screening shall be required to minimize the visual impact of development. Development shall blend with and be subordinate to the environment and character of the area where located, so as to be as unobtrusive as possible and not detract from the natural, open space or visual qualities of the area. To the maximum extent practicable, all exterior lighting must be located, designed and shielded so as to confine direct rays to the parcel where the lighting is located.</p> <p>*Amended in accordance with the adoption of Measure D; Save Agriculture and Open Spaces</p>	<p><b>Consistent.</b> ST-70 is proposed as the bridge railing option for all Alternatives. All Alternatives are designed to minimize visual/aesthetic impacts. When the proposed project is completed, all Alternatives would landscape the old section of SR-84 with trees and native vegetation to maintain the scenic quality of the area and not detract from the natural, open space. Exterior lighting would be shielded to confine direct rays to the travel way (refer to Section 2.1.4.4 Measures VISUAL-1, VISUAL-2, VISUAL-3, VISUAL-4, and VISUAL-5, and Section 2.3.1.3 Measures UPLAND TREES-1, RIPARIAN TREES-1, and NATURAL COMMUNITIES-9).</p>				<b>Not applicable.</b>
<p>Sensitive Viewsheds Policy 117: The County shall require that where grading is necessary, the off-site visibility of cut and fill slopes and drainage improvements is</p>	<p><b>Consistent.</b> All Alternatives propose to design graded slopes to support native vegetation. The old SR-84 alignment would be replanted with native vegetation and trees to minimize impacts to this sensitive viewshed (refer to Section 2.1.4.4 Measures VISUAL-3,</p>				<b>Not applicable.</b>

Policy	Alternative 1	Alternative 2	Alternative 3A	Alternative 3B	No-Build Alternative
minimized. Graded slopes shall be designed to simulate natural contours and support vegetation to blend with surrounding undisturbed slopes	VISUAL-4, and VISUAL-5, and Section 2.3.1.3 Measures UPLAND TREES-1 and RIPARIAN TREES-1).				
Biological Resources Policy 131: The County shall require that roadways be designed to minimize impacts to wildlife corridor and regional trails. Where appropriate, grade-separated crossings and/or other features shall be used to maintain the viability of the affected corridor.	<b>Consistent.</b> All Alternatives do not impact regional trails and are designed to minimize impacts to wildlife corridors. All Alternatives involve the removal of a barrier to fish passage and landscaping of the abandoned section of SR-84 with trees and native vegetation to provide restored habitat in the project vicinity and maintain a high quality wildlife corridor in Niles Canyon (refer to Section 2.3.1.3 Measures UPLAND TREES-1 and RIPARIAN TREES-1 and Section 2.3.5.4 Measure AWS-1 and CRLF-1).				<b>Not applicable.</b>
Cultural Resources Policy 137: The County shall require development to be designed to avoid cultural resources or, if avoidance is determined by the County to be infeasible, to include implement appropriate mitigation measures that offset the impacts.	<b>Consistent.</b> All Alternatives would demolish a local resource, the Alameda Creek Bridge, which is eligible for the Alameda County Register. Per preliminary consultation with the City of Fremont, Caltrans would place an interpretive panel that discusses the history of transportation in Niles Canyon and the Alameda Creek Bridge's role in it at the Vallejo Mill Park. The panel would be developed during the Plans Specifications & Estimate (PS&E) phase of the project and would be installed at Vallejo Mill Park within one year following construction completion (refer to Section 2.1.5.4 Measures CULTURAL-3 and CULTURAL-4).				<b>Not applicable.</b>
Transportation Systems Policy 176: The County shall allow development and expansion of transportation facilities (e.g., streets and highways, public transit, bicycle and pedestrian paths, airports, etc.) in appropriate locations inside and outside the	<b>Consistent.</b> All Alternatives would provide bridge railing that offers structural integrity and eight-foot shoulders that would safely accommodate cyclists on the bridge.				<b>Not applicable.</b>

Policy	Alternative 1	Alternative 2	Alternative 3A	Alternative 3B	No-Build Alternative
Urban Growth Boundary consistent with the policies and Land Use Diagram of the East County Area Plan.					
Streets and Highways Policy 192: The County shall work with Caltrans to improve the interstate and state highway systems and the County road system according to the street classifications shown on the East County Area Plan Transportation Diagram, consistent with Policy 177.	<b>Consistent.</b> All Alternatives would provide bridge railing that offers structural integrity and eight-foot shoulders that would more safely accommodate cyclists on the bridge.				<b>Not applicable.</b>
Scenic Highways Policy 215: The County shall manage development and conservation of land within East County scenic highway corridors to maintain and enhance scenic values.	<b>Consistent.</b> The Alameda Creek Bridge Replacement Project proposes to maintain existing scenic value by replanting the abandoned SR-84 alignment with native vegetation and trees. ST-70 is proposed as the bridge railing option for all Alternatives. All Alternatives are designed to minimize visual/aesthetic impacts (refer to Section 2.1.4.4 Measure VISUAL-2 and Section 2.3.1.3 Measures UPLAND TREES-1 AND RIPARIAN TREES-1).				<b>Consistent.</b> The No-Build Alternative involves no changes to the existing highway corridor.
<b>State Scenic Highway Program: Scenic Corridor Protection Plan for Niles Canyon Road and Paloma Way Portion of California State Route 84</b>					
Policy Development 1A: The County of Alameda, City of Fremont, and City of Union City shall explore the development of a subcommittee that will review and provide comment on all private or public development applications within the corridor delineations.	<b>Consistent.</b> The Alameda County Scenic Highway Corridor Protection Committee is invited to review and comment on this Revised Draft EIR/EA for the Alameda Creek Bridge Replacement Project.				<b>Not applicable.</b>

Policy	Alternative 1	Alternative 2	Alternative 3A	Alternative 3B	No-Build Alternative
<b>Alameda Watershed Management Plan</b>					
Water Quality Policy 11: Where new roads or trails are required, locate and design them to follow natural topography.	<b>Consistent.</b> All Alternatives are designed to follow the natural topography of Niles Canyon.				<b>Not applicable.</b>
Water Quality Policy 18: Minimize vehicle-related contaminants in runoff from roads, parking lots, facilities, etc.	<b>Consistent.</b> Runoff from the roadway pavement for all Alternatives would be treated by a stormwater treatment system to remove pollutants. Prior to the project's construction, a Storm Water Pollution Prevention Plan (SWPPP) shall be prepared with details on how to avoid and to minimize impact to water quality from pollutants generated from construction activities (refer to Section 2.2.2.4 Measures WATER-1, WATER-2, WATER-3, WATER-4, WATER-5, and WATER-6).				<b>Not consistent.</b> Currently, pollutants from the roadway go into the Alameda Creek directly with no treatment.
Watershed Activities Policy 19: All proposed plans and projects on the Watershed shall be reviewed by San Francisco Public Utilities Commission according to the Review Process for Proposed Plans and Projects.	<b>Consistent.</b> The SFPUC is invited to review and comment on this Revised Draft EIR/EA for the Alameda Creek Bridge Replacement Project.				<b>Not applicable.</b>
Watershed Activities Policy 24: Require that all proposed development involving any grading of land include the submittal of a grading plan to SFPUC to retain the existing topography where feasible.	<b>Consistent.</b> The SFPUC is invited to review and comment on this Revised Draft EIR/EA for the Alameda Creek Bridge Replacement Project.				<b>Not applicable.</b>



Policy	Alternative 1	Alternative 2	Alternative 3A	Alternative 3B	No-Build Alternative
Alameda Countywide Transportation Plan					
Relevant goals listed in the Alameda Countywide Transportation Plan include providing a transportation system that will be safe and connected across the county, within and across the network of streets, highways and transit, bicycle, and pedestrian routes.	Consistent. All Alternatives would provide bridge railing that offers structural integrity and eight-foot shoulders that would safely accommodate cyclists on the bridge.				Not consistent. The No-Build Alternative would not address transportation deficiencies that exist at this location.
East Alameda County Conservation Strategy (EACCS)					
Goal 2: Maintain and enhance the effective movement and genetic exchange of native organisms within and between natural communities inside and outside the study area.	Consistent. All Alternatives involve the removal of a barrier to fish passage barrier. All Alternatives would landscape the old section of SR-84 with trees and native vegetation to provide restored habitat in the project vicinity (refer to Section 2.3.1.3 Measures UPLAND TREES-1 and RIPARIAN TREES-1 and Section 2.3.5.4 Measures AWS-1 and CRLF-1).				Not applicable.
Goal 6: Protect and enhance functional oak woodland communities (blue oak woodland, valley oak woodland, coast live oak forest and woodland, mixed evergreen forest/oak woodland) to benefit local species and promote the level of native biodiversity expected to occur within this natural community in the study area.	Not consistent. Alternative 1 involves temporary and permanent impacts to approximately 1.6 acres of coastal oak woodland communities. Approximately 120 coast live oaks	Not consistent. Alternative 2 involves temporary and permanent impacts to approximately 1.3 acres of coastal oak woodland communities. Approximately 102 coast live oaks would	Not consistent. Alternative 3A involves temporary and permanent impacts to approximately 1.6 acres of coastal oak woodland communities. Approximately 110 coast live oaks	Not consistent. Alternative 3B involves temporary and permanent impacts to approximately 1.2 acres of coastal oak woodland communities. Approximately 102 coast live oaks	Consistent. The No-Build Alternative would not impact oak woodland communities.

Policy	Alternative 1	Alternative 2	Alternative 3A	Alternative 3B	No-Build Alternative
	would be impacted. Caltrans plans to replant trees in the existing SR-84 alignment, to the maximum extent practicable (refer to Section 2.3.1.3 Measure UPLAND TREES-1).	be impacted. Caltrans plans to replant trees in the existing SR-84 alignment, to the maximum extent practicable (refer to Section 2.3.1.3 UPLAND TREES-1).	would be impacted. Caltrans plans to replant trees in the existing SR-84 alignment, to the maximum extent practicable (refer to Section 2.3.1.3 Measure UPLAND TREES-1).	would be impacted. Caltrans plans to replant trees in the existing SR-84 alignment, to the maximum extent practicable (refer to Section 2.3.1.3 Measure UPLAND TREES-1).	
Goal 10: Improve the overall quality of streams and the hydrologic and geomorphic processes that support them to maintain functional aquatic communities, benefiting local species and promoting native biodiversity.	<b>Consistent.</b> All Alternatives involve the removal of a concrete weir in Alameda Creek which currently serves as a barrier to fish passage. Removal of this barrier would allow the stream to take on a more natural morphology and would remove a low-flow fish passage barrier. Additionally, all Alternatives would remove the existing Alameda Creek Bridge's in-stream piers.				<b>Not consistent.</b> Alameda Creek would maintain its existing morphology and the weir would exist as a fish passage barrier.
Goal 16 Increase the Alameda whipsnake population in the designated recovery units in the study area to a level that allows for long-term viability without human intervention.	<b>Not consistent.</b> Alternative 1 involves temporary and permanent impacts to 2.0 acres of critical habitat for	<b>Not consistent.</b> Alternative 2 involves temporary and permanent impacts to 1.2 acres of critical habitat for Alameda whipsnake.	<b>Not consistent.</b> Alternative 3A involves temporary and permanent impacts to 1.4 acres of critical habitat for	<b>Consistent</b> Alternative 3B involves temporary and permanent impacts to 1.4 acres of critical habitat for	<b>Consistent.</b> The No-Build Alternative would not impact Alameda whipsnake populations.

Policy	Alternative 1	Alternative 2	Alternative 3A	Alternative 3B	No-Build Alternative
Objective 16.1. Avoid and minimize direct impacts on Alameda whipsnake (mortality of individuals and loss of habitat) during project construction and indirect impacts that result from post project activities by implementing avoidance measures.	Alameda whipsnake. Caltrans will provide compensation for these impacts but the majority will be accomplished off site (refer to Section 2.3.5.4 Measure AWS-1).	Caltrans will provide compensation for these impacts but the majority will be accomplished off site (refer to Section 2.3.5.4 Measure AWS-1).	Alameda whipsnake. Caltrans will provide compensation for these impacts but the majority will be accomplished off site (refer to Section 2.3.5.4 Measure AWS-1).	Alameda whipsnake. Caltrans will provide compensation for these impacts but the majority will be accomplished off site. Alternative 3B is consistent with Objective 16.1 as this Alternative minimizes direct impacts to Alameda whipsnake habitat (refer to Section 2.3.5.4 Measure AWS-1).	
Goal 22: Increase the central California coast steelhead distinct population segment by enhancing and providing access to habitat in the study area. Specifically including: Objective 22.1. Avoid and minimize direct impacts on potential steelhead habitat during project construction and indirect impacts that result from post	<b>Consistent.</b> All Alternatives involve the removal of a concrete weir in Alameda Creek which currently serves as a barrier to fish passage. Removal of this barrier would allow the stream to take on a more natural morphology and would remove a low-flow fish passage barrier (refer to Section 2.2.2.4. Measures WATER-1, WATER-2, WATER-3, and WATER-4).				<b>Not consistent.</b> The No-Build Alternative would not remove the concrete weir from Alameda Creek. Alameda Creek would maintain its existing morphology and the weir would

Policy	Alternative 1	Alternative 2	Alternative 3A	Alternative 3B	No-Build Alternative
project activities by implementing avoidance measures. Objective 22.3. Support existing efforts to remove/modify fish barriers in the Alameda Creek watershed to enable access to a wide variety of streams and habitats in the study area. Objective 22.4. Ensure that all new road crossings and crossing upgrades in areas of steelhead habitat are designed to facilitate passage of adult and juvenile steelhead.					continue to serve as a fish passage barrier in Alameda Creek.
One Plan Bay Area					
Required Performance Target: Reduce Injuries and Fatalities from Collisions. This target reflects an emphasis in Plan Bay Area to enhance safety for all travel modes across the Bay Area. This target is adapted from the state’s Strategic Highway Safety Plan (2006), and also reflects a long-standing regional goal of making streets, highways, and transit service safer.	Consistent. All Alternatives would provide bridge railing that offers structural integrity and eight-foot shoulders that would safely accommodate cyclists on the bridge.				Not consistent. The No-Build Alternative would not address transportation deficiencies that exist at this location.

### **Avoidance, Minimization, and/or Mitigation Measures**

The following measures (identified from their appropriate sections) would be applied as avoidance and minimization measures.

#### Section 2.1.4.4 Visual/Aesthetics

VISUAL-1, VISUAL-2, VISUAL-3, VISUAL-4, and VISUAL-5

#### Section 2.1.5.4 Cultural Resources

CULTURAL-3 and CULTURAL-4

#### Section 2.2.2.4 Water Quality and Stormwater

WATER-1, WATER-2, WATER-3, WATER-4, WATER-5, WATER-6, WATER-7, WATER-8, WATER-9, and WATER-10

#### Section 2.3.1.3 Natural Communities

UPLAND TREES-1, RIPARIAN TREES-1, and NATURAL COMMUNITIES-9

#### Section 2.3.5.4 Threatened and Endangered Species

AWS-1 and CRLF-1

#### Section 2.3.6.4 Invasive Species

INVASIVE-1, INVASIVE-2, and INVASIVE-3

### **2.1.1.3 Parks and Recreational Facilities**

#### **Affected Environment**

Potential parks and recreational facilities identified within 0.5 miles of the project area include the Stony Brook Park and the Niles Canyon Railway. In addition to these potential parks and recreational facilities, the East Bay Regional Parks District (EBRPD) is currently in the early planning phases of constructing a Class I bicycle trail through the Niles Canyon corridor. These potential parks and recreational facilities are discussed in further detail below and shown in Figure 13.

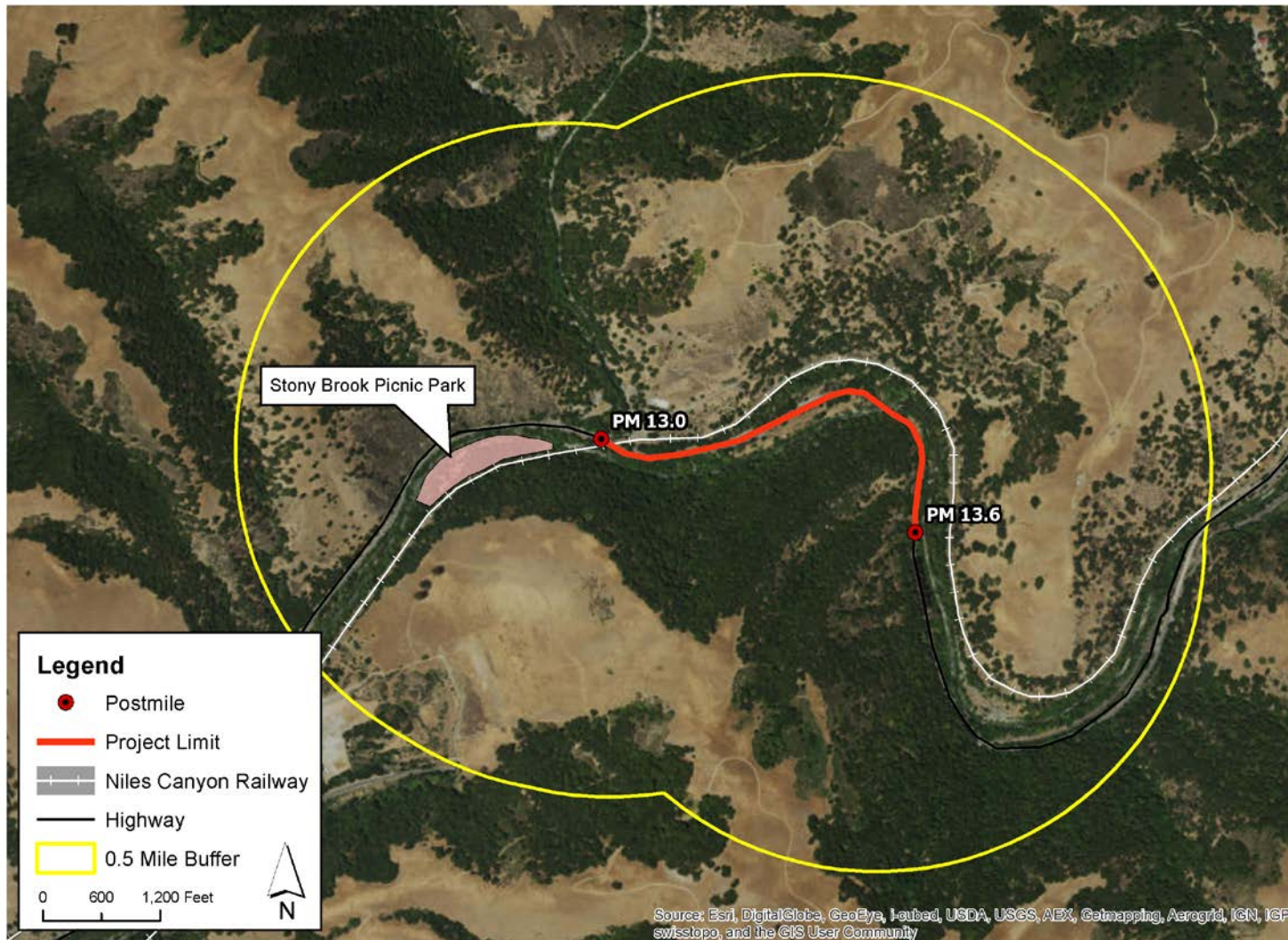
Stony Brook Park: The Stony Brook Park served as one of several picnic parks located in the Niles Canyon corridor during the 1900s-1960s. Although the Stony Brook Park historically served as a recreation area for the public, the area is currently closed and no public access to the area is provided. For this analysis, the Stony Brook Park is not considered a park and recreational facility because no public access is provided.

Niles Canyon Railway: The Niles Canyon Railway operates along a portion of the first Transcontinental Railroad; this railway is listed on the National Register of Historic Places (NRHP) as the Niles Canyon Transcontinental Railroad (NCTR). The Pacific Locomotive Association (PLA) operates the Niles Canyon Railroad as a living history museum to increase public education, enjoyment, and appreciation of the American railroads (Niles Canyon Railway, 2014). In 1987, the PLA entered into an agreement with the county and began building the rail line. Since then, the Niles Canyon Railway has provided recreational train rides to the public year round between Sunol and the town of Niles in

Fremont. The Niles Canyon Railway is not considered to be a park but is considered a recreational facility for the purpose of this analysis.

Proposed Niles Canyon Class I Bicycle Trail: The EBRPD, in cooperation with Alameda County, ACWD, SFPUC, Caltrans, the Altamont Corridor Express, and the PLA, is interested in completing an extension of the East Bay trail system through the Niles Canyon corridor. The EBRPD completed a feasibility study in December 2015 for how to construct a paved, Class I bicycle trail from Mission Boulevard (SR-238) in Fremont to the town of Sunol. The proposed extension would connect to the existing Alameda Creek Regional Trail. Caltrans is participating on the multi-agency development team for the creation/extension of this bicycle trail system through the Niles Canyon corridor. EBRPD's feasibility study examined three potential Niles Canyon trail alignments. Based on these preliminary designs, all three trail alignments would be located outside the vicinity of the Alameda Creek Bridge Replacement Project limits.

Figure 13. Map of Parks and Recreational Facilities within 0.5 miles of the project limits





## **Environmental Consequences**

### *All Alternatives*

Stony Brook Park and the Niles Canyon Railway were both identified as potential parks and recreational facilities located within 0.5 miles of the project vicinity. As discussed in further detail below, all Alternatives would not impact parks and recreational facilities.

Stony Brook Park: All Alternatives would have no direct or indirect impacts to the Stony Brook Park.

Niles Canyon Railway: All Alternatives have no direct impacts to the Niles Canyon Railway. Indirect impacts to the railway include temporarily increased noise levels from project construction and demolition. Impacts associated with temporary noise levels are anticipated to be negligible as passengers on the train would have limited exposure to the area due to the speed of the train. Similarly, indirect visual impacts are expected to be negligible given the limited exposure of viewers to the proposed project. Views of the project vicinity from the train are seen at a distance and filtered by dense vegetation. Duration of visual impacts is short due to the speed of the train through the project vicinity. The Niles Canyon Railway is part of the Niles Canyon Transcontinental Railroad District, a NRHP property. As a result, the Niles Canyon Railway is considered a Section 4(f) resource, however, the Alameda Creek Bridge Replacement Project would not use or adversely impact the Niles Canyon Railway (refer to Appendix B. Section 4(f)).

Niles Canyon Class 1 Bicycle Trail: The EBRPD completed a feasibility study in December 2015. Caltrans was a participant in EBRPD's multi-agency Niles Canyon Trail development team and will continue to participate in multi-agency development efforts for the Niles Canyon Class 1 Bicycle Trail. Environmental consequences of the Alameda Creek Bridge on the proposed bicycle trail through the Niles Canyon corridor are negligible given interagency coordination and communication.

All Alternatives would have no impact on existing parks and recreational facilities.

### *No-Build Alternative*

The No-Build Alternative would have no impact to parks and recreational facilities.

## **Avoidance, Minimization, and/or Mitigation Measures**

PARKS/REC-1. Caltrans will continue to participate on EBRPD's multi-agency development team for the future Niles Canyon Class I bicycle trail.

### **2.1.2 Utilities/Emergency Services**

#### **2.1.2.1 Affected Environment**

Information in this section is based on the Draft Project Report (Caltrans, 2015a) and Supplemental Draft Project Report (Caltrans, 2017) prepared for the Alameda Creek Bridge Replacement Project. Power and telecommunication utilities are located within the project vicinity. Pacific Gas & Electric (PG&E) provides gas and electricity service and American Telephone & Telegraph Company (AT&T) provides telecommunication service through the project area. No water or sewer utilities are located in the project vicinity.

The City of Fremont's limits extend into the western portion of the project limits. The City of Fremont provides police and fire protection and traffic enforcement services for the western portion of the project limits. For the eastern portion of the project limits, fire protection is provided by the California Department of Forestry and Fire Protection (CAL FIRE) and police and traffic enforcement services are provided by the California Highway Patrol. The California Highway Patrol (CHP) has jurisdiction over the entire project limits (as well as the SR-84 corridor) for matters involving both traffic violations and emergency services.

### **2.1.2.2 Environmental Consequences**

#### *All Alternatives*

No relocations or direct impacts to sewer and water utilities are expected as a result of the Alameda Creek Bridge Replacement Project. Two PG&E utility poles are located within the project vicinity and would be relocated to accommodate the realignment of SR-84 and the construction of a new Alameda Creek Bridge. AT&T also uses these two utility poles to provide telecommunication service through the area. There would be no temporary or long-term impacts to electricity or telecommunication services from the relocation of the power poles. Coordination efforts with PG&E would continue through final project design and construction.

SR-84 would remain open during the construction of the new bridge and alignment approaches. For the construction of all Alternatives, the roadway would be temporarily shifted towards the cut slope. Short-term lane closures would be necessary to facilitate construction. These short-term lane closures would occur on the weekends and during off-peak hours as to not affect peak-hour traffic (peak-hour traffic is between 6- 10 AM and 3- 7 PM) during the weekdays. No law enforcement, fire, and/or emergency services would be affected by the proposed construction and demolition activities as access to SR-84 would not be permanently altered by the project. Impacts to emergency services would be temporary and minimal.

All Alternatives would require stage construction plans, construction area sign plans, and a Traffic Management Plan (TMP). The TMP for use during construction involves the use of the following: portable changeable message signs, ground mounted signs, detour maps, and bicycle community information. The TMP would be implemented during construction to minimize and prevent delays and inconveniences to the traveling public. The TMP may include, but is not limited to, public information through the use of brochures, mailers, and press releases. Press releases would notify motorists, businesses, community groups, local entities, emergency services, and politicians of upcoming closures or detours.

#### *No-Build Alternative*

The No-Build Alternative would not change existing conditions and would not impact any utilities/emergency services.

### **2.1.2.3 Avoidance, Minimization, and/or Mitigation Measures**

UTL-1. Power lines will be relocated to avoid affecting power service.

TRAFFIC-1<sup>20</sup>. A TMP is a standard element in Caltrans projects. TMP development begins at the initiation of the project planning process and is updated at each point in the project development process. The TMP identifies the need to disseminate press releases, and other documents to adequately notify and inform motorists, community groups, local entities, emergency services, and elected officials of upcoming road construction activities. This responsibility includes advance notification to local newspapers, television and radio stations, and emergency response providers. Caltrans construction staff will also submit weekly information regarding the traffic impacts to SR-84 to the Caltrans District 4 Public Information Office. This information will be included in the Weekly Traffic Update, which Caltrans disperses to news media outlets and other interested agencies. A TMP will be prepared during the detailed design phase for the selected Alternative and implemented prior to the construction of the project. The plan will be prepared in accordance with Caltrans requirements and guidelines and will address traffic impacts from staged construction and specific traffic handling concerns during the construction of the project.

### **2.1.3 Traffic and Transportation/Pedestrian and Bicycle Facilities**

#### **2.1.3.1 Regulatory Setting**

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

In July 1999, the U.S. Department of Transportation (USDOT) issued an Accessibility Policy Statement pledging a fully accessible multimodal transportation system. Accessibility in federally assisted programs is governed by the USDOT regulations (49 CFR Part 27) implementing Section 504 of the Rehabilitation Act (29 United States Code [USC] 794). FHWA has enacted regulations for the implementation of the 1990 Americans with Disabilities Act (ADA), including a commitment to build transportation facilities that provide equal access for all persons. These regulations require application of the ADA requirements to Federal-aid projects, including Transportation Enhancement Activities.

#### **2.1.3.2 Affected Environment**

Information in this section is based on the Alameda Creek Bridge Replacement Project: Updated Safety Analysis and Recommendations Report prepared for this project (Caltrans, 2014c) and the Alameda Creek Bridge: Safety Analysis and Recommendations Addendum (Caltrans, 2016b). The Alameda Creek Bridge Replacement Project Updated Safety

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<sup>20</sup> The TMP is a living document and continues to be modified as work information warrants its. Frequently after construction activities begin, if traffic conditions differ from what was anticipated, changes in TMP strategies may be necessary (Transportation Management Plan Guidelines, 2015).

Analysis and Recommendations Report was completed on January 15, 2014 and the Alameda Creek Bridge Safety Analysis and Recommendations Addendum was completed on January 4, 2016. In addition to this report, the Report of the Engineering and Traffic Study (Caltrans, 2008), Traffic Data for State Route 84 from PM 10.8 to 18.0 (Caltrans, 2011), the Road Safety Assessment (FHWA, 2012), and Final Quantitative Road Safety Analysis Safety Analysis Study Report State Route 84 – Niles Canyon Road Corridor (Caltrans, 2012) provide information for this section. The study area established for traffic and transportation/pedestrian and bicycle facilities analysis is SR-84 between post miles 13.0 and 13.6 whereas the relevant study area established for traffic safety analysis is focused between post miles 13.2 and 13.6<sup>21</sup>. The Niles Canyon corridor is characterized as a two lane conventional highway that leaves the urbanized setting of Fremont and transitions into a rural setting east of Mission Boulevard (SR-238). The roadway is generally bounded by a steep canyon wall, Alameda Creek, and the Niles Canyon Railway.

The speed limit on the Niles Canyon section of SR-84 is 45 mph, as identified by the black figures on white speed limit signs. However, advisory signage at some curve locations in Niles Canyon recommends lower speeds as identified by the black figures on yellow. The roadway has narrow shoulders with generally curvilinear horizontal alignment; the eastern portion is less curvilinear with more open roadside and generally flatter sideslopes. Table 11 identifies the Annual Average Daily (AADT) Traffic on SR-84 from postmile 10.8 to 18.0.

**Table 11. 1999-2012 Annual Average Daily (AADT) Traffic on SR-84 from postmile 10.8 to 18.0**

Year	Location	Back			Ahead		
		Peak	Peak	AADT	Peak	Peak	AADT
		Hour	Month		Hour	Month	
1999	Route 84 at Mission Boulevard				1,950	24,000	20,800
	Route 84 at Palomares Road	1,800	19,900	17,800	2,000	19,200	17,100
	Route 84 at Pleasanton/Sunol Roads	2,050	19,200	17,100	990	8,700	8,000
2000	Route 84 at Mission Boulevard				2,100	37,000	28,500
	Route 84 at Palomares Road	1,250	19,800	15,800	1,250	18,400	15,300
	Route 84 at Pleasanton/Sunol Roads	680	8,900	7,700	830	9,900	8,900
2001	Route 84 at Mission Boulevard				2,100	37,000	28,500
	Route 84 at Palomares Road	1,250	19,800	15,800	1,250	18,400	15,300
	Route 84 at Pleasanton/Sunol Roads	680	8,900	7,700	830	9,900	8,900
2002	Route 84 at Mission Boulevard				2,100	37,000	28,500
	Route 84 at Palomares Road	1,250	19,800	15,800	1,250	18,400	15,300

<sup>21</sup> Although the project limits for the Alameda Creek Bridge Replacement Project extend from 13.0 to 13.6, postmile 13.0 to postmile 13.2 (extending all the way to the Palomares Road intersection and the Farwell Union Pacific Railroad Underpass), these locations have different geometrics than the subject Alameda Creek Bridge Replacement Project location. Extending the traffic safety analysis to the Palomares Road Intersection would therefore include accident data that are not relevant to the Alameda Creek Bridge Replacement Project. For this reason, PM 13.2 was selected as the appropriate beginning postmile for the traffic safety analysis.

	Route 84 at Pleasanton/Sunol Roads	680	8,900	7,700	830	9,900	8,900
2003	Route 84 at Mission Boulevard				2,500	30,000	29,000
	Route 84 at Palomares Road	1,400	16,700	16,100	1,300	16,200	15,600
	Route 84 at Pleasanton/Sunol Roads	660	8,200	7,900	760	9,400	9,100
2004	Route 84 at Mission Boulevard				2,550	30,500	29,500
	Route 84 at Palomares Road	1,400	17,000	16,400	1,350	16,500	15,900
	Route 84 at Pleasanton/Sunol Roads	670	8,300	8,000	760	9,600	9,200
2005	Route 84 at Mission Boulevard				2,700	32,000	31,000
	Route 84 at Palomares Road	1,450	17,300	16,700	1,350	16,700	16,100
	Route 84 at Pleasanton/Sunol Roads	680	8,400	8,100	790	9,900	9,500
2006	Route 84 at Mission Boulevard				1,500	18,400	16,400
	Route 84 at Palomares Road	1,350	16,700	14,900	1,300	16,200	14,400
	Route 84 at Pleasanton/Sunol Roads	1,300	16,000	14,300	680	8,500	7,500
2007	Route 84 at Mission Boulevard				1,450	18,000	16,000
	Route 84 at Palomares Road	1,300	16,300	14,500	1,300	15,700	14,000
	Route 84 at Pleasanton/Sunol Roads	1,300	16,000	14,300	670	8,400	7,400
2008	Route 84 at Mission Boulevard				1,400	17,600	15,700
	Route 84 at Palomares Road	1,250	15,900	14,200	1,250	15,400	13,700
	Route 84 at Pleasanton/Sunol Roads	1,300	15,700	14,000	660	8,300	7,300
2009	Route 84 at Mission Boulevard				1,450	17,900	15,500
	Route 84 at Palomares Road	1,300	16,400	14,200	1,250	15,300	13,700
	Route 84 at Pleasanton/Sunol Roads	1,250	15,800	13,700	660	7,400	7,200
2010	Route 84 at Mission Boulevard				1,400	17,600	15,200
	Route 84 at Palomares Road	1,300	16,200	14,000	1,250	15,100	13,500
	Route 84 at Pleasanton/Sunol Roads	1,250	15,600	13,500	650	7,300	7,100
2011	Route 84 at Mission Boulevard				1,400	17,600	15,200
	Route 84 at Palomares Road	1,300	16,200	14,000	1,250	15,100	13,500
	Route 84 at Pleasanton/Sunol Roads	1,250	15,600	13,500	650	7,300	7,100
2012	Route 84 at Mission Boulevard				1,750	15,000	14,100
	Route 84 at Palomares Road	1,600	13,800	13,000	1,550	13,400	12,600
	Route 84 at Pleasanton/Sunol Roads	1,550	13,400	12,600	720	7,100	6,700

Source: Caltrans, 2014

Niles Canyon two-way average annual daily traffic (AADT) is forecast to grow to 22,500 in the vicinity of Palomares Road by the year 2030 (Caltrans, 2012).

In 2007, Caltrans installed grooved centerline rumble strips from just east of Route 238 (Mission Boulevard) (PM 11.1) to just west of the Silver Springs Underpass (PM 16.7) as part of a safety improvement project along the Niles Canyon Corridor. Caltrans excluded the Alameda Creek Bridge and its approaches (PM 13.314/13.501) from the grooved centerline rumble strip installation as there is not sufficient lane width on the bridge for rumble strips; instead, only modified median striping details were placed on the bridge.

The centerline rumble strips are primarily intended to address head-on and sideswipe crashes by alerting the driver that he/she is about to cross into opposing traffic (FHWA, 2012). These crashes are almost always severe or fatal injury crashes. With the exception of Alameda Creek Bridge, grooved centerline rumble strips were installed in the remaining segments of the corridor from PM 10.8 to PM 18.0 as part of the Niles Canyon Safety Improvements Project (Short-Term Improvements), completed September 2016.

FHWA's Road Safety Assessment compared crash data from the Transportation Injury Mapping System (TIMS) for three years before and after the installation year (2007) showing that 53 injury crashes occurred from 2004-2006, of which 12 (23%) were head-on or sideswipe. In the "After" period, from 2008-2010, 41 injury crashes occurred, of which only 4 (10%) were head-on or sideswipe (FHWA, 2012).

Although there was a 13% reduction in the type of crashes targeted by the centerline rumble strip project, FHWA's Road Safety Assessment identified that 37 other injury crashes (90%) in the "after" period were not head-on or sideswipe and were not likely influenced in any meaningful way by the presence of the centerline rumble strips.

The following data identifies the traffic accident data pre-rumble strip installation and post-rumble strip installation from postmile 13.2 to 13.6:

**Western Approach to the Alameda Creek Bridge (postmile 13.2 to 13.354)**

This segment is characterized by a sharp non-standard curve and narrow shoulders on both sides of the roadway that limit motorist sight distance and horizontal clearance.

Pre-rumble strip: There were a total of four collisions within this approach segment in the 58 month study period, out of which none was fatal and three involved injuries, with six persons getting injured. There were two hit-object type, one sideswipe and one overturn type accident. Primary collision factors were improper turning movement in two cases and DUI in one case. Two of those accidents involved running off the road, and one involved crossing into the opposite lane. Objects hit included side of bridge approach railing, cut slope or embankment etc. on the roadside.

Post-rumble Strip: There were a total of seven collisions within this approach segment in the 74 month study period, out of which none was fatal and one involved injuries, with one person getting injured. There were two hit-object, two rear-end, one head-on, one sideswipe, and one broadside type accident within this segment. Primary collision factors were speeding in two cases, improper turn in two cases, and other violations in three cases. Objects hit included side of bridge railing, bridge approach guard rail, and other vehicles. Two of those accidents involved crossing into the opposite lane, and one involved running off the road. Objects hit included side of bridge approach railing, cut slope or embankment etc. on the roadside.

**Alameda Creek Bridge (postmile 13.355 to 13.421)**

The existing bridge is a two-lane bridge with no shoulders and the bridge railings do not meet current standards for structural adequacy.

Pre-rumble Strip: In the 58 month period, there were a total of two collisions, out of which none were fatal and one involved injuries resulting in three persons getting injured. One was a head-on type collision and the other was a sideswipe type.

Post-rumble Strip<sup>22</sup>: During the 74 month study period, there was only one collision which involved injuries resulting in one person getting injured. It was a hit-object type collision, with the object hit being the side of the bridge railing. The bridge itself has a straight alignment, associated with tight curves at both the approach ends. The hit-object accident may be due to lack of vehicle maneuverability on the bridge because of no shoulders.

**Eastern Approach (postmile 13.422 to 13.6)**

This approach segment is characterized by sharp non-standard curves, narrow shoulders and a rolling terrain.

Pre-rumble Strip: There were a total of four collisions within this approach segment in the 58 month study period, out of which none was fatal and three involved injuries, with three persons getting injured. Three of the accidents were hit-object type. Primary collision factors were identified as improper turns in two cases. Two collisions involved running off the road. The limited motorist sight distance and lack of horizontal clearance are the main causes for the hit-object and run off the road accidents. Objects hit included guardrails along the roadway and natural materials on the roadway.

Post-rumble Strip: There were a total of five collisions within this approach segment in the 74 month study period, out of which none was fatal and 3 involved injuries, with five persons getting injured. Two of the accidents were hit-object type and two involved overturned vehicles. Primary collision factors were identified as improper turns in two cases and DUI in two other cases. One collision involved running off the road. The limited motorist sight distance and lack of horizontal clearance are the main causes for the hit-object and run off the road accidents. Objects hit included side of bridge railing, guardrails along the roadway and natural materials on the roadway.

In August 2012, Caltrans conducted a Road Safety Analysis study on SR-84 using Value Analysis/Explicit Road Safety processes and techniques between post miles 10.8 and 18.0. Using collision data supplied by Caltrans (from November 2007 to September 2010), the Road Safety Analysis identified five locations within the SR-84 corridor between Mission Boulevard (SR-238) and I-680 with safety needs. The Alameda Creek Bridge was

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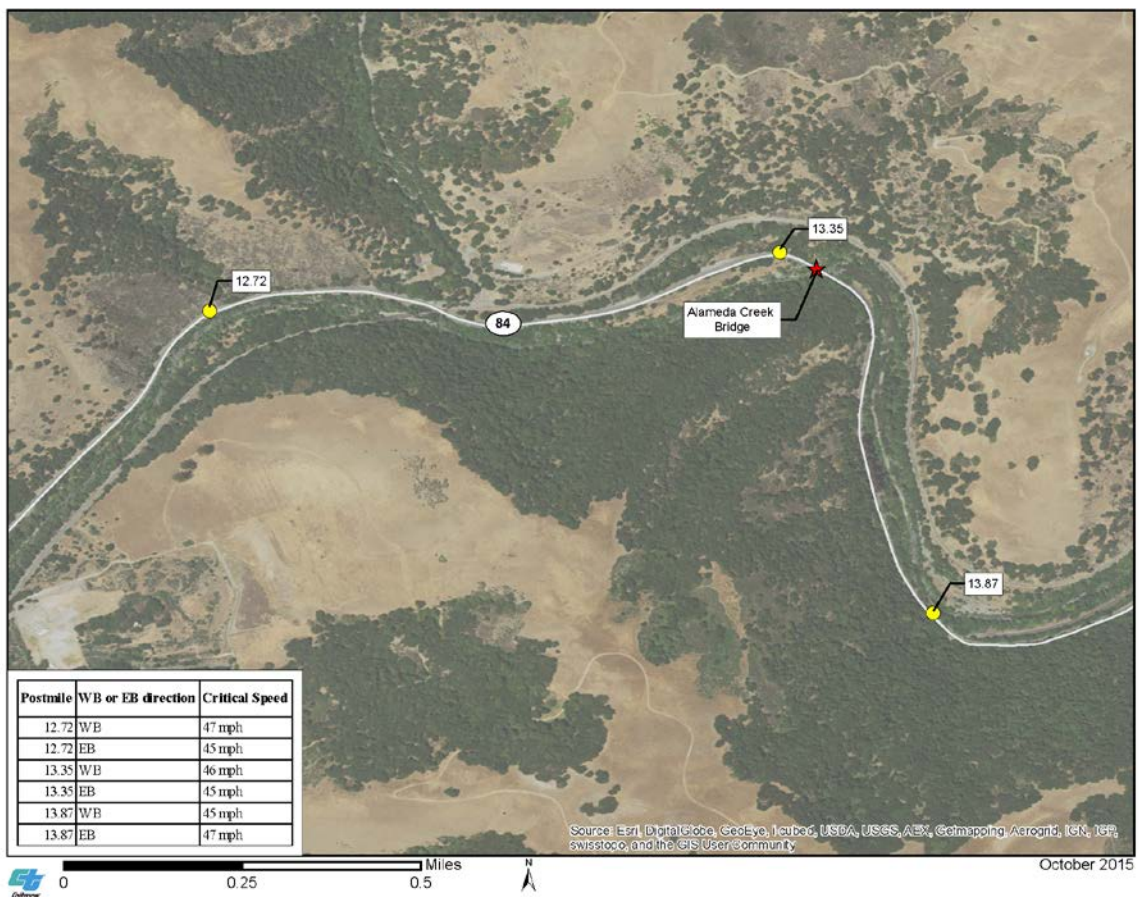
<sup>22</sup> Caltrans excluded the Alameda Creek Bridge and its approaches (PM 13.314/13.501) from the grooved centerline rumble strip installation as there is not sufficient lane width on the bridge for rumble strips, instead, only modified median striping details were placed on the bridge.

identified as a location in Niles Canyon with unmet safety needs and that the replacement of the Alameda Creek Bridge would decrease the number of accidents by 0.37 collisions per year (Caltrans, 2012).

Prior to the Road Safety Analysis, Caltrans conducted a speed survey in 2008 within the corridor between post miles 10.83 and 17.98 so that radar enforcement could be utilized to identify the Critical Speed. The Critical Speed is defined as the 85th percentile speed which is the speed at or below which 85% of vehicles travel (California Vehicle Code Section 22354). Although the speed limit in the Niles Canyon corridor is 45 mph, the survey concluded that the average Critical Speed between post mile 10.83 and 17.98 is 47.8 mph in the westbound direction and 47.7 mph in the eastbound direction within those limits.

The speed survey points identified that the Critical Speed within the Alameda Creek Bridge Replacement Project vicinity is 45 mph or greater. Figure 14 identifies the locations of the speed survey points within the Alameda Creek Bridge Replacement Project vicinity.

**Figure 14. Speed Survey Points within the Alameda Creek Bridge Replacement Project vicinity.**



Source: Caltrans, Report of the Engineering and Traffic Survey, 2008



There are posted advisory speed signs recommending that the bridge be driven at 30 mph going eastbound and 35 mph going westbound. Even though there are advisory speed warning signs at both approaches to the Alameda Creek Bridge, there is a pattern of drivers leaving the roadway on the outside of the curve due to the tight-curve radius on the western end of the Alameda Creek Bridge. This history of accidents indicates that the existing conditions of the roadway alignment are inconsistent with driver expectations of SR-84 operating speed. The operating speed is defined as the speed at which vehicles are observed during free flow conditions. The 85<sup>th</sup> percentile of the distribution of observed speeds is the most frequently used measure of the operating speed.

The Niles Canyon section of SR-84, between Mission Boulevard (SR 238) and I-680, is a popular location for cyclists. While this location is popular, it is also intimidating for cyclists to use because of the narrow shoulders. Using 2002 as a baseline year, cycling has gone up 75% in Alameda County (Campbell, 2014). This trend indicates that cycling will continue to grow in popularity in Alameda County.

In cooperation with Alameda County, the ACWD, the SFPUC, Caltrans, the Altamont Corridor Express and the PLA, EBRPD is currently in the planning stages for the construction of a Class I bicycle trail through the Niles Canyon corridor from Mission Boulevard (SR-238) in Fremont to the town of Sunol. The proposed extension would connect to the existing Alameda Creek Regional Trail. Caltrans is participating on the multi-agency development team for the creation of this bicycle trail system through the Niles Canyon corridor. The EBRPD completed a feasibility study in December 2015 that examined three potential Niles Canyon trail alignments. Based on these preliminary designs, all three trail alignments would be located outside the vicinity of the Alameda Creek Bridge Replacement Project limits.

### **2.1.3.3 Environmental Consequences**

#### *All Alternatives*

Environmental consequences of the Alternatives are discussed in terms of construction, operational, and safety impacts.

#### Construction Impacts

All Alternatives would maintain two lane capacity throughout the project limits during construction except when the roadway is temporarily shifted towards the cut slope to connect the new Alameda Creek Bridge to the existing SR-84 alignment. Short-term lane closures would be necessary to facilitate this part of the roadway construction. These short-term lane closures would occur on the weekends and during off-peak hours as to not affect peak-hour traffic (peak-hour traffic is between 6-10 AM and 3-7 PM) during the weekdays. Similar to vehicular traffic, cyclists would experience a delay in Level of Service<sup>23</sup> during the temporary lane closures. The proposed project is located in a rural part of Alameda County; no businesses are located in the surrounding area and no economic impacts to

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<sup>23</sup> Level of Service (LOS) is a measure of traffic conditions and the perception of such conditions by motorists. There are six LOS ratings, ranging from LOS A (free traffic flow with low volumes and high speeds, resulting in low vehicle densities) to LOS F ((traffic volumes exceeding the capacity of the infrastructure, resulting in forced flow operations, slow speeds, and high vehicle densities).

businesses are expected as a result of the proposed project. Impacts to traffic and transportation as a result of construction activities would be temporary and minimal.

#### Operational Impacts

None of the Alameda Creek Bridge Replacement Project Alternatives would negatively affect the operations of SR-84 within the project limits. While this project is not an operational improvement project, realigning the bridge approaches, widening shoulders, along with other safety improvements, could provide betterment in operations in general. However, there would be short-term lane closures to facilitate construction.

#### Safety Impacts

All Alternatives propose to realign SR-84 by increasing the curve radii at the approaches and at the Alameda Creek Bridge. The larger radius of the curves would improve sight distance and reduce the number of errant vehicles that might otherwise cross the centerline or run off the roadway. Additionally, all Alternatives propose eight-foot shoulders on the new Alameda Creek Bridge and the bridge approaches, to bring the facility up to current design standards. All Alternatives provide a facility that would maintain the 45 mph speed limit in this segment of the SR-84 corridor.

Black and yellow 35 mph advisory signs would be placed on the westbound and eastbound approaches to the Alameda Creek Bridge. The proposed project would provide eight-foot shoulders on either side of the bridge to accommodate stopped vehicles, emergency usage, cyclists, and errant vehicles' recovery. The current facility does not provide any shoulder or refuge for cyclists.

In consideration of the cycling community's concerns regarding rumble strips on the SR-84 shoulder, Caltrans District 4 would implement the following measures for the Alameda Creek Bridge Replacement Project:

- Limit the width of the rumble strips to the minimum 6" wide strips instead of 12" strips
- Implement 100-foot openings at the beginning and ends of the rumble strip area within the Alameda Creek Bridge vicinity
- Implement a 'skip' pattern of 12-foot openings for every 60-foot of shoulder rumble strips.

Traffic Safety Features identified in Section 1.4.1., such as enhanced thermoplastic striping with high-visibility glass beads, shadow striping on the concrete deck, standard bridge railing and delineators on railing, sharrows (refer to Figure 2) pavement markings on the bridge roadway and approaches, a two-foot median soft barrier (suitable for a rumble strip), and rumble strips on the shoulders of the newly aligned portions of SR-84 would be installed.

As discussed above, all Alternatives would provide traffic safety benefits by maintaining a consistent 45 mph design speed on this section of SR-84, improving sight distance, replacing sub-standard guardrail, providing shoulders for vehicle recovery, and by implementing the design features described in Section 1.4.1.

### *No-Build Alternative*

The No-Build Alternative would not change existing conditions and transportation deficiencies would remain unaddressed.

#### **2.1.3.4 Avoidance, Minimization, and/or Mitigation Measures**

TRAFFIC-1<sup>24</sup>. TMP is a standard element in Caltrans' projects. TMP development begins at the initiation of the project planning process and is updated at each point in the project development process. The TMP identifies the need to disseminate press releases, and other documents to adequately notify and inform motorists, community groups, local entities, emergency services, and elected officials of upcoming road construction activities. This responsibility includes advance notification to local newspapers, television and radio stations, and emergency response providers. Caltrans construction staff will also submit weekly information regarding the traffic impacts to SR-84 to the Caltrans District 4 Public Information Office. This information will be included in the Weekly Traffic Update, which Caltrans disperses to news media outlets and other interested agencies. A TMP will be prepared during the detailed design phase for the selected Alternative and implemented prior to the construction of the project. The plan will be prepared in accordance with Caltrans requirements and guidelines and will address traffic impacts from staged construction and specific traffic handling concerns during the construction of the project.

#### **2.1.4 Visual/Aesthetics**

##### **2.1.4.1 Regulatory Setting**

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

The California Environmental Quality Act (CEQA) establishes that it is the policy of the state to take all action necessary to provide the people of the state "with...enjoyment of aesthetic, natural, scenic and historic environmental qualities" (CA Public Resources Code [PRC] Section 21001[b]).

##### **2.1.4.2 Affected Environment**

###### *State Scenic Highway Program*

In 2007, Caltrans designated SR-84 between Mission Boulevard (SR-238) and I-680 as an Officially Designated State Scenic Highway. The Alameda Creek Bridge is located within the designated State Scenic Highway limits. Designation of a State Scenic Highway requires the local governing bodies to enact a Corridor Protection Program that protects and enhances scenic resources along the highway. The County of Alameda, City of

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<sup>24</sup> The TMP is a living document and continues to be modified as work information warrants it. Frequently after construction activities begin, if traffic conditions differ from what was anticipated, changes in TMP strategies may be necessary (Transportation Management Plan Guidelines, 2015).

Fremont, City of Union City, and other jurisdictional agencies submitted a Corridor Protection Plan for the Niles Canyon Road and Paloma Way Portion of California SR-84 to Caltrans in February of 2007. In addition to addressing protection and enhancement of the recreational uses and historic resources, the Scenic Corridor Protection Plan focuses on the five elements required by *California Guidelines for Official Designation of Scenic Highways*:

- Regulation of land use and intensity (density) of development;
- Detailed land and site planning processes;
- Prohibition of offsite outdoor advertising and control of onsite outdoor advertising
- Careful attention to and control of earthmoving and landscaping; and
- Design and appearance of structures and equipment.

#### *Assessment Method*

A Visual Impact Assessment (VIA) for the Alameda Creek Bridge Replacement Project (Caltrans, 2016c) was completed in accordance with FHWA's Visual Impact Assessment for Highway Projects. The VIA was completed on December 15, 2016. The VIA documents potential visual impacts caused by the proposed Alameda Creek Bridge Replacement Project and proposes measures to lessen impacts.

#### *Project Location and Setting*

The project is located in Niles Canyon, an east-west canyon formed by Alameda Creek, the largest creek in the San Francisco East Bay region. The canyon is a part of the Diablo Range, a portion of the Pacific Coast Mountain Range that encloses the eastern shore of the San Francisco Bay to the west of the project area.

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

#### *Visual Assessment Units and Key Views*

Landscape units are geographically discrete areas, are often separated by natural features such as bodies of water, ridges, or changes in vegetation. The Alameda Creek Bridge Replacement Project is situated entirely within a single visual assessment unit, Niles Canyon. The Niles Canyon visual assessment unit consists of a narrow, very steep canyon, following Alameda Creek between the city of Fremont and the town of Sunol, and encompassing the entire project limits. Within the immediate project vicinity, the setting includes high, steep hillsides of dense oak-evergreen woodland to the south and west of the project. To the south and east of the immediate project vicinity is the Alameda Creek and its associated riparian woodland. High, steep live oak-grassland hillsides are located to the north and east of the immediate project vicinity. Five key viewpoints were selected (refer to Figure 15), three viewpoints from the road and two viewpoints from the Niles Canyon Railway, to represent potential project impacts, as discussed in Section 2.1.4.3 Environmental Consequences.



**Figure 15. Visual Assessment Unit**

This map delineates the project setting and associated key views that will be used to assess visual impacts caused by the proposed project





These Key Viewpoints are as follows:

*Views from the Road*

**Key Viewpoint 1:** Existing View of Eastbound Approach from Western Project Terminus, looking east.



**Key Viewpoint 2:** Existing Eastbound View of the Alameda Creek Bridge looking east.



**Key Viewpoint 3:** Existing Westbound View Approaching Alameda Creek Bridge from the east.



*Views to the Road (from Niles Canyon  
Railway)*

**Key Viewpoint 4:** Existing View of the  
Alameda Creek Bridge from Niles  
Canyon Railway, looking west



**Key Viewpoint 5:** Existing View of  
State Route 84 and Niles Canyon  
Aqueduct from Niles Canyon Railway,  
looking west across Alameda Creek



*Visual Resources and Resource Change*

Resource change is assessed by evaluating the visual character and visual quality of the visual resources that comprise the project corridor before and after the construction of the proposed project. Resource change is one of two variables in the equation that determine visual impacts (the other is viewer response).

*Visual Resources*

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

Visual Character

Visual character includes attributes such as form, line, color, texture, and is used to describe, not evaluate, these attributes. However, a change in visual character can be evaluated when it is compared with the viewer response to that change. Changes in visual character can be identified by how visually compatible a proposed project would be with the existing

condition by using visual character attributes as an indicator. These include such descriptors as:

- Form – visual mass and shape
- Line – edges or linear definition
- Color – reflective brightness and hue
- Texture – surface coarseness
- Dominance – position, size, or contrast
- Scale – apparent size as it relates to the surroundings
- Diversity – a variety of visual patterns
- Continuity – uninterrupted flow of form, line, color, and texture

These formal attributes and the project-related changes to them help to describe the overall visual character of the setting, and the project's compatibility with it.

The visual character of the proposed project would be moderately compatible with the existing visual character of the corridor. Similar to the existing bridge, although the man-made forms of the proposed bridge structure would contrast with the natural setting in form and color, its curvilinear form would nevertheless echo the curving topographic form of the surrounding canyon and would not detract from the strong dominance of the existing forest canopy due to its small visual scale in relation to the overall landscape setting. The uphill grading, cut slopes, retaining walls and anchor mesh above the viaduct to the east of the bridge would contrast more strongly with the existing vegetated setting in form, color, and texture, and introduce a clashing element of man-made character for that segment of the roadway.

Alameda Creek and the extremely steep surrounding slopes of Niles Canyon define the project's physical and visual setting. The creek directly adjoins the entire length of the project, passing beneath the existing and proposed bridges. The eastern edge of the project roadway segment, beyond the bridge from postmile 13.0 to postmile 13.6, is currently characterized by extensive riparian tree canopy, including oak, maple, sycamore, and bay. The creek is briefly visible from the existing bridge and portions of the affected project roadway segment, providing motorists with an attractive scenic feature of open water and tall, dense adjoining riparian forest. Tree canopy, both riparian forests along the creek/canyon bottom, as well as dense oak woodland on the steep canyon slopes, dominates views throughout the project viewshed. Fleeting views of open grassland amid stands of oak woodland are also intermittently visible on steep slopes above the roadway, changing from green to golden depending upon season. Form, color and texture of the existing setting are typical of a forested natural setting, characterized by a continuous unified, green leaf canopy often extending above the viewer, and dominating the visual setting generally. Steep canyon slopes are also dominated by vegetation. Geometric man-made forms such as the existing bridge and roadway are very subordinate in both scale and dominance to the natural forms of the surrounding setting.

### Visual Quality



Visual quality is evaluated by identifying the vividness, intactness, and unity present in the project corridor<sup>25</sup>. The three criteria for evaluating visual quality are defined below:

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

#### Resource Change

As described in greater detail under the impact assessment, the overall resource change of the project alternatives would be generally moderate, except for Alternative 1, which could remain high. Change to visual character would be generally moderate, except for Alternative 1, which would remain visually dominant. For Alternatives 2, 3A and 3B, changes to visual character would remain subordinate in scale and dominance to the surrounding natural setting. The visual quality of the existing corridor would be altered by Alternatives 2, 3A and 3B, but to a limited degree and extent. Under Alternative 1, visual quality would decline to a moderate to moderately high degree.

All key viewpoints used in this analysis and described above are located within the same small area of the Niles Canyon landscape unit and share a common visual character and visual quality. Visual character comprises very steep canyon slopes and dense tree canopy, often enclosing the roadway overhead. This natural setting, minimally affected within the last 50 years, visually dominates the man-made character of the existing roadway. Visual quality of all key viewpoints, all of the project viewshed, and the entire Niles Canyon is high. The steep, narrow canyon slopes loom over the roadway at close distance, with bold, distinctive patterns of oak woodland, riparian forest, grassland, and high ridgelines punctuated by occasional views of waters of Alameda Creek, form a highly memorable, vivid scene. The bold geometric form of the Sunol Aqueduct introduces an element of historic interest to the immediate visual foreground that adds to this vividness, which is high. The project viewshed is also highly intact. The only man-made elements in the viewshed are the roadway itself, the existing bridge, and the historic aqueduct. These remain visually very subordinate to the surrounding, undisturbed natural elements of forest canopy and canyon slopes in the immediate foreground. Intactness is high. Unity is also high, with a highly legible and unified form defined by the steep, high, narrow canyon topography and continuous pattern of natural vegetation. As recognized by the canyon corridor's scenic highway status, overall visual quality is high.

#### Viewers and Viewer Response

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<sup>25</sup> Terms and methods used here derive from *Visual Impact Assessment for Highway Projects* (FHWA-HI-88-054), available at <http://www.dot.ca.gov/ser/downloads/visual/FHWAVisualImpactAssmt.pdf>

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

#### Types of Viewers

There are two major types of viewer groups for highway projects: highway neighbors and highway users. Each viewer group has their own particular level of viewer exposure and viewer sensitivity, resulting in distinct and predictable visual concerns for each group which help to predict their responses to visual changes.

##### Highway Users (Views from the road)

Representative views from the road are depicted in Key Viewpoints 1, 2, and 3. The principal highway viewer group comprises motorists traveling in the corridor for a variety of reasons, including commuting, recreational sight-seeing and work-related travel. Bicyclists also use this corridor. Exposure to proposed upslope cuts and treatments would be moderately high, seen prominently in the immediate foreground but for a very brief duration

##### Highway Neighbors (Views to the road)

Representative views to the road are depicted in Key Viewpoints 4 and 5. The principal sensitive off-road group with views of the project would be passengers on the recreational Niles Canyon Railway (NCRY). No residences or other permanent uses adjoin the immediate project viewshed and there are no nearby public recreational trails, so there is an absence of other sensitive off-road viewer groups. Recreational use of Alameda Creek by boaters and swimmers is minimal due to an absence of access points; such use in the project vicinity is not officially permitted.

Occasional glimpses of the proposed bridge, viaduct, retaining walls and graded cut slopes would be anticipated. Visibility could increase somewhat in winter months due to leaf drop of some deciduous creek-side trees. Furthermore, visibility of the project could increase during construction due to tree removal on the west side of the creek for retaining wall/roadway construction under Alternatives 1 and 2. However, screening of views to the project from the NCRY is primarily due to adjoining vegetation on the east side of the creek, and this vegetation would not be affected by project construction. Consequently, while there could be some very limited increased visibility due to project construction, the overall effect would be very limited. Overall visibility from the NCRY in the post-construction period would remain relatively low.

#### Viewer Response

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

### Viewer Exposure

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

#### Niles Canyon Railway Passengers (Views to the Road)

The number of Niles Canyon Railway viewers is relatively high during the operating season of the railroad, on Sundays from April through September, two days a month in October, February, and March (the railroad operates a nighttime Train of Lights program in December, but this program takes place at night and it is assumed that visual exposure to the project would be minimal at night). Visual exposure of railroad passengers to the project location is highly filtered by dense intervening creek tree canopy and riparian vegetation between the months of March and October.

#### Motorists (Views from the Road)

Motorists' visual exposure to the highway and bridge are both high; the bridge structure can be seen by motorists approaching from the west.

### *Viewer Sensitivity*

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

#### Niles Canyon Railway Passengers (Views to the Road)

Both the state and nationally-designated historic status and the state-designated scenic status of the Niles Canyon corridor underscore the high visual sensitivity of the viewshed. Viewer sensitivity of Niles Canyon Railway passengers is thus considered to be high. Use of the railroad is exclusively recreational, heightening viewers' expectations and visual sensitivity. The faithfulness of the railroad viewshed to the historic setting is a concern for most railroad passengers.

#### Motorists (Views from the Road)

Although the awareness and concern with scenic quality could vary among different types of motorists, due to the State-designated Scenic Highway status of SR-84, all motorists are here considered to have high viewer sensitivity. The scenic highway designation, achieved after considerable effort over a long period of time by all affected local jurisdictions, reflects the high value placed by these local jurisdictions on the importance of the corridor's scenic quality.

#### *Overall Viewer Response*

##### *Niles Canyon Railway Passengers (Views to the Road)*

As presented above, viewer response of off-road viewers on the Niles Canyon Railway would thus be moderately high, moderated by the very limited visual exposure.

##### *Motorists (Views from the Road)*

Viewer response of motorists would be high, but overall response to specific project features is moderated by the very brief duration of motorists' visual exposure and is thus moderately high in some instances. This is discussed further under the analysis of individual key viewpoints, below.

### **2.1.4.3 Environmental Consequences**

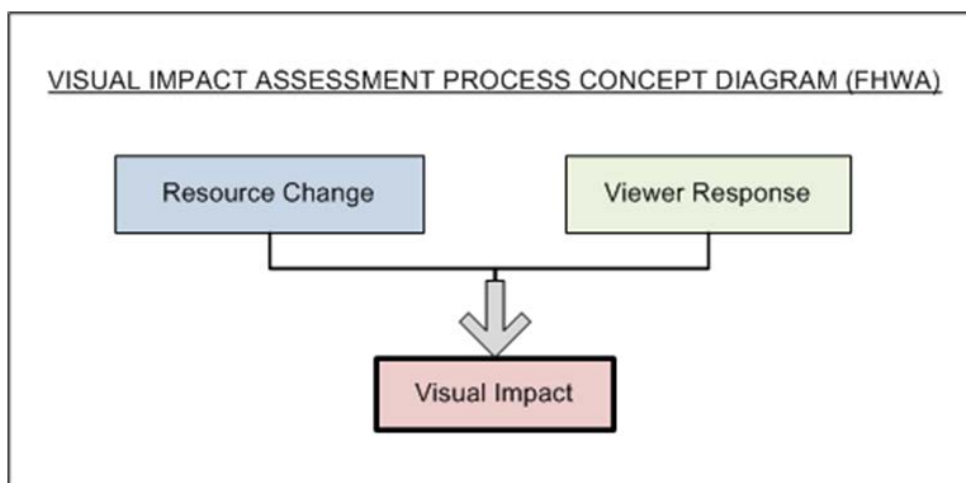
#### *Federal Highway Administration Methodology*

Under the FHWA methodology, high levels of adverse change to visual resources (visual quality and visual character) in combination with high levels of anticipated viewer response (viewer sensitivity and exposure), are likely to result in high levels of adverse visual impact, as illustrated in Table 12, below.

#### *Change to the Project Setting*

Visual impacts are determined by assessing changes to the visual resources and predicting viewer response to those changes. These impacts can be beneficial or detrimental. Cumulative impacts and temporary impacts due to construction operations are also considered. Table 12 provides a generalized visual impact assessment.

**Table 12. Visual Impact Assessment Process Concept Diagram (FHWA)**



As described in greater detail under the impact assessment, the overall resource change of the alternatives would be generally moderate, except for Alternative 1, which would be high. Change to visual character would be generally moderate, except for Alternative 1, which would introduce visually dominant features. For Alternatives 2, 3A and 3B, changes to visual character would remain subordinate in scale and dominance to the surrounding natural setting.

The visual quality of the existing corridor would be altered by Alternatives 2, 3A and 3B, but to a limited degree and extent. Under Alternative 1, visual quality would decline by a moderate to moderately high degree.

#### *Visual Impacts by Visual Assessment and Alternative*

All four Alternatives affect a short segment of roadway (approximately 2,350 feet to 3,000 feet), include replacement box-girder bridges of similar length (410 feet to 500 feet) and follow similar alignments that differ by only a few feet. Visually, the box-girder bridge structure under all Alternatives, despite minor differences in length, would be essentially the same.

All Alternatives would involve road widening to accommodate desired safety improvements, including travel lane and shoulder widening, addition of a soft median (suitable for a rumble strip), and curve adjustments. West of the replacement bridge, all four Alternatives would include a new alignment on earth embankment, located slightly north of the existing highway. Despite minor differences among the four Alternatives in the length, alignment, and detail of this western approach section, the resulting differences in the visual experience of motorists and Niles Canyon Railway passengers would be minor and inconsequential.

To the east (south) of the replacement bridge, this widening would extend east of the existing roadway toward Alameda Creek. Differences in horizontal alignment in that section east (south) of the bridge account for the principal visual differences among the Alternatives, due to differences in the type of support structures and amount of visible

uphill grading and wall construction required. Under Alternatives 1 and 2, widening of this eastern section would be supported by downhill retaining walls adjoining the creek. Under Alternatives 3A and 3B, this section would be supported by sidehill viaduct structures supported by concrete columns. From a visual standpoint, however, the differences in the downhill support structures would be of secondary importance, since their visibility to sensitive viewers, particularly on the Niles Canyon Railway, is expected to be minimal.

The primary visual difference among the four Alternatives would be due to the different proposed uphill slope treatments, heights and lengths.

#### *Impacts to State Scenic Highway*

As previously noted, the Alameda Creek Bridge is located within an officially designated State Scenic Highway. Designation of a State Scenic Highway requires the local governing bodies to enact a Corridor Protection Program that protects and enhances scenic resources along the highway. The County of Alameda, City of Fremont, City of Union City, and other jurisdictional agencies submitted a Corridor Protection Plan for the Niles Canyon Road and Paloma Way Portion of California SR-84 to Caltrans in February of 2007. In addition to addressing protection and enhancement of the recreational uses and historic resources, the Scenic Corridor Protection Plan focuses on the five elements required by *California Guidelines for Official Designation of Scenic Highways*:

- Regulation of land use and intensity (density) of development;
- Detailed land and site planning processes;
- Prohibition of offsite outdoor advertising and control of onsite outdoor advertising
- Careful attention to and control of earthmoving and landscaping; and
- Design and appearance of structures and equipment.

As discussed in Section 2.1.1. Land Use, the Alameda Creek Bridge Replacement Project would have minimal impact to land use and would have no impact or contribution to future development trends and would not result in the construction of any outdoor advertising in the project vicinity.

All Alternatives would result in tree removal and earthmoving and landscaping activities. The number of trees located within temporary or permanent impact areas differs depending on the Alternative. Trees located in permanent impact areas are likely to be removed during project activities. Some trees located in temporary impact areas may be preserved depending on the specific activity occurring near them. Alternative 1 would impact approximately 415 trees, Alternative 2 would impact approximately 408 trees, Alternative 3A would impact approximately 444 trees, and Alternative 3B would impact approximately 296 trees. During construction, unsightly material, equipment, storage, and staging would be placed outside the foreground of the highway corridor to the extent feasible and where siting is unavoidable, material and equipment would be visually screened to minimize visibility from the roadway and nearby sensitive off-road receptors. Following construction, all temporarily impacted areas would be restored and enhanced on-site and Caltrans would conduct on-site tree replacement for upland trees at a minimum 1:1 ratio, to the extent practicable, in the existing SR-84 alignment.

All Alternatives are consistent with the Scenic Corridor Protection Plan. No impacts to land use are anticipated and no outdoor advertising would be introduced in the project vicinity. Although the Alameda Creek Bridge Replacement Project would result in earthmoving and landscaping activities, the project strives to maintain the rural and aesthetic quality of the Niles Canyon corridor through the replanting of upland trees in the existing SR-84 alignment and replanting of temporarily impacted areas. The Alameda Creek Bridge Replacement Project would not adversely impact the scenic integrity of Niles Canyon and would not conflict with the Scenic Corridor Protection Plan for SR-84.

#### *Geotechnical Borings*

Tree and vegetation removal would occur in summer 2017 to create access roads in order to conduct the geotechnical investigations as described in Section 1.4.1. Access to five of the geotechnical boring locations would require tree trimming and brush trimming. Trimming would consist of cutting vegetation off at ground level to facilitate access. The access road would be sited to avoid cutting down mature trees. Minimal visual impacts would occur from the removal of vegetation to create an approximately 10-foot wide access road that would be constructed of non-recycled, granular material (for example, Caltrans Class 2 aggregate subbase or aggregate base) placed on a layer of geofabric. Additionally, incidental moving of boulders may be required to complete the access road, but each boulder designated to be moved would be photographed and restored to its original position upon removal of the access road.

The access roads created for the geotechnical borings would also serve as the construction access roads during project construction. Following the construction completion, the access roads would be removed and restored to their original, pre-access road condition, including the placement of boulders in their original positions.

#### *Niles Canyon Visual Assessment Unit*

Key views associated with visual assessment units that most clearly demonstrate the change in the project's visual resources have been selected to analyze the project impacts for each proposed alternative. Key views are selected because it is not feasible to analyze all the views in which the proposed project would be seen. Key views represent the viewer groups that have the highest potential to be affected by the project considering exposure and sensitivity.

#### Views from the Road (KVPs 1-3)

#### **KEY VIEW POINT (KVP-1) – View of Eastbound Approach from Western Project Terminus, Looking East (Figures 16 and 17)**

##### **KVP-1: Existing Condition**

All key viewpoints are located within the same small area of the Niles Canyon landscape unit and share a common existing visual character and visual quality. Visual character of the project's viewshed comprises very steep canyon slopes and dense tree canopy, often enclosing the roadway overhead. This largely undisturbed natural setting visually dominates the man-made character of the existing roadway. Visual quality of all of the project viewshed, and of Niles Canyon as a whole, is high.



### Viewer Response

Viewpoint KVP-1 is representative of the view of motorists in the western section of the project. Viewer sensitivity of the two principal viewer groups, motorists and Niles Canyon Railway passengers, is generally high in both cases. Viewer exposure of motorists to the project features is also generally high; however, viewer exposure to particular segments and features of the proposed project, as represented in the simulation viewpoints, is moderated in each case by the very short duration of exposure. In the case of viewpoint KVP-1, that duration would be approximately 20 to 30 seconds of viewer exposure to the western approach and embankment at 45 mph. Accounting for the duration of view, exposure of motorists is moderate. Viewer exposure of Niles Canyon Railway passengers is generally moderately low, due to limitations of visibility from dense intervening riparian vegetation. However, under Alternative 1, the limit of tree removal north of the new highway would move near the Niles Canyon Railway, possibly to the point of reducing existing screening and increasing views to the road from the Niles Canyon Railway. Viewer exposure of Niles Canyon Railway passengers in the western section of the project could increase to a moderate level under Alternative 1.

Under Alternative 1, overall viewer response for viewpoint KVP-1 is considered moderately high for motorists, and moderately high for Niles Canyon Railway passengers.

Viewpoint KVP-1 is representative of impacts to the bridge's western approach. The simulation viewpoint was selected to convey several aspects of proposed visual change in this location that are difficult to depict in a single view: the general character of changes to adjacent landscape after construction; elimination of off-road parking area; alternative proposed railing types vs. existing railing; and in particular the intended removal and remediation of the old roadway.

### KVP-1: Proposed Condition – (Alternative 1)

#### Resource Change

As shown in Figure 16 (KVP-1: Existing View) and Figure 17 (KVP-1: Simulated View), the roadway alignment to the west of the replacement bridge would move northward from the existing alignment. From the northern edge of the bridge structure to the western conform with the existing alignment, a 1,400-foot fill embankment would raise the roadway profile by up to approximately 16 feet. Along the new alignment, the embankment would extend south up to 40 feet from the proposed new eastbound edge of pavement (a 4:1 embankment slope), and to the north up to 20 feet from the proposed new westbound edge of pavement (a 2:1 embankment slope). The maximum width of the embankment would be 80 feet. The existing roadway paving would be removed and revegetated.

Similarly, the new embankment would be hydroseeded with native and erosion control species, establishing a rural, vegetated visual character consistent with the adjoining setting. The proposed 16-foot embankment would not represent a major alteration of existing landform and would be unobtrusive as seen from the highway. Major tree removal would take place to the north of the existing highway to make way for the new alignment, including mature native oaks, sycamore and non-native trees. However, as depicted in Figure 17 (KVP-1 Simulated View), the removal of these trees would simply expose other,

existing mature native trees behind them, retaining substantially similar visual character as before, as seen from the highway.

For motorists, vividness, intactness, and unity of the scene in this western approach segment would remain substantially as they are. The overall change in visual character and quality as a result of tree removal and addition of the embankment would be moderately low to low. In the context of moderately high motorist viewer response, this would be a moderate impact. Exposure of views from the roadway to the hillside to the north could increase, with a neutral or beneficial visual effect.

Currently, the area to the south creek-side adjacent to the existing roadway is not heavily vegetated with trees. After construction, existing paving of the old roadway would be removed, and this area would be revegetated. The extent of tree canopy would increase in the long term, a beneficial effect.

By its realignment northward, the new western approach would move closer to the Niles Canyon Railway. Under Alternative 1, the side slope adjacent to the eastbound lane would include a 4:1 side-slope. This would require tree removal and re-grading close to the Niles Canyon Railway, reducing the width of the visual buffer of trees between the rail line and realigned roadway. As a result of this tree removal, the amount of screening canopy between the Niles Canyon Railway and the roadway would decrease, and it is likely that visibility of the highway from the Niles Canyon Railway could increase in this section. If visibility of the highway from the Niles Canyon Railway does increase due to project tree removal, visual quality and character would both be adversely affected. As seen from the Niles Canyon Railway, vividness, intactness, and unity could all decline to a moderate degree, and visual character would be moderately affected by the change to a less natural setting although these effects would be brief and fleeting at normal operating speeds. Nevertheless, overall this is considered a moderate adverse visual change. In the context of moderately high viewer response of Niles Canyon Railway passengers, this could be a moderately high, adverse impact.

With the implementation of the recommended measures described in Section 2.1.4.4, Alternative 1, including dense tree re-planting and revegetation on the north-facing berm of the western approach, visibility of the road could be blocked in the long term, reducing viewer exposure and visual change to a minimal level. Guard rail would be required on the north (westbound) side of the highway to apply this measure. Alternatively, or in addition to that measure, implementation of a 2:1 side-slope to the north (westbound) of the embankment could reduce tree removal, avoiding impacts described above. Reduction of existing tree screening would be minimized with the implementation of the recommended measures and impacts to Niles Canyon Railway viewers would be reduced to a moderate level in the long-term.

#### KVP-1: Proposed Condition – (Alternatives 2, 3A, and 3B) Resource Change

Similar to Alternative 1, Alternatives 2, 3A, and 3B would include a new alignment on earth embankment, located slightly north of the existing highway, in the section west

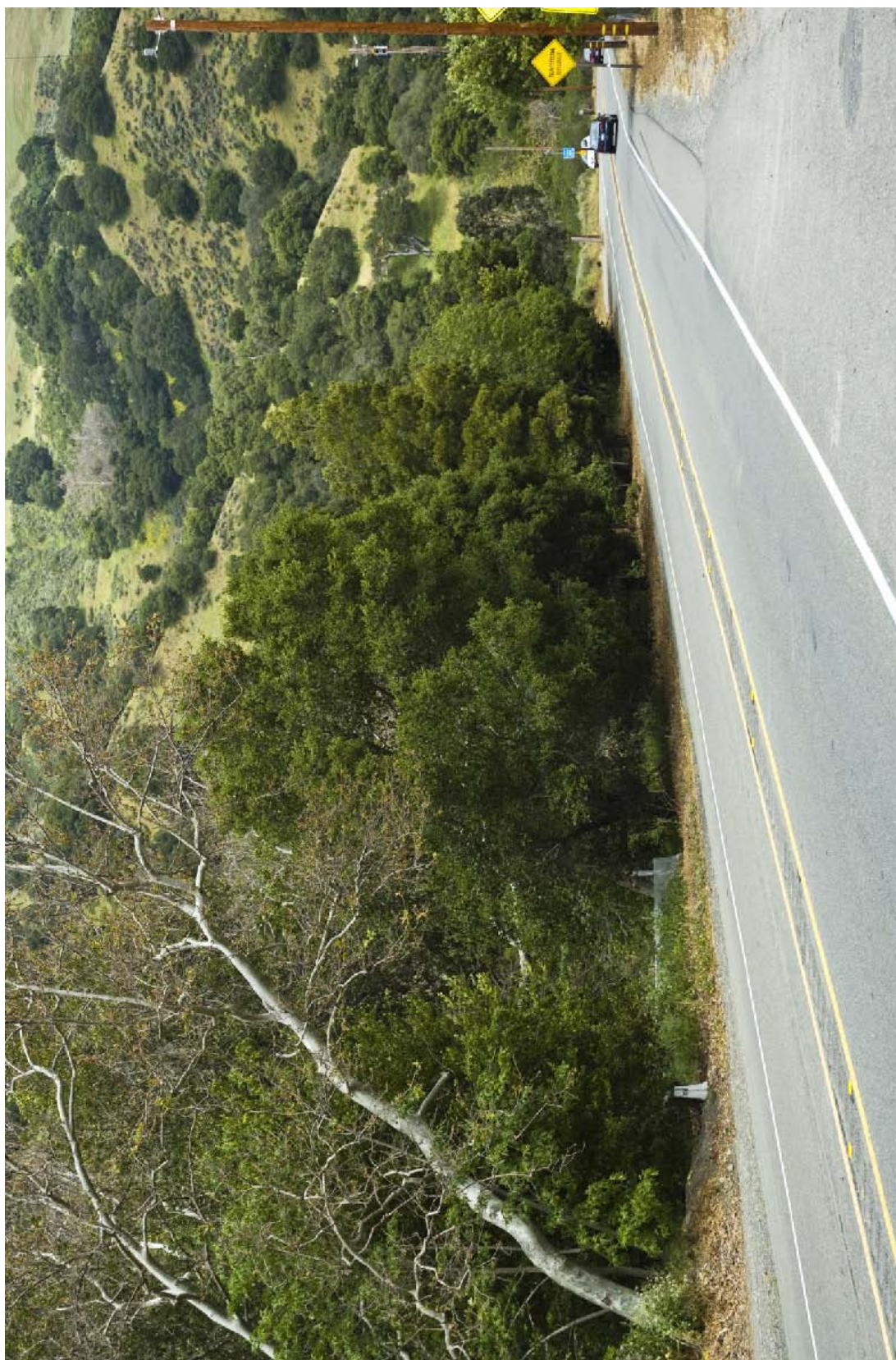
(north) of the replacement bridge. Alternatives 2, 3A, and 3B share roughly the same horizontal alignment in this section, slightly south of the Alternative 1 alignment and nearer to the existing alignment. Embankments under all four Alternatives would be identical in length (1,400 feet).

Under Alternatives 2, 3A, and 3B, potential visual effects to motorists in the western approach section depicted in KVP-1 would be substantially similar to those described for Alternative 1, above. Effects on visual character and quality would remain moderately low to low, and overall adverse impact would be moderate. As seen from the road, differences among the four Alternatives in the length, alignment, and detail of this western approach section would be minor and inconsequential. For this reason, simulations of the four Alternatives from KVP-1 were not considered useful or necessary, and all four are represented by Figure 17.

Effects on Niles Canyon Railway viewers of Alternatives 2, 3A, and 3B in the western embankment section would be less than under Alternative 1. Because the alignment of Alternatives 2, 3A, and 3B would be farther south than Alternative 1, they would encroach on existing trees to the south of the Niles Canyon Railway tracks to a minimal degree. Alternative 2 would include an 850-foot retaining wall of between four feet and 20 feet in height to support the north side of the embankment. The wall would not be visible to motorists, and mostly or entirely filtered from the view of Niles Canyon Railway passengers by dense existing trees and shrubs. The wall would have little or no visual effect.

Alternatives 3A and 3B would have 2:1 soil side-slopes to the north, reducing the amount of tree removal needed on that side to a minimal level. Visibility of the road from the Niles Canyon Railway would remain minimal as it is now, and visual resource change would be moderately low. In the context of moderately high viewer response of Niles Canyon Railway passengers, this would represent a moderate impact. As a result, the view from the Niles Canyon Railway to the western approach section was not simulated.

**Figure 16. KVP-1: Existing View**





**Figure 17. KVP-1: Simulated View**



**Key View Point (KVP-2) – Eastbound View of Existing and Proposed Bridge Looking East (Figures 18, 19, and 20)**

**KVP-2: Existing Condition**

The visual character and quality of all viewpoints is the same and described above in the existing condition for KVP-1. Visual quality of all key viewpoints is high.

**Viewer Response**

Viewer exposure of motorists to the project roadway and bridge is generally high; however, viewer exposure to particular segments and features of the proposed project, as represented in the simulation viewpoints, is moderated in each case by very short duration of exposure. In the case of viewpoint KVP-2, the bridge would be visible to eastbound motorists at distances of up to 500 feet or more, for an overall view duration of roughly nine seconds or less. Bridge design detail would only be evident at immediate foreground distances, on or very near the bridge. For westbound motorists, the bridge would only come into view moments before entering the bridge. Accounting for the very short duration of view, exposure of motorists to the bridge is moderate overall. Viewer exposure of Niles Canyon Railway passengers is generally moderately low to low, due to limitations of visibility from dense intervening riparian vegetation. However, under Alternative 1, the limit of tree removal north of the new western roadway embankment would move near the Niles Canyon Railway, possibly to the point of reducing existing screening and increasing views to the road from the Niles Canyon Railway. Viewer exposure of Niles Canyon Railway passengers in the western section of the project could increase to a moderate level under Alternative 1.

Under Alternative 1, overall viewer response for viewpoint KVP-2 is considered moderately high for motorists, and moderately high for Niles Canyon Railway passengers.

Figure 18 depicts the existing view from KVP-2, looking southeast toward the existing bridge. The simulation viewpoint was selected to convey several aspects of proposed visual change in this location that are difficult to depict in a single view: the general character of changes to adjacent landscape after construction; elimination of off-road parking area; alternative proposed railing types vs. existing railing; and in particular the intended removal and remediation of the old roadway, as called for in the avoidance and minimization measures; as well as the change in visual experience of motorists, which would remain very similar to existing conditions, as described below.

**KVP-2: Proposed Condition – (Alternative 1)**

**Resource Change– (Alternative 1)**

As depicted in Figures 19 and 20 (KVP-2 Simulated View of proposed replacement bridge (All Alternatives)), the change in visual character and quality of views of the replacement bridge from the eastbound approach would be minor. The new bridge would be of slightly increased scale, but this change in the degree of visual dominance would be minor. The scale of the new bridge and its relationship to the immediate surroundings would be substantially similar. The alignment would be altered slightly, but after project construction, removal of the existing bridge, and a short period of vegetation establishment, the overall

character of the new bridge and its immediate setting would appear substantially similar to the existing condition.

Both existing and proposed bridges are similar in form, with no overhead suspension structure, and similar in general character. The visual character of the bridge structure as seen on the bridge would be affected by the railing type selected. The existing bridge includes a concrete see-through rail design that conveys its period character (1928). The ST-70 metal rail type would have a more modern character, but would have great visual transparency, allowing better views through the railing to the creek. The ST-70 rail would be visually compatible and unobtrusive in the setting, and would be aesthetically substantially superior to standard safety barriers or other opaque concrete barrier types. Figures 19 and 20 depict the bridge with the proposed ST-70 rail.

Construction of the replacement bridge on a new alignment would require removal of a number of trees and other vegetation within the project footprint. However, much as discussed under KVP-1, above, and as depicted in Figures 19 and 20 below, the removal of these trees would simply expose other mature trees directly behind them. The overall change in visual character and quality as a result of this tree removal and other visual effects would be minor. Vividness could decline slightly due to loss of the period character (1928) of the railing design. Intactness and unity of the scene in this segment would remain substantially as they are: the natural setting would continue to predominate. In the long term, after removal of the existing bridge and a period of maturation of replacement planting and revegetation, the overall visual resource change would be low. In the context of moderately high viewer response, this would be a moderately low impact.

#### Resource Change— (Alternatives 2, 3A and 3B)

Under Alternatives 2, 3A and 3B, potential visual effects to motorists and Niles Canyon Railway passengers in the western approach section depicted in KVP-2 would all be essentially the same as those described for Alternative 1, above. For this reason, as for KVP-1, simulation of the four Alternatives from KVP-2 was not considered useful or necessary, and all four are represented by Figures 19 and 20.

Similar to Alternative 1, the scale of the new bridge and its relationship to the immediate surroundings would be substantially similar to the existing condition. The alignment would be altered slightly, but after project construction, removal of the existing bridge, and a short period of vegetation establishment, the overall character of the new bridge and its immediate setting would appear substantially similar to the existing condition. The design character of the ST-70 bridge rail type would be visually compatible and unobtrusive in the setting and would be aesthetically substantially superior to standard safety barriers or other opaque concrete barrier types.

The overall change in visual character and quality as a result of this tree removal and other visual effects would be low. In the context of moderately high viewer response, this would be a moderately low impact.



**Figure 18. KVP-2 Existing View – Looking east to existing bridge**





**Figure 19. KVP-2 – Simulated View of proposed replacement bridge (All  
Alternatives): ST-70 Brown Rail**





**Figure 20. KVP-2 – Simulated View of proposed replacement bridge (All  
Alternatives): ST-70 Galvanized Rail**



**KEY VIEW POINT (KVP-3) – Westbound View of Proposed Side-Slope Viaduct, Upslope Retaining Wall or Rock Cut, Looking North (Figures 21, 22, 23, 24, 25, 26, and 27)**

**KVP-3: – Existing Condition**

The greatest potential for visual impacts of the project would occur in the vicinity of KVP-3, to motorists in the section south of the replacement bridge. There, proposed upslope retaining walls or rock cut slopes would be prominently visible to motorists in the immediate visual foreground. The Alternatives also differ the most visually in this section, as described below.

Visual character and quality of the project viewshed are essentially similar throughout, as described above in the existing condition for KVP-1. Visual quality of all key viewpoints is high.

**Viewer Response**

As described above, viewer sensitivity for all viewpoints is generally high for motorists and Niles Canyon Railway passengers, but viewer response is moderated at each viewpoint by the short duration of exposure to each particular project feature. In the case of viewpoint KVP-3, the duration of exposure to the primary source of visual change, the upslope soil-nail wall or rock cuts, would vary between Alternatives due to differences in wall/cut length. Under Alternative 1, exposure to the soil-nail wall would be roughly 17 seconds at 45 mph, brief but long enough to form a strong visual impression. Under Alternative 2, exposure would be roughly 9 seconds at 45 mph, half the duration but possibly long enough to form a lasting impression. Under Alternative 3A, exposure to two consecutive walls would last from 13 to 17 seconds, similar to Alternative 1. Under Alternative 3B, exposure would last roughly four to five seconds, and would tend to appear fleeting. Overall, viewer response under Alternatives 1, 2, and 3A is considered moderately high, and under Alternative 3B, moderate.



**Figure 21. KVP-3 – Existing View looking north**



KVP-3: Proposed Condition – (Alternative 1)  
Resource Change

Figure 22 depicts a simulated view of Alternative 1 from KVP-3 shortly after project construction, shown with the ST-70 Rail option. The simulations illustrate the proposed uphill soil-nail retaining wall, which under Alternative 1 would extend 1,090 feet, from shortly beyond the replacement bridge to the eastern project terminus, with a maximum height of 20 feet. The historic Sunol Aqueduct is the concrete structure visible upslope in the photograph.

The proposed retaining wall would vary in height but would be up to 20 feet in height near the bridge crossing. Due to its considerable height and length, the proposed upslope wall would remain highly prominent. The increased scale of the roadway due to widening would add incrementally to the overall strong level of visual intrusion. As depicted in Figure 22, the proposed wall would introduce a prominent hardscape feature into the immediate highway foreground in place of the existing vegetated slope. This wall would contrast strongly with the intact natural setting, minimally affected within the last 50 years, and would represent a strong visual intrusion. The increased scale of the roadway due to widening would add incrementally to the overall strong level of visual intrusion.

These changes would together result in a strong decline in intactness and unity of the setting, and high visual resource change for motorists in this road segment without context sensitive design solutions. In the context of moderately high motorist viewer response, this would remain a high impact.

However, specific selection of design treatments would be done during the design phase of the project in conjunction with public input. With appropriate design measures, as described further below, the potential impacts of the upslope retaining wall could be reduced. Those measures should include minimization of overall height and scale of walls to the greatest feasible extent; and use of context-sensitive textures and colors appropriate to the specific situation in order to reduce contrast of color and character of the retaining walls with the adjoining setting. Figure 22 depicts one such surface texture and color treatment, in this case one that mimics natural rock formations in Niles Canyon. Such measures could reduce the associated adverse decline in intactness and unity of the highway corridor by reducing the contrast and prominence of the walls. However, even with recommended minimization measures, the potential impact of the upslope retaining wall would remain moderately high. Due to its considerable height and length, the proposed upslope wall would remain highly prominent. Intactness and unity of this portion of highway would decline considerably, representing moderately high visual resource change. In the context of moderately high motorist viewer response, this would remain a moderately high impact.

A ST-70 see-through metal safety railing would be used on the outboard side of the viaduct. This railing would be highly transparent, allowing views through the rail and minimizing contrast in visual character compared to solid concrete railings. ST-70 would be compatible with the character of the setting and have a low impact on visual intactness and unity.

As may be seen in the simulation, the historic Niles Aqueduct, visible in both the existing and simulated images, would be unaffected by the proposed retaining walls, and in some locations its visibility to the public would increase due to increased exposure from project vegetation removal.



**Figure 22. KVP-3 – Simulated view of Alternative 1 from KVP-3 after construction:  
shown with ST-70 metal bridge rail**



### KVP-3: Proposed Condition – (Alternative 2)

#### Resource Change

Figure 23 depicts Alternative 2 from viewpoint KVP-3 after construction, and Figure 24 depicts the same view after 15 years of vegetation growth. Under Alternative 2, a 470-foot-long upslope rock cut surface up to 23 feet in height would begin just east (south) of the replacement bridge. As described in Chapter 1, the rock cut would have  $\frac{3}{4}$ :1 side-slope and range in height between two feet and 23 feet. The rock cut surface would be relatively uniform, with an engineered, graded appearance. Erosion-control netting and filter fabric would be placed over the cut slope to encourage revegetation. Double-twisted wire mesh would then be placed over the filter fabric and erosion-control netting, anchored at the top of the slope with surface mounted rock anchor bolts, to maintain the integrity of the rock cut, while also containing the erosion control fabric and encouraging capture of soil to facilitate revegetation. Anchors would be installed by drilling a hole in the slope, placing the anchor in the hole and grouting it into the hole. After the system is installed, hydroseeding would be applied to help stabilize the near-surface-slope environment and speed up plant re-establishment. As shown in Figure 23, immediately after construction the erosion control netting and hydroseeding would create relatively strong visual contrast and a substantial short-term reduction in visual intactness and unity. As depicted in Figure 24, after a period of re-growth the cut slope would be expected to partially revegetate within a relatively short period after construction. With the implementation of avoidance and minimization measures described in Section 2.1.4.4, including use of non-contrasting wire mesh and revegetation, visual contrast of the wire mesh could be reduced, and the cut and revegetated slope would regain a more natural, less contrastive appearance in the long term. Within a few years, the decline in visual quality and character, accounting for expected revegetation and the short duration of view, would be moderately low. Even in the context of moderately high viewer response of motorists, this would be a moderate impact.

**Figure 23. KVP-3 – Simulated view of Alternative 2 from KVP-3 after construction:  
shown with ST-70 Rail**





**Figure 24. KVP-3 – Simulated view of Alternative 2 from KVP-3 after 15 years  
vegetation growth: shown with ST-70 Rail**



KVP-3: Proposed Condition – (Alternative 3A)

Resource Change

Figure 25 depicts Alternative 3A from viewpoint KVP-3 after construction, and Figure 26 depicts the same view after 15 years of vegetation growth. The primary difference in configuration from Alternative 2 is the 2:1 soil slope at the shoulder, beneath the rock cut area, under Alternative 3A (the soil slope area appears very short from this particular viewpoint; however the height of the slope would vary and be higher in other specific locations). In addition, rock cuts under Alternative 3A would be longer than under Alternative 2. Alternative 3A would be very similar to Alternative 2 in the section immediately south (east) of the new bridge, where there would be an 800-foot-long rock cut and soil-nail wall combination with a similar maximum height of 21 feet. The rock cut and soil-nail combination would occupy the motorist's view over a distance of about 1,100 feet or a duration of roughly 17 seconds at 45 mph, similar to the duration of exposure under Alternative 1. The design of the rock cuts would be as described under Alternative 2, above, except that a soil-nail concrete retaining wall would be constructed between the edge of the roadway and the bottom of the rock cuts. This retaining wall would be completely concealed by a 2:1 soil embankment of up to 13 feet, reaching to the bottom of the rock cut area. Overall, the appearance and prominence of the rock cuts under Alternative 3A would be very similar to Alternative 2. The soil slope embankment at the edge of the roadway would quickly revegetate with local vegetation, blending with the existing natural setting. The combination of rock cuts and soil-nail walls would increase the extent and duration of the view of the rock cut area, similar to Alternative 1 and long enough to make a lasting impression. Immediately after construction the erosion control netting and hydroseeding would create relatively strong visual contrast and a strong reduction in visual intactness and unity, as depicted in Figure 25 (Alternative 3A after construction). However, as depicted in Figure 26 (Alternative 3A after 15 years), the slope would be expected to partially revegetate within a relatively short period after construction and continue to become less visually evident with time. With the implementation of measures, visual contrast of the wire mesh could be minimized, and the cut and revegetated slope would regain a more natural, less intrusive and contrastive appearance. Within a few years, the decline in visual character and quality, accounting for re-vegetation, would be moderately low. The overall effect of Alternative 3A in this section would be less than Alternative 1, and though more pronounced than Alternative 2, even in the context of moderately high viewer response of motorists, would be a moderate impact.



**Figure 25. KVP-3 – Simulated view of Alternative 3A from KVP-3 after  
construction: shown with ST-70 Rail**





**Figure 26. KVP-3 – Simulated view of Alternative 3A from KVP-3 after 15 years vegetation growth: shown with ST-70 Rail.**



### KVP-3: Proposed Condition – (Alternative 3B)

#### Resource Change

Because of the comparatively short length of the upslope rock cut under Alternative 3B, this alternative would appear very similar to existing conditions from viewpoint KVP-3 except for the widening of the roadway and addition of westbound safety railing. Figure 27 depicts Alternative 3B, shown with ST-70 rail, as seen from viewpoint KVP-3. In the section where upslope rock cuts would be visible, Alternative 3B would appear substantially similar to the depiction of Alternative 3A in Figures 25 and 26 and Figures 34 and 35. Alternative 3B would be the same as Alternative 3A from the western project terminus to the eastern bridge terminus, but would conform with the existing highway south of the new bridge much more quickly than the other alternatives. Alternative 3B would include a 300-foot upslope rock cut substantially similar to the first 300 feet of the rock cut under Alternative 3A. However, Alternative 3B would then conform with the existing roadway with no further rock cut. The upslope rock cut would have a maximum height of 17 feet. Though the appearance of the cut slopes would be similar to Alternatives 2 and 3A, the extent would be much less, and overall impact would be correspondingly less. As under Alternatives 2 and 3A, immediately after construction the erosion control netting and hydroseeding would create relatively strong visual contrast and a reduction in visual intactness and unity. However, the slope would be expected to revegetate within a relatively short period after construction. Measures would minimize visual contrast of the wire mesh, and the cut and revegetated slope would regain a more natural, less intrusive appearance. Within a few years, the decline in visual character and quality, accounting for revegetation and the very short duration of view, would be moderately low. In the context of moderate viewer response of motorists under Alternative 3B, this would be a moderate impact. Of all alternatives, Alternative 3B would have the least visual impact.



**Figure 27. KVP-3 – Simulated view of Alternative 3B shown after 15 years  
vegetation growth: with ST-70 Rail.**



Views to the Road (from Niles Canyon Railway) (KVPs 4-5)

**KEY VIEW POINT (KVP-4) – View of Proposed Bridge from Niles Canyon Railway,  
Looking West (Figures 28, 29, and 30)**

**KVP-4: Existing Condition**

KVP-4 represents the view of Niles Canyon Railway passengers looking directly toward the proposed replacement bridge over a short segment of the railway (approximately 500 feet).

Visual character and quality of the project viewshed are essentially similar throughout, and were described above. Visual quality of all key viewpoints is high.

**Viewer Response**

The highly filtered character of views to the highway from the Niles Canyon Railway due to intervening vegetation creates a low viewer exposure. Therefore, the overall viewer response is consequently moderated, to a moderate level. As illustrated in Figure 28, the view, though mostly blocked by foreground tree canopies and vegetation, offers intermittent glimpses of the structure at close distance.

Figure 28 depicts the existing view looking west from KVP-4.



**Figure 28. KVP-4 – Existing view of existing bridge from Niles Canyon Railway**



#### KVP-4: Proposed Condition – (Alternative 1)

##### Resource Change

As depicted in Figures 29 and 30, the change in visual character and quality of views of the replacement bridge from the Niles Canyon Railway would be minor. This is because extensive, dense, mature riparian vegetation along Alameda Creek west of the Niles Canyon Railway rail line currently screens or strongly filters views to the existing bridge, and this would continue to be true for the replacement bridge as seen from the Niles Canyon Railway. Consequently, any decline in the existing high vividness, intactness, and unity of these views as a result of project actions would be seen in views that are both partial and fleeting, seen through openings in the dense intervening tree canopy. As indicated in Figure 29, this condition would not noticeably change due to construction of the replacement bridge. The trees screening the roadway from the Niles Canyon Railway are largely on the eastern bank of Alameda Creek and are not anticipated to be affected by project construction. Some of the riparian trees screening view KVP-4, such as willow, are deciduous. Views to the project would be more open and prominent in winter months, mainly between November and toward the end of February. Regular operations of the Niles Canyon Railway are limited in November, January, and February. Holiday programs taking place in December occur only at night, so views of the bridge at these times would be negligible.

Where the structure is visible, change to the visual character and quality of this view could result from the changes in design of the structure itself. To the extent that the existing bridge is visible from the Niles Canyon Railway, it is seen at relatively close distance. A ST-70 contemporary metal railing treatment would appear more modern, but also more transparent and less visually prominent. The replacement bridge structure as a whole would not be substantially more prominent to Niles Canyon Railway viewers. Accounting for the very limited and fleeting visibility of the bridge in these views, a moderately low decline in vividness and intactness, and a moderately low level of visual character change would result from the change to a more modern style of bridge design. As a result, the visual resource change would be moderately low. By this measure, in the context of moderate viewer response of Niles Canyon Railway passengers, this would be a moderate impact.

For passengers on the Niles Canyon Railway trains, the visual setting, minimally altered over the last 50 years, is an important part of their experience. To the extent that the new bridge attracts the attention of passengers, a modern style of design could be seen as altering the setting. The existing bridge is not from the same historic period as the Niles Canyon Railway, however, and the existing Niles Canyon Railway route is not currently completely devoid of views of the highway and other modern features. Accounting for the very fleeting nature of these views, the effect on the historic integrity of the Niles Canyon Railway would appear to be muted. Caltrans concludes that this minimal change in the viewscape from the Niles Canyon Railway would have no adverse effect to the Niles Canyon Transcontinental Railroad Historic District. Caltrans received concurrence from the SHPO on June 18, 2015 regarding this determination of no adverse effect as part of the Section 106 process (see Section 2.1.5, Cultural Resources).



Other visual impacts to the Niles Canyon Railway in this portion of the project setting could occur as a result of construction, particularly any tree removal west of the creek to provide access for equipment or materials during construction. To avoid or minimize any such construction effects, measure VISUAL-4 will be implemented.

**KVP-4: Proposed Condition – (Alternatives 2, 3A, and 3B)**

**Resource Change**

Under Alternatives 2, 3A, and 3B, potential visual effects to Niles Canyon Railway passengers depicted in KVP-4 would all be similar to those described for Alternative 1, above. For this reason, as for KVP-1 and KVP-2, simulations of the four Alternatives from KVP-4 were not considered useful or necessary, and all four are represented by Figures 29 and 30.

As under Alternative 1, due to the very limited and fleeting visibility of the new bridge in these views, a moderately low decline in vividness and intactness, and a moderately low level of visual character change is anticipated from the change to a more modern style of bridge design. As a result, the visual resource change would be moderately low. By this measure, in the context of moderate viewer response of Niles Canyon Railway passengers, this would be a moderate impact.

**Figure 29. KVP-4 – Simulated view of proposed replacement bridge from Niles Canyon Railway: shown with ST-70 Brown Rail**





**Figure 30. KVP-4— Simulated view of proposed replacement bridge from Niles Canyon Railway: shown with ST-70 Galvanized Rail**



**KEY VIEW POINT (KVP-5) – View looking west from Niles Canyon Railway (Figures 31, 32, 33, 34, and 35)**

**KVP-5: Existing Condition**

For a relatively short segment of the Niles Canyon Railway (approximately one-quarter-mile), west-facing train passengers would face in the direction of a large uphill retaining wall or rock cuts of various lengths, to be located south of the proposed replacement bridge at a distance of as little as 250 feet under all Alternatives. KVP-5 represents worst-case views of the project from this segment of the Niles Canyon Railway.

Visual character and quality of the project viewshed are essentially similar throughout, and were described above. Visual quality of all key viewpoints is high.

**Viewer Response**

As under KVP-4, because of the highly filtered character of views to the highway from the Niles Canyon Railway due to intervening vegetation, viewer exposure is low, and overall viewer response is consequently moderated, to a moderate level. As illustrated in Figure 31 (KVP-5 existing), the view, though mostly blocked by foreground tree canopies and vegetation, offers intermittent glimpses of the structure at close distance.

Figure 31 depicts the existing view from KVP-5, looking west from the Niles Canyon Railway.

**KVP-5: Proposed Condition – (Alternative 1)**

**Resource Change**

Key Viewpoint 5 is very similar to KVP-4, depicting a view from the Niles Canyon Railway looking west toward SR-84, a short distance south of KVP-4. As depicted in Figure 32 (Simulated view of Alternative 1 from KVP-5 looking west from Niles Canyon Railway, after construction), under Alternative 1, a 1,090-foot-long soil-nail retaining wall up to 20 feet in height would be intermittently visible to Niles Canyon Railway passengers above the new roadway in this section, over a distance of roughly ¼-mile of the railroad. For most of that section, a Type 1 concrete retaining wall, up to 36 feet in height, facing the creek and railroad, would support the roadway and also be intermittently visible through intervening tree canopy. As indicated in Figures 32, because of its lower position in relation to Niles Canyon Railway passengers and the density of creek-side vegetation, the lower retaining wall would be mostly blocked from view.

Views of the proposed roadway and retaining wall in this section would be occasionally visible as shown in the simulation, but would be mostly obscured and highly filtered by dense intervening vegetation on the east side of the creek, adjacent to the Niles Canyon Railway. Although the proposed down-slope retaining wall would also be occasionally visible from the Niles Canyon Railway, these views would be even more highly filtered due to the density of lower vegetation on both east and west sides of the creek. Some existing trees on the west side of the creek could be removed for construction of the creek-side Type 1 retaining wall. However, the density of existing trees east of the new alignment, on both the east and west sides of the creek, indicate that the visual buffer of existing tree

canopy would remain substantial as seen by Niles Canyon Railway viewers even with some tree removal for wall construction. The existing vegetation east of the creek is not anticipated to be affected by project construction in this segment south of the bridge at all. The mostly momentary views of the project from the Niles Canyon Railway, seen through a substantial buffer of tree canopy east and west of the creek, are not anticipated to dominate Niles Canyon Railway viewers' attention or substantially alter their experience of the overall setting. The effect of Alternative 1 in this segment on vividness, intactness, unity and overall visual quality, as well as visual character, would be moderately low as seen by Niles Canyon Railway passengers. As discussed under KVP-4, views of the project could be more prominent in fall and winter months due to seasonal absence of deciduous tree canopy. Overall, however, the viaduct and wall would have minimal effects on sensitive viewers on the Niles Canyon Railway, and the level of visual resource change would be moderately low. In the context of moderate viewer response of Niles Canyon Railway viewers, this would represent a moderate impact.



**Figure 31. KVP-5 – Existing view from KVP-5 looking west from Niles Canyon Railway**





**Figure 32. KVP-5 – Simulated view of Alternative 1 from KVP-5 looking west from  
Niles Canyon Railway, after construction: shown with ST-70 Rail**





**Figure 33. KVP-5 – Simulated view of Alternative 1 from KVP-5 looking west from Niles Canyon Railway, after 15 years: shown with ST-70 rail.**



KVP-5: Proposed Condition – (Alternative 2)

In contrast to Alternative 1's 1,090 feet of uphill soil-nail retaining wall, Alternative 2 would have 470 feet of uphill rock cut with anchored wire mesh and erosion control netting. Like Alternative 1, the roadway would also be supported in this section by a concrete Type 1 retaining wall of similar length (1,150 feet) and maximum height of approximately 23 feet. As discussed above, rock cuts would be less visually intrusive than soil-nail walls, particularly in the long term after revegetation begins to establish. The downhill wall would be substantially similar to Alternative 1, and would be largely screened by creek-side vegetation.

Alternatives 2, 3A, and 3B would appear similar in configuration from this viewpoint. The primary difference among them from this viewpoint would be the length of the rock cut. For that reason, all three Alternatives are represented here by Figures 34 and 35 which depict Alternative 3A. Alternative 3A has the longest rock cuts of these three Alternatives and so represents a worst-case view. However, in general appearance, the rock cut areas would appear similar to this depiction.

As shown in Figure 34 (KVP-5, Simulated view of Alternative 3A looking west from Niles Canyon Railway after construction), immediately after construction the erosion control netting and hydroseeding would create relatively strong visual contrast and a substantial short-term reduction in visual intactness and unity. As depicted in Figure 35 (KVP-5, Simulated view Alternative 3A looking west from Niles Canyon Railway after 15 years vegetation growth), the slope would be expected to partially revegetate within a relatively short period after construction. With the implementation of avoidance and minimization measures described in Section 2.1.4.4, including revegetation and use of non-contrasting wire mesh, visual contrast of the wire mesh would be reduced, and the cut and revegetated slope would regain a more natural, less contrastive appearance in the long term. After a few years, the decline in visual quality, accounting for expected re-vegetation and the short duration of view, would be low.

Consequently, because of the uphill rock cut's smaller scale and less visually contrastive character (in the long term), the impact of views of Alternative 2 from KVP-5 would be less than Alternative 1. As under Alternative 1, potential impacts of these views would be highly muted by the general visual filtering of intervening creek-side vegetation in the foreground of Niles Canyon Railway passengers. The overall level of visual change would be low. In the context of moderate viewer response of Niles Canyon Railway viewers, this would represent a moderately low impact.

KVP-5: Proposed Condition – (Alternative 3A)

Under Alternative 3A, there would be a combination of rock cuts with anchored wire mesh and soil nail walls buried under an embankment slopes, combining for a total length of 800 feet in a segment facing the Niles Canyon Railway at relatively close distance. Unlike Alternatives 1 and 2, Alternative 3A would be supported in this section by a sidehill viaduct structure consisting of concrete columns supporting a pre-cast concrete deck, as depicted in Figures 34 and 35.

Despite the differences in uphill rock cut length and use of a viaduct-column support structure, the overall visual effects of Alternative 3A would be similar in type and character to Alternative 2. The uphill rock cut would be longer than Alternative 2 in length; the downhill structure would be less contrastive in character than the retaining walls under Alternatives 1 and 2. However, since both the downhill retaining walls and viaduct-column structures would be largely screened by vegetation, neither would be highly visible. The visual impact of rock cuts under Alternative 3A would be greater in extent than Alternative 2, but would be partially reduced by a revegetated 2:1 soil slope beneath the rock cuts at the side of the road, as depicted in Figure 24 (KVP-3, Simulated view of Alternative 2 from KVP-3 after 15 years vegetation growth). This soil slope, concealing a soil-nail retaining wall beneath, would quickly revegetate with typical local and native vegetation and blend with the existing setting. Overall, like Alternative 2, the level of visual change would be low. In the context of moderate viewer response of Niles Canyon Railway viewers, this would represent a moderately low impact.

**KVP-5: Proposed Condition – (Alternative 3B)**

Under Alternative 3B, there would be a 300-foot-long uphill rock cut, substantially shorter than under Alternative 3A, and shorter than Alternative 2. The roadway, supported by a sidehill viaduct structure as under Alternative 3A, would also conform to existing grade much sooner than under the three other Build Alternatives, making the overall viaduct section much shorter than under the other Alternatives. Overall, visual change due to the project from the Niles Canyon Railway in this section would be low. In the context of moderate viewer response of Niles Canyon Railway viewers, this would represent a moderately low impact. Due to the much smaller scale of the prominent viaduct and rock cuts under Alternative 3B, this alternative would have appreciably less potential for visual impact than the other alternatives, from this and all other key viewpoints.



**Figure 34. KVP-5 – Simulated view of Alternative 3A looking west from Niles Canyon Railway after construction: shown with ST-70 Rail**





**Figure 35. KVP-5 – Simulated view Alternative 3A looking west from Niles Canyon Railway after 15 years vegetation growth: shown with ST-70 Rail.**



Overall, Alternative 1 would result in a larger impact to visual/aesthetics than Alternatives 2, 3A, and 3B. Alternative 1 would result in an increased visual/aesthetic impact as a result of the construction of the 1,090-linear-foot-long concrete soil-nail wall adjacent to the roadway. In contrast to Alternative 2, 3A, and 3B, Alternative 1 has an alignment that moves further north toward the Niles Canyon Railway. This would require tree removal and re-grading close to the Niles Canyon Railway, reducing the width of the visual buffer of trees between the rail line and realigned roadway. As a result of this tree removal, the amount of screening canopy between the Niles Canyon Railway and the roadway would decrease, and it is likely that visibility of the highway from the Niles Canyon Railway would increase in this section. With the implementation of the recommended measures described in Section 2.1.4.4, Alternative 1, including dense tree re-planting and revegetation on the north-facing berm of the western approach, visibility of the road would be blocked in the long term, reducing viewer exposure and visual change to a minimal level. Additionally, there would be an increased impact from construction of the Type 1 downslope retaining wall from the Alameda Creek area in comparison to the construction of the sidehill viaduct and piles from the roadway as proposed in Alternatives 3A and 3B. Construction of the sidehill viaduct would have less impact to Alameda Creek vegetation.

For Alternatives 2, 3A and 3B, changes to visual character would remain subordinate in scale and dominance to the surrounding natural setting. Alternative 3A involves the construction of approximately 1,100-foot-long rock cuts and soil-nail walls on the eastern approach. The soil-nail walls would be constructed beneath the embankment slopes, which would be revegetated with hydroseeded grasses. Over time once the grasses fill in, the combination of rock cuts and embankment slopes would not make a lasting impression. Alternative 2 involves the construction of a Type 1 downslope retaining wall and 470 linear feet of rock cut. Alternative 2 has a smaller impact area on the eastern side in comparison to Alternative 3, but the rock cuts of both alternatives would be very similar. Immediately after construction the erosion control netting and hydroseeding would create relatively strong visual contrast and a strong reduction in visual intactness and unity, as depicted in Figure 25 (Alternative 3A from KVP-3 after construction). However, as depicted in Figure 26 (Alternative 3A from KVP-3 after 15 years), the slope would be expected to partially revegetate within a relatively short period after construction and continue to become less visually evident with time. Since revegetation does not incorporate replanting of trees on the resulting 3/4:1 slope, the rock cut would be visually apparent until the grasses and wildflowers fill in over time. In comparison, the rock cut for Alternative 3B totals only 300 linear feet.

Alternative 2 involves the construction of a Type 1 downslope retaining wall and 470 linear feet of rock cut. Alternative 2 would result in a smaller impact than Alternatives 1 and 3A, but would have a greater visual/aesthetic impact than Alternative 3B, which has the least amount of impact to visual/aesthetics out of the four Alternatives. Alternative 1 would have a high impact on visual/aesthetics. The impact to visual/aesthetics from Alternative 1 is a result of the construction of the 1,090-foot-long uphill soil-nail retaining wall on the eastern approach to the Alameda Creek Bridge.

### Construction Impacts

Many of the anticipated impacts of the project could be temporary and construction-related. The principal impact anticipated as a result of construction would be tree removal, both uphill from the proposed upslope retaining wall or rock-cuts and creekside along the proposed downhill retaining wall or for the construction of the new bridge.

In the short-term, motorists on the existing bridge would witness a loss of large existing riparian trees in and around the proposed new bridge alignment and the sight of construction activities and equipment for both the bridge and the proposed retaining walls. Although tree removal in the creek bed for construction would be minimized to the greatest extent feasible, some tree removal would be unavoidable. However, this removal is not expected to make SR-84 more visually exposed to NCRY passengers than is currently the case. Similarly, for motorists, tree removal would result in exposure of similar, adjacent tree canopy, and the overall change is expected to be minor. Since the tree removal would result in exposure of similar mature tree canopy behind it, there is little anticipated net decline in visual quality and little long term visual impact. Following construction, trees would be replaced and in the long term these trees would restore the existing scenic conditions. Fast-growing species would be expected to restore effective screening in a relatively short period, with other species restoring the existing character fully over a longer period of time. However, even in the short-term, declines in visual quality from vegetation removal are expected to be relatively minor.

Also, in the short-term during the construction of the new, realigned western bridge approach, viewers would witness views of the existing roadway immediately to the south. This would be an unsightly element until the paving was demolished and removed, and the ground re-graded and revegetated to a natural appearance. The existing roadway area would then be revegetated to a natural appearance in the short-term and enhanced with the presence of oak woodland in the roadway foreground of this segment in the long term. With this measure, visual impacts would be short-lived and unnoticed within a period of a few years.

As described above, construction of the western approach and bridge on a new alignment would require considerable tree removal. However, from a visual standpoint, this tree removal would result in exposure of similar mature tree canopies behind it, with little anticipated net decline in the visual quality and little long-term impact.

Other construction-related impacts could include decline in visual quality as a result of tree removal and ground disturbance to provide access for construction materials and equipment within the Alameda Creek bed. These impacts could be particularly substantial if they were to result in any major removal of the existing woodland to the east of Alameda Creek and south of the Alameda Creek Bridge. However, the project, with the implementation of Avoidance, Minimization, and/or Mitigation Measure VISUAL-3, would strive to avoid disturbance to the maximum extent feasible. Equipment access and storage shall be restricted to the west bank of the creek in the segment south of the bridge to the greatest extent feasible. Where such encroachment is unavoidable, damage to the trees and forest canopy on the creek's east bank shall be minimized to the smallest feasible area of disturbance, and be revegetated immediately following project completion.



#### *No-Build Alternative*

Under the No-Build Alternative, the replacement bridge would not be constructed. The visual experience of motorists and Niles Canyon Railway passengers would remain as they are currently.

#### **2.1.4.4 Avoidance, Minimization, and/or Mitigation Measures**

##### **Alternative 1**

VISUAL-1. The following upslope retaining wall measures would be implemented:

- Minimize the overall height of walls through coordination with the Caltrans' Office of Landscape Architecture.
- Use context-sensitive wall texture and/or color treatments on all upslope and downslope walls as identified in the visual impact assessment, to minimize contrast with the existing natural and historic settings. Concrete safety-shape barriers would receive color stain to lower contrast with the walls and reduce glare. Surface texture treatments would be developed in consultation with local agencies and Caltrans' Office of Landscape Architecture.
- Employ color staining of the concrete safety barrier of upslope retaining walls to reduce overall contrast between the walls and the barriers.
- Coordinate wall and concrete safety-shape barrier aesthetic treatments and carry consistent themes throughout the corridor.
- Where anchored or draped wire mesh slope protection is required:
  - Apply hydroseeded revegetation, including locally native species to blend with the surrounding setting.
  - Wire mesh would be selected to match color and value of the underlying soil substrate to minimize visual contrast: For example, light-colored mesh over light-colored substrate; dark-colored mesh over dark substrate.

##### **All Alternatives**

VISUAL-2. To address loss of existing aesthetic bridge design features, and to off-set potential corridor-wide cumulative visual impacts, context-sensitive design features would include:

- See-through ST-70 metal rail would be treated with a flat brown color to reduce glare of metal finish and blend into surrounding setting.
- Metal guardrail would be treated with coating to turn bright metal surfaces to a dull brown color, to reduce glare and blend with surroundings.

VISUAL-3. The following tree and vegetation removal measures would be implemented:

##### **a. Minimization or Avoidance of Tree/Vegetation Removal Due to Construction**

- Minimize removal of large native riparian trees during the project' design phase through coordination with Caltrans' Office of Landscape Architecture and Office of Biological Sciences and Permits.
- Clear and grub only within excavation and embankment slope limits.
- Protect existing vegetation outside of clearing and grubbing limits from the contractor's operations, equipment, and materials storage.
- Limit tree trimming by the contractor to that required to provide a clear work area.

- Limit clearing and grubbing behind upslope retaining walls to a maximum of 5 feet from the back of the wall.
- Place Environmentally Sensitive Area fencing around trees or other desirable vegetation to be protected before roadway construction begins.
- Caltrans' Resident Engineer would ensure trees are field marked and would approve all trees to be removed prior to removal.
- Adjust slope lines wherever feasible to avoid the removal of trees and other desirable vegetation.
- Implement design exceptions to avoid removal of existing vegetation. Design exceptions may include reducing the width of the standard grading catch line to minimize vegetation removal; steepening of cut and fill slopes; installing guardrails around any trees classified as a scenic resource to allow retention at the shoulder; or other measures as recommended in the visual impact assessment or as determined during the project design or construction phases.
- Take particular care in revegetating and enhancing the area of superseded roadway south of the western bridge approach, to achieve a natural appearance in the Short-term and to enhance presence of oak woodland in the roadway foreground of this segment.

b. Minimize visibility of West Embankment Impacts to Niles Canyon Railway,  
Alternative 1

- Implement dense tree re-planting and re-vegetation on the north-facing berm of the western approach under Alternative 1 to provide screening and minimize visibility of project as seen by Niles Canyon Railway passengers where feasible

c. Tree Replacement at East Down-slope Retaining Wall under Alternatives 1 and 2

- If views of the retaining wall from the Niles Canyon Railway due to tree removal for wall construction are identified, visual screening shall be restored through replacement planting of trees within State right-of-way as needed to restore visual screening from Niles Canyon Railway.

d. Highway Planting

- Implement required planting per Chapter 29 (Highway Planting) of the Caltrans Project Development Procedures Manual and Chapter 900 (Landscape Architecture) of the Caltrans Highway Design Manual.
- Replace all disturbed areas of native vegetation in kind at a minimum ratio of 1:1. Following construction, all temporarily impacted areas would be restored and enhanced on-site and Caltrans would conduct on-site tree replacement for upland trees at a 1:1 ratio, to the extent practicable, in the existing SR-84 alignment.
- Fund required planting through the parent roadway contract, programmed and completed as a separate contract within two years of completion of all roadwork.
- Provide all disturbed areas with permanent erosion-control grasses.

e. Revegetation

- All disturbed areas shall be provided with permanent erosion-control grasses and appropriate, locally native revegetation. Trees removed as a result of construction operations shall be replaced at a minimum ratio of 1:1 at locations closest to the impacted area wherever feasible and, where in-place planting is not feasible, off-site in the corridor visual foreground and in kind. Details for off-site planting for



permit requirements would be determined in coordination with CDFW and permitting requirements.

VISUAL-4. The following construction impact measures would be implemented:

- Place unsightly material, equipment storage and staging so that they are not visible within the foreground of the highway corridor to the extent feasible. Where such siting is unavoidable, material and equipment shall be visually screened to minimize visibility from the roadway and nearby sensitive off-road receptors.
- Screen construction, staging, and storage areas by visually opaque screening wherever they would be exposed to public view for extended periods of time.
- Phase construction activities to minimize the duration of disturbance to the shortest feasible time.
- Revegetate all areas disturbed by construction, staging, and storage per Measure VISUAL-3, above.
- Limit all construction lighting to within the area of work and avoid light trespass through directional lighting, shielding, and other measures as needed.
- Where the existing roadway is to be superseded, existing pavement and roadbed shall be removed and contour graded to provide a natural appearance and blend with the adjacent landform. Graded areas shall be revegetated as described under measure VISUAL-3, above.
- Equipment access and storage for retaining wall construction under Alternatives 1 and 2 shall be restricted to the west bank of the creek in the segment south of the bridge to the greatest feasible extent. Where such restriction is unavoidable, damage to the trees and forest canopy on the creek's east bank shall be minimized to the smallest feasible area of disturbance, and be revegetated with replacement native riparian trees immediately following project completion.

VISUAL-5. Removal and Restoration of Geotechnical/Construction Access Roads

Geotechnical/construction access roads would be removed and restored to their original, pre-access road condition following construction completion. Additionally, prior to constructing geotechnical/construction access roads, boulders designated to be moved would be photographed and restored to their original position, where feasible, upon removal of the access road.

VISUAL-6. Niles Canyon Tree Planting Plan. A plan to describe how measures UPLAND TREES-1 and RIPARIAN TREES-1 would be implemented. The plan would be completed during final design when a more precise project footprint is defined.

The plan would follow the general framework below and would be further developed as the project design becomes more refined and jurisdictional agency permits are applied for and received.

- Description of Existing Conditions / Environmental Setting
- Objectives of Planting Plan
- Rationale for Expecting Implementation Success
- Responsible Parties
- Identification of Potential Planting Sites

- Site Preparation, Irrigation, and Planting Plans
- Maintenance Activities and Schedule
- Performance Standards & Reporting

VISUAL-7. Direct Seeding in Proposed Restoration Plan. The project would include the practice of direct seeding in the proposed restoration plan in the project's permit applications. However, the restoration plan will be subject to review and approval by the permitting agencies. Caltrans will apply the seeding with a hydraulic slurry or dry apply technique. Plant community zone specific seed mixes will be used. Seed mixes will include grasses, shrubs, and forbs. Tree plantings will be with oak tree acorns or tree species conducive to direct seeding techniques. In the follow-up Maintain Existing Planted Areas (MEPA) contract, potted plants could be used to enhance the earlier plantings done by direct seeding and hydroseeding. If potted plants are required, the potted plants would be from a licensed Nursery participating in the CA Nursery Services Program and implementing California Department Food and Agriculture (CDFA) protocols for disease standards. The contract would include funds for the Caltrans Landscape Construction Inspector to visit the nurseries as needed.

## **2.1.5 Cultural Resources**

### **2.1.5.1 Regulatory Setting**

The term “cultural resources” as used in this document refers to all “built environment” resources (structures, bridges, railroads, water conveyance systems, etc.), culturally important resources, and archaeological resources (both prehistoric and historic), regardless of significance. Laws and regulations dealing with cultural resources include:

The National Historic Preservation Act (NHPA) of 1966, as amended, sets forth national policy and procedures for historic properties, defined as districts, sites, buildings, structures, and objects included in or eligible for the NRHP. Section 106 of the NHPA requires federal agencies to take into account the effects of their undertakings on such properties and to allow the Advisory Council on Historic Preservation the opportunity to comment on those undertakings, following regulations issued by the Advisory Council on Historic Preservation (36 Code of Federal Regulations [CFR] 800). Caltrans treats properties listed in the NRHP as historical resources subject to protection pursuant to CEQA and Public Resources Code Section 5024.

On January 1, 2014, the First Amended Section 106 Programmatic Agreement (PA) between the Advisory Council, FHWA, State Historic Preservation Officer (SHPO), and Caltrans went into effect for Caltrans projects, both state and local, with FHWA involvement. The PA implements the Advisory Council's regulations, 36 CFR 800, streamlining the Section 106 process and delegating certain responsibilities to Caltrans. The FHWA's responsibilities under the PA have been assigned to Caltrans as part of the Surface Transportation Project Delivery Program (23 United States Code [USC] 327). The Section 106 PA guides all Caltrans projects in compliance with NHPA, CEQA and CA Public Resources Code (PRC) Section 5024.1. Under Caltrans guidelines and policy, treatment and consideration of all cultural resources follows federal standards.

Historic properties may be covered under Section 4(f) of the U.S. Department of Transportation Act, which regulates the “use” of land from historic properties. See Appendix B for specific information about Section 4(f).

Historical resources are considered under CEQA, as well as California Public Resources Code (PRC) Section 5024.1, which established the California Register of Historical Resources (CRHR). Public Resources Code Section 5024 requires state agencies to identify and protect state-owned resources that meet NRHP and California Historical Landmark listing criteria. It further specifically requires Caltrans to inventory state-owned structures in its rights-of-way. Sections 5024(f) and 5024.5 require state agencies to provide notice to and consult with the SHPO before altering, transferring, relocating, or demolishing state-owned historical resources that are listed on or are eligible for inclusion in the NRHP or are registered or eligible for registration as California Historical Landmarks. The CEQA Guidelines define a historical resource as, “a resource listed or eligible for listing on the CRHR,” properties included in a qualified local register of historic resources, or properties deemed significant pursuant to criteria set forth in Section 5024.1(g) (Section 15064.5[a]) of the California Public Resources Code.

It is the purpose of the State Historical Building Code to provide regulations and standards for the rehabilitation, preservation, restoration (including related reconstruction) or relocation, as applicable, to all historical buildings, structures and properties deemed of importance to the history, architecture, or culture of an area by an appropriate local or state governmental jurisdiction. Such standards and regulations are intended to facilitate the restoration or change of occupancy so as to preserve their original or restored elements and features, to encourage energy conservation and a cost effective approach to preservation, and to provide for reasonable safety from fire, seismic forces or other hazards for occupants and users of such "buildings, structures and properties" and to provide reasonable availability and usability by the physically disabled. The State Historical Building Code is defined in Sections 18950 to 18961 of Division 13, Part 2.7 of Health and Safety Code (H&SC) Health and Safety Code, a part of California Law.

#### **2.1.5.2 Affected Environment**

A Historic Property Survey Report (HPSR) for the Alameda Creek Bridge Replacement Project was completed on September 29, 2010 (Caltrans, 2010d) and supplemental HPSR was completed on March 17, 2014 (Caltrans, 2014e). The HPSR is a summary document used as Caltrans’ decision-making document for cultural resource determinations; the HPSR includes an Archeological Study Report (ASR) and a Historic Resources Evaluation Report (HRER). The ASR documents both positive and negative archeological study results and demonstrates that a reasonable level of effort occurred to identify archeological properties. The HRER documents identification and evaluation efforts for historical archeological resources and built environment resources.

Prior to conducting field investigations, cultural resources staff reviewed existing files, records, historical documents, and maps to determine the presence of prior surveys and known or possible resources within one-eighth of a mile on either side of the SR-84 centerline. The cultural study area, also called the Area of Potential Effects (APE), was

developed to identify cultural resources within the entire project footprint. The NRHP-eligible Sunol Aqueduct of the Spring Valley Water Company's (SVWC) Alameda Creek System lies parallel to and approximately 50-60 feet west of the current road alignment and the NRHP-listed Niles Canyon Transcontinental Railroad (NCTR) Historic District is approximately 200 feet north and east of the Alameda Creek Bridge and runs parallel to the current road alignment. The APE includes the entire 4.9 miles Sunol Aqueduct and 11.6 miles of the NCTR. However, a focused APE was established to include only the area that would be directly impacted by the project, extending from postmile 13.0 to postmile 13.6. The focused APE included maximum corridor width of 30 feet on either side of the highway centerline. The focused APE extends from postmile 13.0 to postmile 13.6.

The discussion of cultural resources identified within the APE is split into two sections: Built/Architectural Resources and Archeological Resources.

#### *Built/Architectural Resources*

The HPSR identified three built cultural resources within the APE, one of which is the existing Alameda Creek Bridge. Bridge footings and a concrete wall dating to an earlier bridge at this crossing are also within the APE; however, the bridge footings and concrete wall are fragments of a mostly vanished resource, and are exempt from consideration for NRHP eligibility. The significance of each evaluated cultural resource within the APE is discussed below.

#### Sunol Aqueduct of Spring Valley Water Company's Alameda Creek System

In December 1998, the Sunol Aqueduct was determined eligible for individual listing on the NRHP under Criterion A. Criterion A qualifies a property for inclusion on the NRHP based on its association with events that have made a significant contribution to the broad patterns of history. Built in 1900 by the SVWC, the Sunol Aqueduct provided a reliable source of clean water for the growing city of San Francisco in the twentieth century. The Sunol Aqueduct is noteworthy for its association with the history of urban water supply in northern California.

#### Niles Canyon Transcontinental Railroad Historic District

The NCTR has been listed on the NRHP since October 13, 2010. The NRHP nomination for the NCTR states that it is significant under Criterion A. Criterion A of the NHPA qualifies a property for inclusion to the NRHP based on its association with events that have made a significant contribution to the broad patterns of history. The period of significance, or span of time during which significant events and activities occurred, begins at the construction commencement of this portion of the Transcontinental Railroad in 1865 to the end of its significance as a major transportation corridor after World War II and concludes at its final incorporation into the Southern Pacific Railroad in 1958.

The contributing features include stone elements from the original 1865 construction, the 1884 Sunol Depot, and three major steel bridges including a rare pin connected Pratt Truss. The historic property boundary also contains the remains of the transcontinental telegraph line of 1869. None of these contributing features would be affected by this project and are outside of the focused APE. The historic property boundary within the APE is delineated

by the railroad right-of-way and varies in width from 100 feet to 400 feet along the length of the railway, depending upon the manner in which the railroad acquired it during the period of significance. At certain locations, this boundary intersects with Caltrans' existing right-of-way.

Alameda Creek Bridge (Bridge #33-0036)

The Alameda Creek Bridge (1928) is listed as Category 5 on the Caltrans Historic Bridge Inventory, meaning it is not eligible for the NRHP (federal), nor does it meet the criteria of the California Register of Historical Resources (state). However, the Alameda County Parks, Recreation & Historical Commission identified the bridge as eligible for inclusion on the Alameda County Register (Landmarks) in 2012, although the bridge has not been formally listed on the County's register.

After the County determined the bridge had local significance, a qualified Caltrans architectural historian evaluated the bridge a second time and found it still to be ineligible for the NRHP, nor meeting the criteria of the California Register. The SHPO concurred with this finding on April 15, 2014.

In accordance with the California Code of Regulations, Title 14, Chapter 3 15064.5, Caltrans is considering the Alameda Creek Bridge to be a historical resource under CEQA.

As previously stated, the Alameda Creek Bridge is a locally recognized historical resource. As such, the Alameda County Parks, Recreation, and Historical Commission requested that Caltrans consider the applicability of the California Historical Building Code (CHBC) to the bridge. Caltrans consulted with the California State Historical Building Safety Board as a result of this inquiry. The Board responded that Caltrans is obliged to apply the Code to this resource.

Section 18955 of the CHBC defines a "qualified historical building or structure" as "any structure or property, collection of structures, and their associated sites deemed of importance to the history, architecture, or culture of an area by an appropriate local or state governmental jurisdiction. This shall include structures on existing or future national, state or local historical registers or official inventories, such as the National Register of Historic Places, State Historical Landmarks, State Points of Historical Interest, and city or county registers or inventories of historical or architecturally significant sites, places, historic districts, or landmarks. This shall also include places, locations, or sites identified on these historical registers or official inventories and deemed of importance to the history, architecture, or culture of an area by an appropriate local or state governmental jurisdiction."

The CHBC's standards and regulations are intended to facilitate the rehabilitation or change of occupancy so as to preserve their original or restored elements and features, to encourage energy conservation and a cost effective approach to preservation, and to provide for reasonable safety from fire, seismic forces or other hazards for occupants and users of such buildings, structures and properties and to provide reasonable availability and usability by the physically disabled. However, complying with the standards of the CHBC on the existing bridge would not enable it to fulfill the project's purpose and need, as



outlined in Section 1.2. All Alternatives propose to demolish the existing Alameda Creek Bridge and therefore, the CHBC cannot be applied to the proposed Alternatives.

#### *Archeological Resources*

No known archeological sites were identified in the project's APE. However, if cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area will be diverted until a qualified archeologist can assess the nature and significance of the find.

If human remains are discovered, 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, and the County Coroner contacted. Pursuant to CA Public Resources Code (PRC) Section 5097.98, if the remains are thought to be Native American, the coroner will notify the Native American Heritage Commission (NAHC), which will then notify the Most Likely Descendent (MLD). At this time, the person who discovered the remains will contact Kathryn Rose, Branch Chief-Archeology so that they may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.

The NAHC was contacted on July 26, 2010 regarding the presence of sacred lands in the project area and provided Caltrans a list of Native American contacts. The NAHC response dated July 29, 2010 stated that their search failed to indicate the presence of Native American cultural resources in the immediate project area. The NAHC list of contacts was used to send letters inviting participation in efforts to identify archeological and Native American resources. Letters were sent to the all individuals and organizations listed below:

1. Jakki Kehl, Ohlone/Costonoan
2. Katherine Erolina Perez, Ohlone/Costonoan
3. Linda G. Yamano, Ohlone/Costonoan
4. Irene Zwierlein, Chairperson, Amah/Mutsun Tribal Band
5. Jean-Marie Feyling, Amah/Mustun Tribal Band
6. Anne Marie Sayers, Chairperson, Indian Canyon Mutsun Band of Costonoan
7. Rosemary Cambra, Muwekma Ohlone Indian Tribe
8. Andrew Galvan, Ohlone Indian Tribe
9. Ramona Garibay, Trina Marine Ruano Family

No responses were received as a result of the written inquiry.

### **2.1.5.3 Environmental Consequences**

#### *All Alternatives*

The impacts on cultural resources are the same across all Alternatives.

#### Sunol Aqueduct of Spring Valley Water Company's Alameda Creek System

In applying the Criteria of Adverse Effect, all Alternatives would have no adverse effect on the Sunol Aqueduct (for a discussion on 4(f), refer to Appendix B. Section 4(f)). The Sunol Aqueduct lies mostly on the surface of the hillside, south of the Alameda Creek

Bridge (Bridge #33-0036), along the westbound approach, with some portions buried two to three feet below ground. Alternatives 1 and 3A call for the placement of a soil-nail retaining wall, more or less parallel to the Sunol Aqueduct. The wall would vary in distance from the Aqueduct from between 41.9 feet and 16 feet. The nails which would be driven horizontally through the retaining wall and into the hillside are 25 feet long. The top of the retaining wall (and the highest point at which these nails would be driven) would be between 7.8 feet and 26.4 feet below the elevation at which the bottom of the Aqueduct resides. Therefore, the nails would not impact the Aqueduct. All surface work would take place on the roadway side of the retaining wall. The long term integrity of the undeveloped setting of the Aqueduct would not be affected, since the soil-nail wall would eventually be revegetated and become substantially indistinguishable from the existing setting. The Sunol Aqueduct is not adversely effected by this project.

The SHPO concurred with Caltrans' determination that the proposed project would have a no adverse effect on the Sunol Aqueduct on June 18, 2015.

#### Niles Canyon Transcontinental Railroad (NCTR) Historic District

In applying the Criteria of Adverse Effect, the proposed project would have an effect on the NCTR, but the effect would not be adverse. Because the Niles Canyon Railway is located within the Niles Canyon Transcontinental Railroad District, this property is considered a Section 4(f) resource, however, the Alameda Creek Bridge Replacement Project would not use or adversely impact the Niles Canyon Railway (refer to Appendix B. Section 4(f)). The project would not permanently diminish the integrity of this historic property's location, feeling, design, materials, workmanship, or association. No contributing built resources of the NCTR exist within the focused APE. There would be a minor right-of-way acquisition of 0.3 acres by Caltrans to facilitate the new alignment but this would not directly affect any man-made element of the NCTR.

As described in the National Register nomination for NCTR, the scenic and rugged setting outside the historic district boundaries, largely unchanged from the period of the line's original construction in 1865-69, contributes to the eligibility of the NCTR. A key concept, however, is that trees adjacent to the roadway and railroad have been cut down and regrown periodically, such as during initial construction of the NCTR and during construction and realignments or alterations of the highway. Alameda Creek Bridge was constructed in 1928 and does not contribute to the significance of the NCTR, and there are no other built resources outside the district's boundaries identified as contributing features of NCTR's setting. Caltrans concludes that the replacement of Alameda Creek Bridge would have no adverse effect to the historic district, unless that change substantially alters the scenic, rural, and rugged nature of the setting.

The proposed project would have an effect on the natural setting of the NCTR, but it would not be an adverse effect. Although trees and vegetation would be removed to allow construction of the new bridge, the views from the NCTR would remain substantially the same as the existing situation, with vegetation obscuring the views of the new bridge from the NCTR. The natural setting for 0.5 miles of NCTR's 11.6-mile length (4% of the total) would be slightly affected during construction. However, once remediation of the work

area is completed through hydroseeding and regrading, the resulting setting would be almost indistinguishable from its current state. The new bridge would have a slightly higher profile than the existing bridge, but the railing and bridge type would be a similar design to the original. The view of the new bridge would be likewise obscured from the historic district by vegetation.

The NCTR's integrity of setting would not be adversely affected due to the slight loss of right-of-way, the substantial retention of the pastoral viewshed, and the retention and replanting of vegetation screening the changes to the roadway from the NCTR.

Caltrans is continuing consultation with the Pacific Locomotive Association (PLA) on the determination that the proposed project would have no adverse effect on the NCTR. The SHPO concurred with Caltrans' determination that the project would have no adverse effect on the NCTR on June 18, 2015.

#### Alameda Creek Bridge (#33-0036)

All Alternatives would have a substantial adverse change on the Alameda Creek Bridge. Although the Alameda Creek Bridge is not eligible for the NRHP nor does it meet the criteria for inclusion in the CRHR, the bridge is eligible to be listed on a local historic register. In accordance with the California Code of Regulations, Title 14, Chapter 3 15064.5, Caltrans is considering it to be a historical resource under CEQA. The proposed project would result in the loss of the Alameda Creek Bridge, a bridge designated as a local historic resource on the Alameda County Register.

All Alternatives require ground disturbing and earth moving activities and as described in Section 1.4.1, all Alternatives require geotechnical investigations to obtain geotechnical and geologic samples of the supporting strata for the new bridge structures. No known archeological resources are located in the project vicinity and the likelihood of encountering any archeological resources is minimal based on a review of existing files, records, historical documents, and maps.

#### *No-Build Alternative*

The No-Build Alternative would not impact cultural resources.

#### **2.1.5.4 Avoidance, Minimization, and/or Mitigation Measures**

CULTURAL-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.

CULTURAL-2. If human remains are discovered, 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, and the County Coroner contacted. Pursuant to CA PRC Section 5097.98, if the remains are thought to be Native American, the coroner will notify the NAHC, which will then notify the MLD. At this time, the person who discovered the remains will contact Kathryn Rose, Branch Chief-Archeology so that they may work with

the MLD on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.

CULTURAL-3. Per preliminary consultation with the City of Fremont, Caltrans would place an interpretive panel that discusses the history of transportation in Niles Canyon and the Alameda Creek Bridge's role in it at the Vallejo Mill Park. The panel would be developed during the PS&E phase of the project and would be installed at Vallejo Mill Park within one year following construction completion.

CULTURAL-4. Recordation efforts documenting the Alameda Creek Bridge structure would occur prior to demolition activities.

CULTURAL-5. Report any unintended discoveries of human remains or artifacts within SFPUC jurisdiction to SFPUC.

## **2.2 Physical Environment**

Physical Environment consists of the following sections: Hydrology and Floodplain, Water Quality and Stormwater Runoff, Geology/Soils/Seismic/Topography, Paleontology, and Hazardous Waste/Materials.

### **2.2.1 Hydrology and Floodplain**

#### **2.2.1.1 Regulatory Setting**

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

To comply, the following must be analyzed:

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

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

#### **2.2.1.2 Affected Environment**

Hydrology and floodplains information for this section is provided in the Alameda Creek Bridge Replacement Location Hydraulic Study (Caltrans, 2014f) and the Alameda Creek Bridge Replacement Project Geomorphic, Hydraulic, and Sediment Transport Study (Caltrans, 2014g). The Location Hydraulic Study was completed on September 15, 2014 and the Geomorphic, Hydraulic, and Sediment Transport Study was completed on December 1, 2014. The affected environment for the Hydrology and Floodplains analysis

is defined as the project study limits on SR-84 from postmile 13.0 to postmile 13.6 as well as the project footprint needed to conduct the creek diversion, approximately 54 feet upstream of the old bridge footings (weir) and 54 feet downstream of the dripline of the existing Alameda Creek Bridge.

Typical of watersheds in the central and southern California areas, the Alameda Creek watershed is characterized by seasonal variation in precipitation rates and is subject to periodic drought conditions. Alameda Creek is intermittently perennial in the upper watershed areas and in the Sunol Valley, where the creek flows through broad channels across deep, coarse alluvium, and high infiltration rates result in dry reaches during the summer months. Many tributaries to Alameda Creek are historically intermittent and can be isolated from the mainstem by dry reaches beginning in the early to midsummer. In addition to fluctuations of in-stream flows (caused by varying levels of surface water runoff), flows in Alameda Creek tributaries also vary greatly with rising and falling water tables in the area (Caltrans, 2014g).

The U.S. Geological Survey (USGS) has maintained an active gaging station in the Niles Canyon portion of the watershed continuously since 1891. Comparisons of monthly averages over a 30-year period from the earliest records (1891 to 1921) and more recent records (1972 to 2007) indicate increased summer flows and decreased winter flows. This shift in the hydrologic regime is due to four major water impoundments in the watershed: Del Valle, Calaveras, and San Antonio reservoirs and the Alameda Creek Diversion Dam (San Francisco Planning Department, 2000).

Alameda Creek is managed by the Alameda County Flood Control and Alameda County Water Conservation District (ACFCD). The ACFCD plans, designs, constructs, and maintains flood control projects such as natural creeks, channels, levees, pump stations, dams, and reservoirs. The District is divided into nine zones; the Alameda Creek Bridge Replacement Project is located in Zone 5 which includes the City of Newark, Union City, the City of Fremont, Niles, Centerville, Decoto, and other surrounding areas of Alameda County. Beneficial Alameda Creek floodplain values include stabilizing the creek bank, providing habitat for terrestrial and aquatic wildlife, controlling erosion and sedimentation, and improving water quality by filtering pollutants. Floodplains are defined using FEMA Flood Insurance Rate Maps (FIRM), which categorize floodplains into different Special Flood Hazard Areas:

Zone AE: Floodplains identified as Zone AE represent areas with a one percent annual chance of flooding, where base flood elevations have been determined. Within a Zone AE floodplain, there are also regulatory floodway areas. A regulatory floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment, so that the one percent annual chance flood can be carried without substantial increases in flood heights.

Zone A: Floodplains identified as Zone A represent areas with a one percent annual chance of flood inundation, where no base flood elevations have been determined.



Zone A0: Floodplains identified in Zone AO represent areas within the one percent annual chance of flood inundation, with an average depth ranging from 1 foot to 3 feet.

Zone AH: Floodplains identified as Zone AH represent areas within the one percent annual chance of flood inundation, with flood depths of 1 to 3 feet and base flood elevations determined.

According to the Base Flood Maps (Figures 36 and 37), a portion of the proposed project is identified as being within Zone A, which represents areas with a 1% annual chance of flood inundation. The remainder of the project is located outside of the designated floodplain.

Figure 36. Base Flood Map

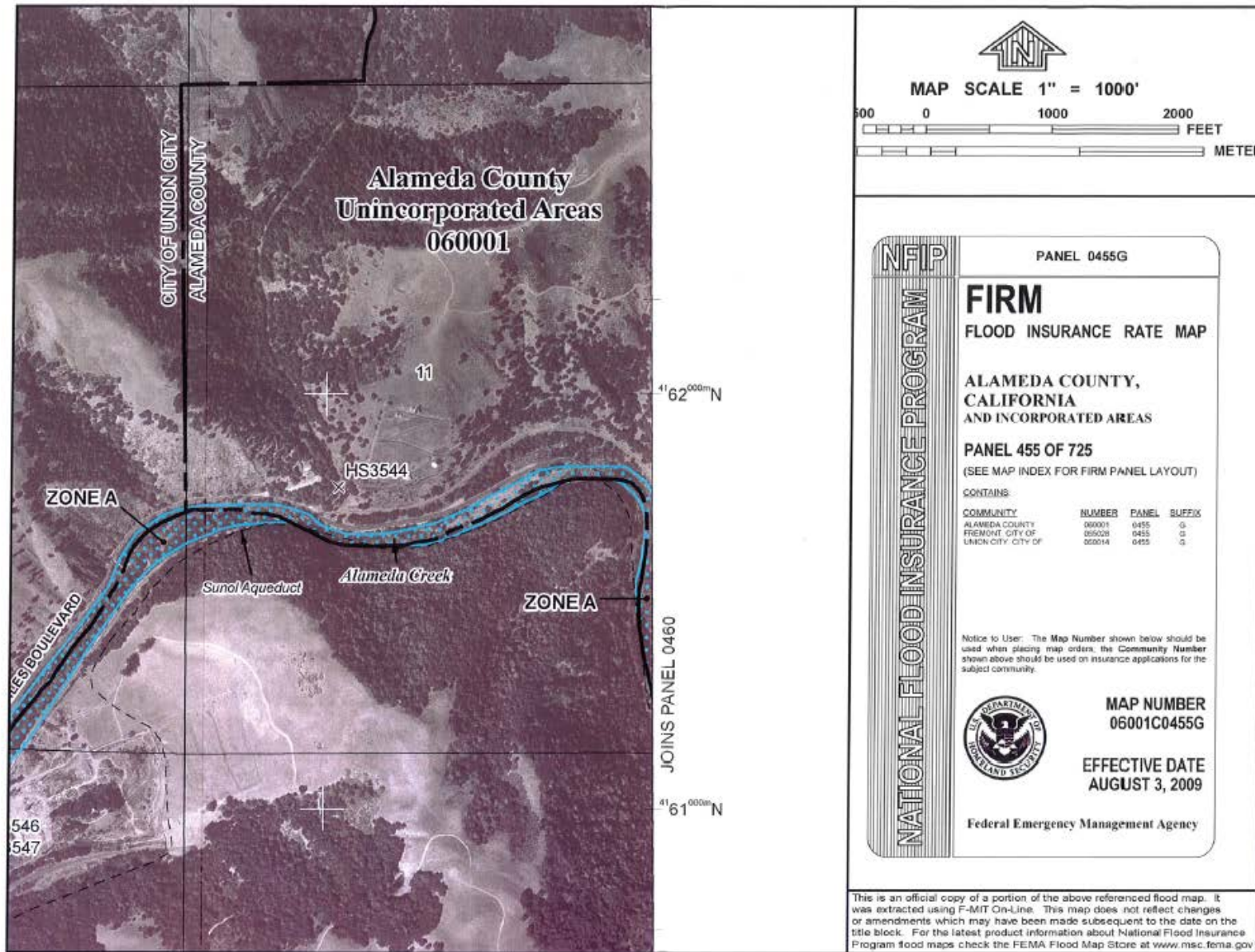
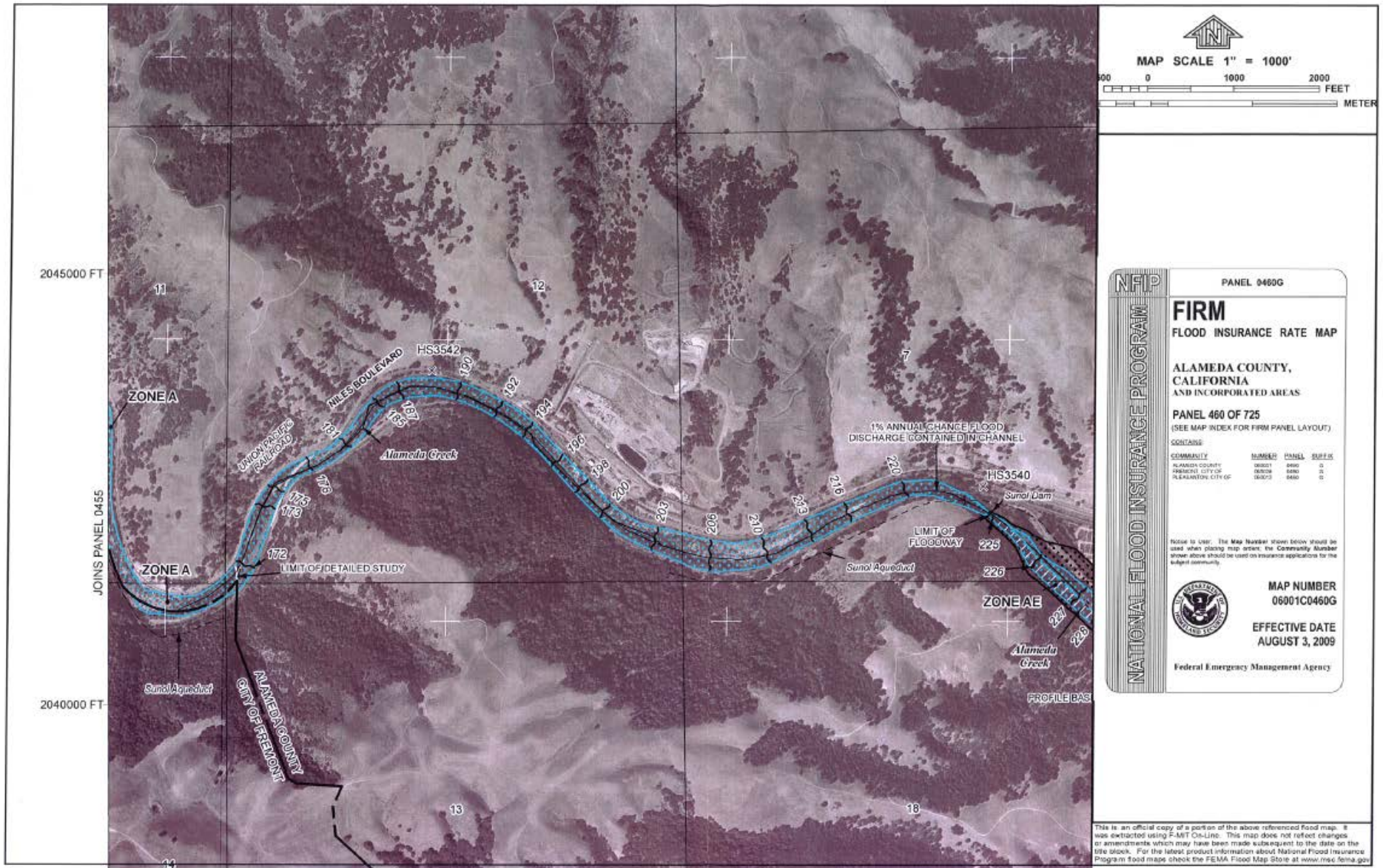




Figure 37. Base Flood Map



The hydrology and floodplain affected environment also includes the concrete bridge footings from a former Alameda Creek Bridge crossing, located approximately 150 feet upstream of the existing Alameda Creek Bridge (refer to Figures 3 and 4 in Chapter 1). These bridge footings form a concrete weir, acting as a barrier across the Alameda Creek and altering Alameda Creek's natural flow characteristics. The weir spans the width of the low-flow channel at the downstream face of the abandoned bridge footings.

### 2.2.1.3 Environmental Consequences

#### *All Alternatives*

A Location Hydraulic Study was prepared for the Alameda Creek Bridge Replacement Project to evaluate project impacts to the Base Floodplain Elevation (BFE) (Caltrans, 2014f). The BFE is the computed elevation to which floodwater is anticipated to rise during the base flood.

Hydraulic model results estimated that all Alternatives would have similar impacts on the BFE. Caltrans' Office of Structure Hydraulics completed hydraulic modeling based on current draft roadway design cross sections developed for Alternative 3A as Alternative 3A was determined to have the largest potential to impact the BFE. Based on the hydraulic modeling, Alternative 3A would result in an increase in BFE from near the proposed bridge (station 118+80) to the easterly project limits (station 134+80)<sup>26</sup>. Further east, it is estimated that this BFE increase would continue beyond station 134+80, dissipating for a distance of up to 2,000 feet. The maximum BFE increase is estimated to be 0.44 feet, at Station 130+20 (Caltrans, 2014f). It is anticipated that Alternatives 1, 2, and 3B would have a similar or lesser impact on the BFE than in Alternative 3A.

The increase in BFE for all Alternatives would be a nominal increase, in that there is minimal potential for increased interruption or termination of the roadway's usefulness for emergency vehicles, minimal risk to life or property due to flooding, and no adverse impact on natural and beneficial floodplain values. All Alternatives would not result in a significant encroachment on a floodplain.

While all Alternatives would encroach on the BFE, all Alternatives would ultimately maintain or enhance beneficial floodplain values of Alameda Creek by removing the existing Alameda Creek Bridge footings. Additionally, the project proposes to remove the remnant bridge footings and concrete wall of a former bridge, located upstream of the existing Alameda Creek Bridge. These bridge footings and concrete wall act as a weir and serve as a low-flow fish passage barrier. Per preliminary discussion and consultation with the USACE, RWQCB, CDFW, and NMFS, the removal of these bridge footings would address anticipated compensatory mitigation requirements for project impacts under the federal Endangered Species Act (ESA) consultation and the following permits: 1602 Streambed Alteration Agreement and Clean Water Act (CWA) Section 404 and 401 permits. The removal of the weir would enhance floodplain values from existing baseline conditions by ensuring full fish passage through the project site, restoring Alameda Creek to a more natural condition, and eliminating the backwater effect created by the weir. The

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<sup>26</sup> Stationing location identify specific places on engineering plans.

backwater effect promotes warmer temperatures and slower flows in which invasive fish species in Alameda Creek, like carp and largemouth bass, thrive.

Approximately 1,500 cubic yards of sediment deposition is currently impounded by the concrete weir (Caltrans, 2014g). The removal of the weir would leave the impounded sediment in place to transport naturally downstream. To predict the effects of releasing sediment stored at the weir on Alameda Creek and the flood control channel, the amount of sediment stored at the weir was compared to the total sediment load carried by Alameda Creek. It is estimated that the average annual sediment load transported by Alameda Creek exceeds the amount of sediment impounded before the weir by a factor of 40 times (Caltrans, 2014g). Therefore, the total amount of sediment stored behind the weir is a relatively small proportion of the total sediment load transported on an annual basis.

Nonetheless, the release of the impounded sediment could constitute a considerable impact on the floodplains/hydrology of Alameda Creek. Measures to minimize the impact of releasing the impounded sediment on Alameda Creek were developed to reduce the impact of the impounded sediment on the floodplains/hydrology of Alameda Creek. Following the construction of the Alameda Creek Bridge and the removal of the weir, the measures WATER-1-4 would be implemented to moderate and monitor the sediment pulse generated by removing the weir (measures are identified in Section 2.2.2.4). The influence of sediment release on channel morphology and aquatic habitat in Alameda Creek would be minimized with the implementation of these measures and would most likely cause adjustments that are within the range of natural variability. Sediment released from the weir would be dispersed over a period of several decades to the downstream reaches. There may be localized aggradation and in-filling of pools, but this would not be a long-term persistent condition. The dominant response of the channel is anticipated to be an enlargement of existing sediment storage features such as bars and natural river levees, and deposition on the floodplain where the channel is less entrenched. These sediment storage features would moderate the sediment pulse released from the weir. The sediment pulse released from the weir is expected to disperse (Caltrans, 2014g). Based on an inspection of USGS particle size data in suspended and bedload sample at the Niles gage, the sediment size impounded at the project site are within the size range of sediment sizes in the downstream channel and sediment load transported by Alameda Creek.

All Alternatives do not have the potential to interrupt or terminate a transportation facility needed for emergency vehicles or that provides a community's only evacuation route. The proposed project does not pose a significant risk to life or property nor does the project pose a significant adverse impact on natural and beneficial floodplain values. Measures designed to reduce impacts if the stored sediment were released from the weir and naturally transported downstream on to floodplains would ensure a minimal impact. Through the implementation of minimization measures, there are no anticipated adverse impacts to species and/or habitat. There would be no permanent adverse geomorphic, hydraulic, or floodplain impacts to Alameda Creek as a result of the Alameda Creek Bridge Replacement Project.



### *No-Build Alternative*

The No-Build Alternative would not change existing conditions and would not impact floodplains. The No-Build Alternative would not remove the concrete weir structure in Alameda Creek and would not improve fish passage or the morphology of the Alameda Creek.

#### **2.2.1.4 Avoidance, Minimization, and/or Mitigation Measures**

The measures identified in Section 2.2.2.4, WATER-1-4, also apply as avoidance and minimization measures for impacts to hydrology and floodplains.

### **2.2.2 Water Quality and Storm Water Runoff**

#### **2.2.2.1 Regulatory Setting**

##### *Federal Requirements: Clean Water Act*

In 1972, Congress amended the Federal Water Pollution Control Act, making the addition of pollutants to the waters of the United States (U.S.) from any point source unlawful unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. This Act and its amendments are known today as the Clean Water Act (CWA). Congress has amended the act several times. In the 1987 amendments, Congress directed dischargers of storm water from municipal and industrial/construction point sources to comply with the NPDES permit scheme. The following are important CWA sections:

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

The goal of the CWA is “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.”

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

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

*State Requirements: Porter-Cologne Water Quality Control Act*

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

The State Water Resources Control Board (SWRCB) and RWQCBs are responsible for establishing the water quality standards (objectives and beneficial uses) required by the CWA, and regulating discharges to ensure compliance with the water quality standards. Details about water quality standards in a project area are included in the applicable RWQCB Basin Plan. In California, Regional Boards designate beneficial uses for all water body segments, and then set criteria necessary to protect these uses. As a result, the water quality standards developed for particular water segments are based on the designated use and vary depending on that use. In addition, the SWRCB identifies waters failing to meet standards for specific pollutants. These waters are then state-listed in accordance with CWA Section 303(d). If a state determines that waters are impaired for one or more constituents and the standards cannot be met through point source<sup>27</sup> or non-point source

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<sup>27</sup> A point source is any discrete conveyance such as a pipe or a manmade ditch.

controls (NPDES permits or WDRs), the CWA requires the establishment of Total Maximum Daily Loads (TMDLs). TMDLs specify allowable pollutant loads from all sources (point, non-point, and natural) for a given watershed.

*State Water Resources Control Board and Regional Water Quality Control Boards*

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

- **National Pollutant Discharge Elimination System (NPDES) Program**  
Municipal Separate Storm Sewer Systems (MS4)

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

Caltrans’ MS4 Permit (Order No. 2012-0011-DWQ) was adopted on September 19, 2012 and became effective on July 1, 2013, and was amended by Order No. 2014-0077-DWQ (effective July 1, 2014) and Order No. 2015-0036-EXEC (effective April 7, 2015). The permit has three basic requirements:

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

To comply with the permit, Caltrans developed the Statewide Storm Water Management Plan (SWMP) to address storm water pollution controls related to highway planning, design, construction, and maintenance activities throughout California. The SWMP assigns responsibilities within Caltrans for implementing storm water management procedures and practices as well as training, public education and participation, monitoring and research, program evaluation, and reporting activities. The SWMP describes the minimum procedures and practices

Caltrans uses to reduce pollutants in storm water and non-storm water discharges. It outlines procedures and responsibilities for protecting water quality, including the selection and implementation of BMPs. The proposed project will be programmed to follow the guidelines and procedures outlined in the latest SWMP to address storm water runoff.

#### **Construction General Permit**

Construction General Permit, Order No. 2009-009-DWQ (adopted on September 2, 2009 and became effective on July 1, 2010), as amended by Order No. 2014-0077-DWQ (effective July 1, 2014) and Order No. 2015-0036-EXEC (effective April 7, 2015). The permit regulates storm water discharges from construction sites that result in a Disturbed Soil Area (DSA) of one acre or greater, and/or are smaller sites that are part of a larger common plan of development. By law, all storm water discharges associated with construction activity where clearing, grading, and excavation result in soil disturbance of at least one acre must comply with the provisions of the General Construction Permit. Construction activity that results in soil disturbances of less than one acre is subject to this Construction General Permit if there is potential for significant water quality impairment resulting from the activity as determined by the RWQCB. Operators of regulated construction sites are required to develop storm water pollution prevention plans; to implement sediment, erosion, and pollution prevention control measures; and to obtain coverage under the Construction General Permit.

The 2009 Construction General Permit separates projects into Risk Levels 1, 2, or 3. Risk levels are determined during the planning and design phases, and are based on potential erosion and transport to receiving waters. Requirements apply according to the Risk Level determined. For example, a Risk Level 3 (highest risk) project would require compulsory storm water runoff pH and turbidity monitoring, and before construction and after construction aquatic biological assessments during specified seasonal windows. For all projects subject to the permit, applicants are required to develop and implement an effective Storm Water Pollution Prevention Plan (SWPPP). In accordance with Caltrans' Standard Specifications, a Water Pollution Control Plan (WPCP) is necessary for projects with DSA less than one acre.

#### **Section 401 Permitting**

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

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

### **2.2.2.2 Affected Environment**

A Water Quality Study for the Alameda Creek Bridge Replacement Project (Caltrans, 2014h) was developed by the Office of Stormwater Coordination to determine existing water quality conditions and analyze how the project may impact water quality. The Water Quality Study was completed on October 15, 2014. An Addendum to the Water Quality Study was completed on February 8, 2016 (Caltrans, 2016d). In addition to the Water Quality Study and Addendum to the Water Quality Study, a Geomorphic, Hydraulic, and Sediment Transport Study for the Alameda Creek Bridge Replacement Project (Caltrans, 2014g) was completed to analyze the impacts of the proposed removal of the abandoned bridge footings and concrete wall located upstream of the existing Alameda Creek Bridge. The Geomorphic, Hydraulic, and Sediment Transport Study was completed on December 1, 2014. The bridge footings and concrete wall currently impound water and sediment and prevent upstream migration by steelhead.

The Alameda Creek Bridge Replacement Project is within the Alameda Creek watershed as well as the South Bay hydrologic unit, Alameda Creek Hydrologic Sub-Area (HSA) (204.30). Figure 38 shows the Alameda Creek Watershed. Alameda Creek is the receiving body for this project. The Region 2 Basin Plan establishes beneficial uses for waterways and water bodies throughout the region. Beneficial uses for Alameda Creek include Agricultural Supply, Groundwater Recharge, Commercial and Sport Fishing, Cold Freshwater habitat, Fish Migration, Preservation of Rare and Endangered Species, Fish Spawning, Warm Freshwater Habitat, Wildlife Habitat, and Contact/Non-Contact Water Recreation. Alameda Creek discharges to the San Francisco Bay, which is approximately eight miles west of the project site.

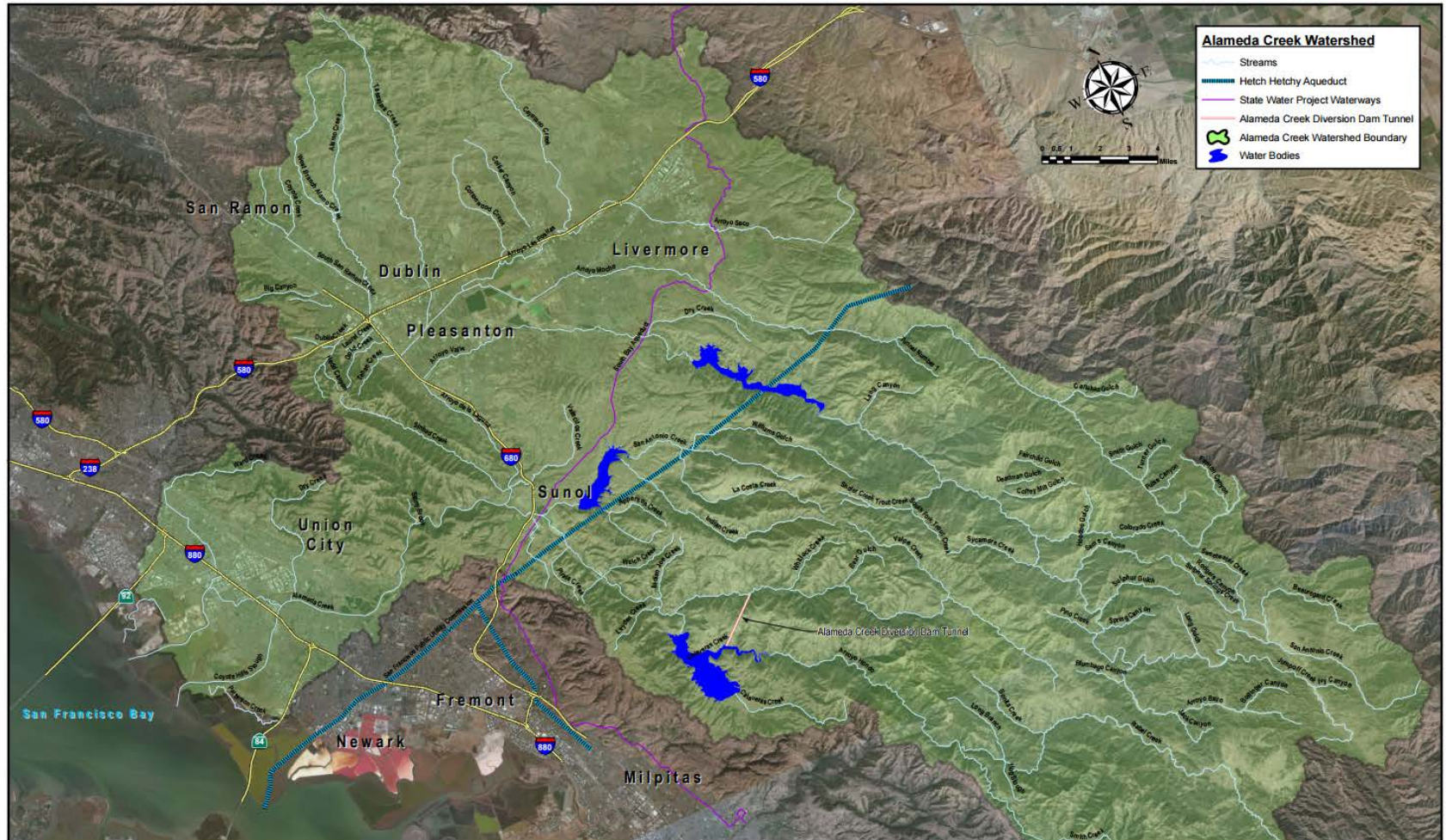
The Alameda Creek watershed area is approximately 40,500 acres, with an average annual rainfall of 21 inches. Runoff from much of the southern Alameda Creek watershed is collected in Calaveras and San Antonio Reservoirs. Runoff from much of the southeast portion of Alameda Creek watershed is collected in Del Valle Reservoir, some of which is diverted to ACWD via the South Bay Aqueduct. Runoff from the northern part of the Alameda Creek Watershed flows to Alameda Creek's tributaries, where the water is carried to ACWD facilities and used for groundwater recharge. CWA 303(d) listed water bodies within this HSA include Alameda Creek for the pollutant diazinon. Diazinon is commonly found in chemicals used for landscaping and is released into water bodies as runoff from the irrigation of lawns and landscape areas in neighborhoods.

Typical of watersheds in the central and southern California areas, the Alameda Creek watershed is characterized by seasonal variation in precipitation rates and is subject to



periodic drought conditions. Alameda Creek is intermittent in the upper watershed areas and in the Sunol Valley, where the creek flows through broad channels across deep,

Figure 38. Alameda Creek Watershed



Source: Alameda Creek Alliance. Available at <http://www.alamedacreek.org/PDFs/WatershedMap11x17Lai.pdf>.

coarse alluvium, and high infiltration rates result in dry reaches during the summer months. Many tributaries to Alameda Creek are historically intermittent and can be isolated from the mainstem by dry reaches beginning in the early to midsummer. In addition to fluctuations caused by varying levels of surface water runoff, flows in Alameda Creek tributaries also vary greatly with rising and falling water tables in the area (Caltrans, 2014f).

Water supply activities have substantially altered the hydrology of the watershed. Three large reservoirs are located in the watershed that collect and store runoff: San Antonio and Calaveras Reservoirs, owned and operated by SFPUC, and Del Valle Reservoir, owned and operated by DWR. ACWD and Zone 7 store local runoff in Del Valle Reservoir, and request DWR to make releases of this water for beneficial uses such as groundwater recharge and drinking water supply in the service areas of Zone 7 and ACWD. Additionally, ACWD and Zone 7 have contracts with DWR to purchase State Water Project water which may be released into tributaries of Alameda Creek. Water flowing along the Arroyo Valle (a tributary of Alameda Creek) through Livermore and Pleasanton recharges the groundwater basin managed by Zone 7. ACWD diverts water from Alameda Creek into offstream percolation ponds to recharge the Niles Cone Groundwater Basin that serves as a potable water supply while also reversing historic saltwater intrusion.

### **2.2.2.3 Environmental Consequences**

#### *All Alternatives*

##### Construction (Temporary) Impacts

Construction activities for all Alternatives would produce more than one acre of disturbed soil area. In addition to ground disturbing activities, all Alternatives require large amounts of fresh concrete for the construction of the bridge and realigned portions of SR-84. Grading and earth moving activities, stockpiling of soils, and the loading, unloading, and transport of excavated and fill material would result in increased sedimentation in receiving waters while large amounts of fresh concrete has the potential to change the pH of receiving waters. Caltrans' construction water quality Best Management Practices (BMPs), implemented as measures for all Caltrans projects, would ensure temporary construction activities do not adversely affect receiving waters.

As described in Chapter 1, all Alternatives require the installation of columns using the CIDH method as well as the installation of an Alameda Creek stream diversion to construct the new bridge and remove the existing structure. The groundwater from dewatering during the construction of the CIDH piles would be placed into a settling tank before being released at a site downstream. All dewatering would adhere to Caltrans' dewatering Best Management Practices (BMPs) Manual (Caltrans, 2010b). Caltrans would use a stream diversion during construction to avoid the export of sediment and pH issues from work areas within the streambed. Sediment could be exported during removal of the weir and from temporary access in the creek. Concrete from bridge construction activities could temporarily change pH. A temporary stream diversion limits pollutants from entering Alameda Creek by limiting sediment discharge and facilitating the detention and testing of groundwater resulting from the drilling of holes for pile foundations in the creek bed. The stream diversion would be implemented from June 1<sup>st</sup> to October 15<sup>th</sup> of each year to ensure a dry working environment while construction activities occur in Alameda Creek. The

creek diversion requires two dams: an upstream dam located 12-feet upstream of the concrete weir and a downstream dam located 12 feet from the downstream dripline of the existing Alameda Creek Bridge. Following the implementation of the creek diversion, ponded water between the upstream and downstream dams would be pumped out to create a dry working environment. The installation and removal of stream diversion elements would result in the temporary and Short-Term discharge of sediment and temporary increase in-stream turbidity.

The proposed removal of the concrete weir would occur during the final construction season of the Alameda Creek Bridge Replacement project. Approximately 1,500 cubic yards of sediment is currently impounded by the concrete weir (Caltrans, 2014g). To predict the potential effects of releasing sediment stored at the weir on Alameda Creek and the flood control channel, the amount of sediment stored at the weir was compared to the total sediment load carried by Alameda Creek. It is estimated that the average annual sediment load transported by Alameda Creek exceeds the amount of sediment impounded before the weir by a factor of 40 times (Caltrans, 2014g). Therefore, the total amount of sediment stored behind the weir is a relatively small proportion of the total sediment load transported on an annual basis.

The Geomorphic, Hydraulic, and Sediment Transport Study for the Alameda Creek Bridge Replacement Project inspected USGS particle size data in suspended and bedload samples at the Niles gage to analyze the predicted impacts of a sediment pulse on Alameda Creek (Caltrans, 2014g). The results of the investigation indicated the sediment pulse released into the Alameda Creek is expected to disperse because the sediment size impounded at the weir is within the size range of sediment sizes in the downstream channel and the sediment load (Caltrans, 2014g). Sediment released from the weir would be dispersed over a period of several decades to the downstream reaches. Sediment is also likely to deposit on the channel bed, and there may be some channel aggradation and filling of some pools. These sediment storage features are not considered to be long-term sediment storage sites (more than 100 years), but they will all function to moderate the sediment wave as it moves downstream. Over the long-term, it is anticipated that nearly all of the sediment released from the project site would reach the flood control channel.

Implementation of measures WATER-1 through WATER-9 (described in Section 2.2.2.4) would minimize construction (temporary) impacts to receiving waters.

#### Long-Term Impacts

Storm Water Treatment is considered as part of every Caltrans project and as such, Caltrans would incorporate stormwater treatment system(s) within the project area to treat the roadway runoff to remove pollutants of concern. Runoff from the new Alameda Creek Bridge would be collected on the bridge deck and directed to the bridge approaches. The Alameda Creek Bridge Replacement Project's conceptual drainage consists of sheet flow down the side slopes with no new drainage outfalls anticipated. The Alameda Creek Bridge Replacement Project vicinity contains 1.2 acres of existing impervious area. Table 13 identifies the increase in impervious surface for each Alternative.

**Table 13. Increase in Impervious Area by Alternative**

Alternative	Area of soil disturbance (acre)	Increase in Impervious Area (acre)
1	4.073	1.738
2	3.55	1.701
3A	4.215	1.357
3B	3.456	1.285

Overall, the removal and replacement of the existing bridge and removal of the existing weir structure would only change the flow characteristics around the existing and proposed structure that would be in contact with the flood flow. Based on outputs from a two-dimensional hydraulic analysis, the proposed project would not impact the stability of the adjacent northeastern railroad embankment in the project vicinity. There was no substantial change to the 100-year flow velocity field in the project vicinity.

#### *No-Build Alternative*

The No-Build Alternative would not change existing conditions and would not impact Water Quality.

#### **2.2.2.4 Avoidance, Minimization, and/or Mitigation Measures**

Following the construction of the Alameda Creek Bridge and the removal of the weir, the following measures are proposed to moderate and monitor the sediment pulse generated by removing the weir. Comments from resource agencies and members of the public will be considered before finalizing a decision on which measure(s) will be implemented.

**WATER-1. Temporary Sediment Retention and Release:** Construct a temporary structure (such as plywood cofferdam or a weir constructed with large cobbles) during the removal of the weir during the dry working window implemented for construction activities in Alameda Creek to retain the impounded sediment. The structure will be designed to withstand low to medium flows that would minimally disperse the impounded sediment and potentially cause nuisance sediment deposits that could impede passage by fish and other aquatic organisms. The temporary structure would be designed to wash out (large cobbles) or be removed (plywood cofferdam) prior to a high flow event (most likely to occur anytime from October to March), allowing the high flow to disperse the sediment more evenly to downstream reaches.

**WATER-2. Staged Weir Removal:** This measure consists of the gradual removal of the weir to minimize nuisance sediment deposits in downstream reaches. Portions of the weir would be selected for lowering or removal at any one time; the weir would be removed over the course of several years. This option allows the existing weir to moderate sediment dispersion and eliminates the need to construct a temporary structure.

**WATER-3. Draw Down Rate:** Weir removal should accommodate the release of impounded water at a slow rate, taking place over the course of several days to minimize the risk of supersaturation and take of listed species. In addition, this measure would reduce bank erosion associated with a pulse of water greater than the normal natural variation.



**WATER-4. Vegetative Stabilization:** After the weir is removed and the water level drops, this measure would strategically plant vegetation species with vigorous growth habits to stabilize some of the sediment in place. Emergent vegetation species, such as cattail and bulrush, would be planted along the margin of the low-flow channel, and riparian species, including willow, mulefat, California blackberry, and tall flatsedge, would be planted in the overbank areas. The intent of the vegetation would not be to permanently stabilize the sediment, as high flow conditions are likely to uproot new plantings and wash them downstream. Rather, the vegetation would be a temporary measure to minimize the magnitude of the sediment pulse to downstream reaches. It is estimated that it would take approximately two to five years for the vegetation to have a stabilizing effect, so the performance of this option is uncertain.

As described in Section 1.4.1 Common Features of all Build Alternatives, the following commitments are considered standard features of all Caltrans projects, but will be tracked in the environmental commitments record as well:

**WATER-5.** Implementation of a stream diversion is an avoidance measure that prevents impacts to water quality associated with column and foundation concrete operations and the export of sediment from disturbed soil areas. Creating a dry working environment for the column and foundation concrete operations would prevent alkaline concrete materials from entering Alameda Creek.

**WATER-6.** Caltrans would incorporate stormwater treatment systems to remove pollutants from roadway runoff. Caltrans would consider best practice and best available technology in selecting the stormwater treatment systems. The stormwater treatment systems are part of post-construction BMPs. The preferred technology would be bioretention systems because they address both treatment and hydromodification. Biostrips would also be considered because they can be placed in the clear recovery zone (defined as an area clear of fixed objects adjacent to the traveled way).

**WATER-7.** In accordance with SWRCB Construction General Permit (Order No. 2012-006-DWQ), water samples would be taken upstream and downstream of the Alameda Creek Bridge Replacement Project to establish a baseline to limit the amount of pollutants that leave the project site.

**WATER-8.** A SWPPP would be required that presents the strategy for implementation of temporary construction site BMPs. The SWPPP would be prepared by the contractor and approved by Caltrans.

**WATER-9.** Stockpile areas for construction materials, equipment, and debris would be minimized to avoid the removal of riparian and upland vegetation.

**WATER-10.** Caltrans Standard BMPs would be implemented to avoid or minimize the pollutant discharge during and after construction to the maximum extent practicable. These BMPs are grouped by the following categories:

- Design Pollution Prevention BMPs are post-construction measures that improve runoff quality by reducing erosion, stabilizing disturbed soil areas, and maximizing vegetated surfaces. Design Pollution Prevention BMPs may include riprap for drainage improvements. Erosion control measures would be provided on all disturbed areas.
- Temporary Construction Site BMPs are implemented during construction activities, to avoid and minimize pollutant loads in stormwater/non-stormwater discharges. Construction Site BMPs strategies for this project include:
  - Soil Stabilization: scheduling, preservation of existing vegetation, slope protection, slope interrupter devices, and channelized flows;
  - Perimeter control: Silt fences and inlet protection
  - Tracking Controls: stabilized construction entrance and exits; and street sweeping
  - Wind Erosion Controls: temporary covers;
  - Non-Stormwater Management: vehicle and equipment operations (fueling, cleaning and maintenance), and material and equipment use;
  - Waste management and Materials Pollution Control: concrete wash-out, material delivery and storage, material use, stockpile management, spill prevention and control, soil waste management, hazardous waste and/or contaminated soil management, liquid waste management and lead abatement and containment.
- Permanent Treatment BMPs are post-construction quality control measures used to remove pollutants from stormwater runoff prior to being discharged from Caltrans right-of-way. Treatment BMPs would include biofiltration strips or swales with or without soil amendment.
- Hydromodification Management (HM) Controls are permanent measures used to control increases in peak runoff flow and volume from the project's new impervious surfaces. HM controls include infiltration trenches and bio-retention systems, which are not a standard Caltrans BMP.

The Regional Water Quality Control Board determines treatment and hydromodification requirements on a project by project basis for projects requiring 401 certifications. The San Francisco Bay Regional Water Quality Control Board typically accepts bio-retention systems for addressing hydromodification and treatment. These provide storage for runoff that helps to attenuate peak flows and maintain an acceptable flow-duration regime. Accommodation of bioretention systems as well as infiltration trenches and enlarged drainage pipes would be employed to address hydromodification fully.

## **2.2.3 Geology/Soils/Seismic/Topography**

### **2.2.3.1 Regulatory Setting**

For geologic and topographic features, the key federal law is the Historic Sites Act of 1935, which establishes a national registry of natural landmarks and protects “outstanding examples of major geological features.” Topographic and geologic features are also protected under the California Environmental Quality Act (CEQA).

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

### **2.2.3.2 Affected Environment**

A District Preliminary Geotechnical Design Report for the Alameda Creek Bridge Replacement Project was prepared by the Caltrans' Office of Geotechnical Design – West (Caltrans, 2014i) to present existing geologic and geotechnical information. This report was completed on October 21, 2014. This section discusses geology, soils, and seismic concerns as they relate to public safety and project design. Earthquakes are prime considerations in the design and retrofit of structures. Caltrans' Office of Earthquake Engineering is responsible for assessing the seismic hazards for Caltrans' projects. Structures are designed using the Caltrans' Seismic Design Criteria (SDC). Caltrans' SDC provide the minimum seismic requirements for highway bridges designed in California. A bridge's category and classification will determine its seismic performance level and which methods are used for estimating the seismic demands and structural capabilities. For more information, please refer to Caltrans' Division of Engineering Services, Office of Earthquake Engineering, Seismic Design Criteria.

#### *Geology*

##### Regional Geology

Alameda County is located at the northern end of the Diablo Range of Central California. The project is located within the Coast Range Geomorphic Province of Central California. Niles Canyon is characterized by sedimentary rocks of the Upper Cretaceous Panoche Formation, which is part of a thick sequence of the Great Valley Sequence. The Great Valley Sequence is a group of related geologic formations that are known to preserve fossils. Quaternary surficial deposits overlay Panoche Formation rocks in and adjacent to the present-day channel of Alameda Creek.

The Panoche Formation exposed in the walls of Niles Canyon is generally well-bedded and composed predominately of micaceous shale, with minor interbedded sandstone and local conglomerates. The Panoche Formation is locally folded and faulted, with the fold axes and faults generally striking parallel to bedding (northwest).

##### Site Geology

The proposed project is located near the western end of Niles Canyon. The canyon is deeply incised and relatively narrow in this area with steep canyon walls rising approximately 800 to 1,300 feet on both sides of Alameda Creek in the vicinity of the project area.

Over the course of millions of years, the flowing Alameda Creek has deposited clay, silt, sand, and gravel, also known as native alluvium, throughout Niles Canyon. There is a sequence of alluvial terraces at the project location that include a low inset terrace, approximately 10-20 feet above the creek level, and a broader terrace approximately 15-20 feet above the level of the creek. The terrace surface is generally composed of clayey sand with gravel and is littered with cobbles and local boulders. The native alluvium is composed of sand with clay and sandstone cobbles that are sub-angular to rounded, up to 1.5 feet in diameter.

The bedrock, or consolidated rock underneath the soil surface, consists predominately of micaceous shale with interbedded sandstone and local conglomerate of the Upper Cretaceous Panoche Formation. Bedding strikes northwest, and dips steeply to the south and southwest. Shale is laminated to very thinly bedded (beds range up to 0.1 feet thick), soft to slightly hard, friable, and intensely weathered. Fractures in the shale are closely spaced (less than 0.1 feet). Sandstone is thickly bedded moderately- to steeply-dipping with interbedded shale. The sandstone is moderately hard, medium strong, and moderately weathered. Fractures are generally moderately spaced (0.3 to 3 feet).

The stream channel deposits exposed in and around the active stream channel consist of slightly silty sand with cobbles and boulders. Generally sub-rounded cobbles-and boulder-sized clasts of sandstone comprise the majority of the deposits (approximately 60-70%). The edges of the active stream include braided channels and gravel bars. The bottoms of many of these braided channels were covered with a thin deposit of silt and sand.

### *Soils*

The two soil units in the project area are the Los Gatos-Los Osos Complex and rock land. The majority of the project area is covered by Los Gatos-Los Osos Complex soil unit, which is approximately 45-75% eroded. The Los Gatos-Los Osos complex is broken down into three soil types or loams: Los Gatos loam making up about 40% of the complex, the Los Osos silty clay loam constituting approximately 40% of the complex, and the Gaviota rocky sandy loam making up 20% of the complex. The Los Gatos-Los Osos soil unit is formed from interbedded sandstone and shale. The surface soil is dark-brown, neutral loam. It is hard and massive soil when dry, but in the upper five inches, it is slightly hard and has a moderate subangular blocky structure. This part of the subsoil is neutral, reddish-brown heavy loam. The lower part is brown, slightly acid loam. Both parts are massive and slightly hard when dry. Los Gatos-Los Osos Complex has very rapid runoff, and the erosion hazard is very severe.

The second soil unit in the project area is rock land. Rock land occurs throughout the uplands and consists of very steep, rocky areas. This land type has a thin surface layer and is similar to the Los Gatos-Los Osos Complex in that erosion is critical for rock land.

### *Erosion/Slope Stability*

The entire Niles Canyon corridor is notorious for having numerous areas of rock fall and landslides. The Alameda Creek Bridge Replacement project area is covered by soils that are characterized by very severe to severe erosion hazard. Both Los Gatos-Los Osos Complex and rock land soil units are highly sensitive to disturbance and are highly erodible under several land use situations, including cultivation and grazing. Most cultivated soils have eroded because of slope and the agricultural methods used. The highest erosion ratings are generally correlated to slope angle, with very severe erosion hazards for soils on slopes steeper than 3:1, regardless of parent material. The Los Gatos- Los Osos Complex has severe erosion hazard even at lower slope angles.

### *Seismic*

Northern California is within the most tectonically active area of the North American continent as this is where the North American Plate and the Pacific Plate grind past one another along the San Andreas Fault. This has created a series of semi-parallel faults that cover the Bay Area. The active faults located near the project site are the Calaveras, Pleasanton, and Hayward faults. These northwest–striking, right-lateral strike-slip faults have been the source of numerous historic earthquakes, and are considered active faults. No faults are located within the immediate project vicinity, however, the Hayward fault is approximately 3.1 miles to the west of the project site while the Calaveras and the Pleasanton faults are located 3.0 and 4.8 miles, respectively, east of the project site.

Table 14 lists the distance from the project to nearby active faults, the fault type, as well as the maximum earthquake magnitude expected from each of the listed faults:

**Table 14. Fault Data**

FAULT	DISTANCE FROM PROJECT (MILES)	FAULT TYPE	MAXIMUM MAGNITUDE (MMAX)
Calaveras	3.0	Strike Slip	6.9
Hayward	3.1	Strike Slip	7.3
Pleasanton	4.8	Strike Slip	6.6

The Calaveras, Hayward, and Pleasanton faults are described in more detail below.

#### Calaveras fault

The Calaveras Fault is located approximately three miles from the project site. The Calaveras Fault is the dominant fault in the area. The Calaveras has a vertical component responsible for the upward movement of the west side of the fault. It is one of the major right-lateral strike-slip faults in California. It has been mapped from Hollister on the southeast to San Ramon on the northwest, a distance of approximately 70 miles (Caltrans, 2014i).

It is classified as a historically active fault. Major earthquakes have occurred along this fault since 1800, including a 1948 earthquake centered about 16 miles east of Watsonville



at Coyote Dam (with Richter magnitude of 6.2), and a 1911 earthquake centered east of San Jose (with a Richter magnitude of 6.6). The fault crosses the Hetch Hetchy Aqueduct at Calaveras Road on the east flank of Sunol Valley (Sunol / Nile Dam Removal, 2005).

There is an 18% probability of a Magnitude 6.7 earthquake occurring on the Calaveras Fault before 2030 (Caltrans, 2014i).

#### Hayward fault

The active Hayward Fault is a right lateral, and strike-slip fault and crosses SR-84, approximately three miles west of the project area. The Hayward Fault extends from Point Pinole Regional Shoreline southward to Milpitas and beyond; it is a part of the San Andreas Fault system. The Hayward Fault has had several large damaging earthquakes in historical times. Two of these, in 1836 and 1868, left large surface ruptures near the project area.

The Hayward Fault is a part of the Hayward-Rodgers Creek segment, which has a 32% probability of a Magnitude 6.7 Earthquake occurring on the Hayward Fault before 2030 (Caltrans, 2014i).

#### *Potential Seismic Hazards*

The site may be affected by activity along any of the active faults discussed above. Earthquake induced hazards can be divided into primary and secondary seismic effects. Primary seismic effects resulting from differential movement along a fault trace, such as ground rupture or surface deformation, are not expected to occur because no faults intersect the project area.

Secondary seismic effects result from various soil responses to ground acceleration. These effects result from activity of any nearby active faults. Secondary seismic effects may include liquefaction of natural ground, ground shaking, and cracking, all of which are described below.

#### Liquefaction of Natural Ground

Liquefaction occurs when a saturated or partially saturated soil substantially loses strength and stiffness in response to an applied stress, such as earthquake shaking or sudden change in stress condition, causing the soil to behave like a liquid. Within the Alameda Creek Bridge Replacement Project area, the potential for liquefaction is considered very high in the stream channel while the remaining portion of the project area is considered to have moderate potential for liquefaction.

### Ground shaking

The site is expected to undergo varying intensities of ground shaking in response to local earthquake events. According to the Association of Bay Area Governments (ABAG), the potential intensity of ground shaking within the project limits is classified as “Violent”. Ground at the site is not considered unstable, and therefore, structures built to the requirements of latest uniform Building Code would be expected to withstand the ground shaking induced by earthquake.

### Cracking

Lurch cracks may develop in the silty and clay-like soil overlying the site. The potential for lurch cracking will be higher in the rainy periods when the soil is saturated. The hazard from cracking is considered minimal.

### *Topography*

The project is located in Niles Canyon, an area with a steeped-walled gap in the East Bay hills that connect Sunol Valley with the San Francisco Bay depression. SR-84 parallels Alameda Creek through Niles Canyon. Niles Canyon is a relatively narrow, deep incised valley that meanders through the local Coast Ranges. Northwest – trending ridges (Pleasanton Ridge and Sunol Ridge) and valleys control the relief of the Alameda Creek watershed.

The Sunol Valley is traversed by Alameda Creek. Downstream of Sunol Dam, which is located within the Sunol Valley, the creek meanders to the south as it enters Niles Canyon. Steep slopes that rise to about 400 feet above the creek border the southwest side of Alameda Creek in this area. A broad, alluvium-filled terrace borders the northeast side of the creek. Review of a site topographic map indicates that the ground surface of the alluvium is 10 to 15 feet above the water level in Alameda Creek. Artificial fill has been used to construct portions of Niles Canyon Roadway (SR-84). Alameda Creek and its tributaries drain most of the watershed in the Alameda County area.

Alameda Creek receives the drainage from Calaveras and San Antonio Creeks upstream from its confluence with Arroyo de la Laguna. Below its confluence with Arroyo de la Laguna, Alameda Creek flows in a westerly direction through Niles Canyon, traverses the Niles Cone area, and discharges into San Francisco Bay (Caltrans, 2014i).

### *Groundwater*

There are three main ground water basins in the Alameda County area; these include the Livermore and Sunol Valleys, both within the Diablo Range, and the alluvial plain along the easterly shore of San Francisco Bay. The project area is located within the Sunol Valley Basin (Sunol Valley Unit). The highlands of the Diablo Range are generally nonwater bearing. Water-bearing formations in the Sunol Valley are the same as those in Livermore Valley, being late Quaternary alluvium and the underlying Tertiary-Quaternary Livermore gravels. The alluvium deposits range from the surface to 60 feet below the ground surface. The upper aquifer in the alluvium is “unconfined” meaning the water table fluctuates in response to recharge and discharge. There are limited data with respect to number and yield

wells in the Sunol Valley Basin (Caltrans, 2014i). The groundwater levels within Niles Canyon can be assumed to be at creek level.

### **2.2.3.3 Environmental Consequences**

#### *All Alternatives*

The soils located at the project site are subject to severe erosion; project construction activities such as grading and excavation, could impact the stability of existing soils and increase the overall potential for soil erosion. During construction, erosion causes sedimentation problems in storm drains, removes top soils, creates gullies on slopes and undermines engineered fills beneath foundations or roadways. Appropriate avoidance and minimization measures for water quality, as described in Section 2.2.2.4, would be implemented to minimize soil erosion and avoid impacting the stability of existing soils for all Alternatives.

All Alternatives would be constructed in a seismically active region. However, according to the Alquist-Priolo Earthquake Fault Zone Maps, the project location is not located within a special studies zone. The project would be constructed in an area where the surface soil erosion is severe, however, the underlying geology of the area is completely rock. The nearest fault is located three miles from the project limits; no potential exists for primary seismic impacts, such as the surface fault rupture. All Alternatives have a high potential for liquefaction within the stream channel while the surrounding project limits have moderate potential for liquefaction. During an earthquake, there is potential for lurching and cracking, however, considerations would be taken during the design phase to address potential seismic impacts. Caltrans' structures are designed using the Caltrans' Seismic Design Criteria (SDC). The SDC provides the minimum seismic requirements for highway bridges designed in California. The Alameda Creek Bridge Replacement design incorporates features to reduce impacts as a result of geologic and seismic conditions. These design features include, but are not limited to, designing the new Alameda Creek Bridge to withstand a defined level of bedrock acceleration and driving piles below liquefiable layers.

Groundwater is approximately close to the creek surface in the vicinity of the creek. If needed, groundwater may need to be pumped out, treated, and taken offsite, depending on the CIDH pile design for the selected Alternative. Groundwater is not anticipated to be impacted by the rock cuts proposed for Alternatives 3A and 3B.

All Alternatives would cut into natural landmarks and landforms, however, no adverse impacts to natural landmarks or landforms are anticipated. All Alternatives would also require geotechnical investigations to obtain geologic and geotechnical samples of the supporting strata for the new bridge structures. There are thirteen sampling locations within the project limits; borings would be conducted at the locations of the two proposed bridge abutments, two of the concrete support columns, the western bridge approach and the eastern bridge approach. Drill holes would be closed using backfill with neat cement grout by tremie method.

In the event of an earthquake, construction workers would be exposed to shaking, lurching, and cracking during the construction of the Alameda Creek Bridge. All Alternatives would not expose the traveling public to any new geologic hazards using existing baseline conditions and would not result in the project area being more susceptible to erosion or geologic hazards.

#### *Alternatives 3A and 3B*

Alternatives 3A and 3B involve rock cuts for the eastern approach to the Alameda Creek Bridge in shale and sandstone of the Panoche Formation. Rock cut slope design relies heavily on surface mapping, geomaterial identification, and discontinuity logging. Logging rock structure discontinuities (bedding and fracture/joint patterns) and their condition in boreholes and mapping them on surface outcrops is essential to rock cut slope design, as discontinuities strongly influence rock slope stability. In the event that Alternative 3A or Alternative 3B is selected as the preferred alternative, a field investigation would be completed during the design phase, which would include field mapping and geotechnical drilling and sampling (with at least two horizontal borings completed in the vicinity of the cut) to ensure the rock cut would not destabilize the slope. The rock cuts associated with Alternatives 3A and 3B are not anticipated to increase slope instability or result in slope failure. The geological formation proposed for rock cuts is mapped as having bedding with a strike of approximately 310 degrees and a dip to the southwest of between 50 to 80 degrees. This dip is into the face of the slope giving the slope more stability and lessen the cuts' impact on the slope's stability.

#### *Alternatives 1, 2, and 3A*

Alternatives 1, 2, and 3A involve the construction of retaining walls and soil-nail walls; should Alternative 1, 2, or 3A be selected as a the preferred alternative, special consideration would be taken during the design process of these walls should the ground acceleration exceed 0.6g.

All Alternatives would have a minimal impact to Geology/Soils/Seismic/Topographic resources.

#### *No-Build Alternative*

The No-Build Alternative would not impact Geology/Soils/Seismic/Topography.

### **2.2.3.4 Avoidance, Minimization, and/or Mitigation Measures**

GEOLOGY-1. For Alternatives 3A and 3B, Caltrans would examine top of the wall treatments to minimize ground disturbance above rock cuts.

### **2.2.4 Paleontology**

#### **2.2.4.1 Regulatory Setting**

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

- 23 United States Code (USC) 1.9(a) requires that the use of federal-aid funds must be in conformity with federal and state law.
- 23 United States Code (USC) 305 authorizes the appropriation and use of federal highway funds for paleontological salvage as necessary by the highway department of any state, in compliance with 16 USC 431-433 above and state law.

Under California law, paleontological resources are protected by the California Environmental Quality Act (CEQA).

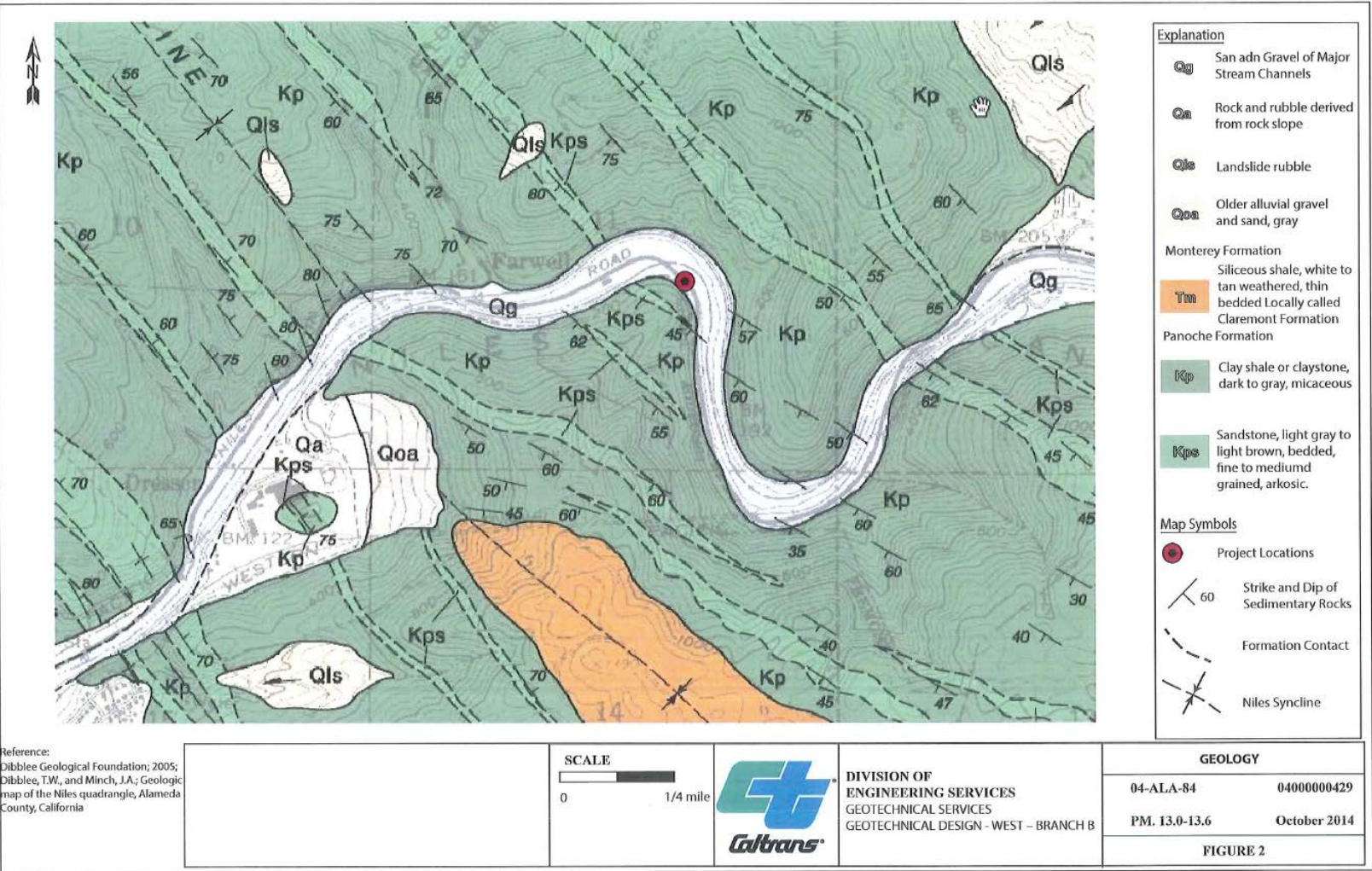
#### **2.2.4.2 Affected Environment**

The affected environment is established as SR-84 from postmile 13.0 to 13.6. Paleontological information is based on the District Preliminary Geotechnical Report for Alameda Creek Bridge (Caltrans, 2014i), the Paleontological Identification Report (PIR) (Caltrans, 2014j), and the Paleontological Evaluation Report (PER) (Caltrans, 2016e). The District Preliminary Geotechnical Report was completed on October 21, 2014, the PIR was completed on October 27, 2014, and the PER was completed on February 5, 2016. Background research for this project consisted of a literature review, map review, fossil locality search, and a search of Caltrans' Log of Test Borings (LOTB) and As-Built plans. This research identified the geologic units, previous paleontological studies, fossil localities (location of paleontological resources that have been documented), and types of fossils in geologic units that may be within or adjacent to the project area. Figure 39 identifies the geologic units within the project limits.

The proposed project is located near the western end of Niles Canyon. The canyon is deeply incised and relatively narrow in this area with steep canyon walls rising approximately 800 to 1,300 feet on both sides of Alameda Creek in the vicinity of the project area. The project is located within the Coast Range Geomorphic Province of Central California. Niles Canyon is characterized by sedimentary rocks of the Upper Cretaceous Panoche Formation, which is part of a thick sequence of the Great Valley Sequence. Quaternary surficial deposits overlay Panoche Formation rocks in and adjacent to the present-day channel of Alameda Creek. According to the University of California Museum of Paleontology (UCMP) some of the geologic units in the project area, specifically the Panoche Formation of Upper Cretaceous, the Great Valley Sequence undivided sandstone and siltstone, and the Quaternary deposit of Niles Canyon, could yield fossils.



Figure 39. Geology Area Map



The UCMP online catalog contained four fossil listings for Cenozoic-age Panoche Formation fossils in Alameda County, two invertebrate and two plant fossils. Neighboring Contra Costa County has invertebrate, plant, and vertebrate fossils. The UCMP lists six invertebrate fossils in San Joaquin County. Vertebrate fish fossils have been found at a single location in San Joaquin County in the Panoche Formation. Since Holocene aged fossils are considered too young to be scientifically relevant, no search was conducted for the stream deposits.

### **2.2.4.3 Environmental Consequences**

#### *All Alternatives*

As described above, the proposed project is located in an area with geologic units containing high sensitivity for producing paleontological resources. Specific locations of paleontological resources are unknown and impacts cannot be quantified or determined until construction begins. Construction activities could impact sensitive paleontological geologic units when vehicles or other work equipment impact previously undisturbed sediments by excavating, grading, or crushing bedrock exposed in or underlying a project. This could result in impacts to fossils by destroying them or otherwise altering them in such a way that their scientific value is lost.

All Alternatives include a wide range of construction elements; however, those activities involving excavation or ground disturbance are the ones that have the potential to adversely affect paleontological resources. All Alternatives include excavation activities involving the extension of ten-foot-in-diameter CIDH concrete piles into the Panoche Formation which is considered to be a high sensitivity unit for paleontological resources. The actual depth of a CIDH is dependent on subsurface conditions and would be calculated during the design phase. Shallow excavation in the streambed would be done to construct abutments. The shallow sediments disturbed are likely to be Holocene in age and these younger deposits are unlikely to contain scientifically relevant fossils. However, any construction and ground disturbing activities in the streambed that extend through the Holocene sediments into the Panoche Formation would have the potential to adversely affect paleontological resources.

All Alternatives would also require geotechnical investigations to obtain geologic and geotechnical samples of the supporting strata for the new bridge structures. Thirteen sampling locations would occur within the project limits; borings would be conducted at the locations of the two proposed bridge abutments, two of the concrete support columns, the western bridge approach and the eastern bridge approach. Drill holes would be closed using backfill with neat cement grout by tremie method.

All ground disturbing activities associated with the construction of the project's eastern approach would impact the Panoche Formation. Paleontological resources within the Panoche Formation could exist at any layer or depth of ground disturbing activities; as a result, impacts to paleontological resources are approximately the same for each Alternative as all Alternatives involve ground disturbing activities in this formation. It is not possible to quantify and compare the impacts of each Alternative when specific

locations of paleontological resources are unknown. As a result, the proposed project has the potential to impact paleontological resources.

#### *No-Build Alternative*

The No-Build Alternative would not impact paleontological resources.

#### **2.2.4.4 Avoidance, Minimization, and/or Mitigation Measures**

PALEONTOLOGY-1. A Paleontological Mitigation Plan (PMP) defining specific mitigation measures and methods, would be prepared by a qualified paleontologist and implemented before construction begins.<sup>28</sup> The PMP would include:

- The presence of the Principal Paleontologist at pre-construction meetings to consult with the construction contractor.
- Paleontological awareness training for construction workers to be provided for by the Principal Paleontologist.
- Monitoring of ground disturbing activities such as excavation by the paleontological monitors, to be conducted under the supervision and/or at the direction of the Principal Paleontologist.
- Temporary halting or diversion of construction activities in areas where fossils are discovered.
- Preparation, sorting, and cataloging of fossils collected during the monitoring and salvage. Fossils are prepared to the point of identification, not display.
- Curation of fossils, along with copies of all pertinent field notes, photos, and maps at a curation facility acceptable to Caltrans.
- Preparation of the Paleontological Mitigation Report to document the results of the mitigation program.

#### **2.2.5 Hazardous Waste/Materials**

##### **2.2.5.1 Regulatory Setting**

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

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

- Community Environmental Response Facilitation Act (CERFA) of 1992
- Clean Water Act

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<sup>28</sup> Until design is finalized, it is not possible to estimate how much excavation will occur and in what geologic units. The project is currently in the Project Approval and Environmental Document (PAED) phase; when the Plans, Specifications, and Estimate (PS&E) phase is complete, a PMP will be developed that estimates the amount of paleontological units that will be disturbed as a result of the project.

- Clean Air Act
- Safe Drinking Water Act
- Occupational Safety and Health Act (OSHA)
- Atomic Energy Act
- Toxic Substances Control Act (TSCA)
- Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)

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

California regulates hazardous materials, waste, and substances under the authority of the California Health and Safety Code and is also authorized by the federal government to implement RCRA in the state. California law also addresses specific handling, storage, transportation, disposal, treatment, reduction, cleanup, and emergency planning of hazardous waste. The Porter-Cologne Water Quality Control Act also restricts disposal of wastes and requires clean-up of wastes that are below hazardous waste concentrations but could impact ground and surface water quality. California regulations that address waste management and prevention and clean-up of contamination include Title 22 Division 4.5 Environmental Health Standards for the Management of Hazardous Waste, Title 23 Waters, and Title 27 Environmental Protection.

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

#### **2.2.5.2 Affected Environment**

The hazardous waste/material affected environment is defined as the entire project limits, SR-84 from postmile 13.0 to 13.6.

The Site Investigation Report, State Route 84, Alameda County California (Caltrans, 2004a) for Caltrans' SR-84 Niles Canyon Widening Project was used to assess the probable levels of aerially deposited lead (ADL) in the Alameda Creek Bridge Replacement Project vicinity. The Site Investigation Report was completed on January 13, 2004. Based on soil testing conducted throughout the Canyon, it is predicted that the project soils have fairly low levels of ADL. The 2004 Site Investigation Report was used to assess the probable lead levels in the project location soils. The levels of lead found in the nearby roadside soils during the 2004 Site Investigation are expected to be similar to those within the project location soils today. The source of the lead contamination, leaded gasoline, was eliminated from automobile fuel by 1985, meaning that the accumulation of lead contamination ended about thirty years ago.

In addition to the 2004 Site Investigation Report, Caltrans' Office of Environmental Engineering reviewed environmental regulatory databases (Geotracker and Envirostor) and summarized the findings in a technical Memorandum, completed October 20, 2014 (Caltrans, 2014k). The review did not identify the presence of any known hazardous waste

sites or release of hazardous materials within or near the project location. Caltrans' Office of Environmental Engineering conducted the Geotracker and Envirostar search again on September 23, 2015 and concluded that the 2014 findings remain valid (Caltrans, 2015b). The risk of encountering hazardous waste or hazardous materials at the Alameda Creek Bridge Replacement Project location is low.

There are no known hazardous waste sites within the project area that could negatively affect the project and no presence of contaminated properties listed under Section 65962.5 of the CA Government Code (also known as the Cortese list) including, but not limited to, lists of hazardous waste facilities, land designated as hazardous waste property, and hazardous waste disposal sites. Additionally, there is no evidence of naturally occurring asbestos in the project limits.

The existing Alameda Creek Bridge structure, constructed in 1928, likely contains asbestos-containing material (ACM) and lead based paint (LBP). Surface soils under the existing bridge's steel elements may have high levels of lead due to deposition of flakes of lead-based paint generated during routine bridge repainting and maintenance over the past nine decades.

### **2.2.5.3 Environmental Consequences**

#### *All Alternatives*

All Alternatives involve ground disturbing activities within the same project area and propose to remove the existing Alameda Creek Bridge; hazardous waste and materials impacts are the same across all Alternatives. All Alternatives would require the acquisition of railway right-of-way from Alameda County. Contaminants (including heavy metals, pesticides, fuel hydrocarbons, and polycyclic aromatic hydrocarbons) associated with historic railroad operations could potentially be present along the railroad tracks. However, since the railroad property to be acquired from the Alameda County Railroad is not immediately adjacent to the railroad tracks (the proposed right-of-way acquisition parcel is approximately 100 feet south of the railroad tracks), the risk of encountering the aforementioned chemicals of potential concern in the railroad property to be acquired is low. A site investigation to determine the presence and concentration of chemicals of potential concern in the railroad property would be conducted during the plans, specifications, and estimates (PS&E) phase of project development, before the right-of-way acquisition takes places.

Construction activities involve ground disturbance and could disturb soils containing ADL. Based on previous site investigations for other projects in the Niles Canyon corridor, it is anticipated that the Alameda Creek Bridge Replacement project soils have fairly low levels of ADL. All Alternatives propose the reuse of excavated material for bridge embankment construction without generating surplus excavated materials. If the project design shows that construction would result in a surplus of excavated material, a site investigation would be conducted to characterize the soil. Materials found to contain lead at concentrations above those considered potentially hazardous to either human health or the environment would be handled in accordance with all local, state, and federal rules and regulations and



appropriate measures included in the Alameda Creek Bridge Replacement Project's PS&E package.

All Alternatives propose to remove the existing Alameda Creek Bridge following the construction of the new bridge and realignment of SR-84. The existing Alameda Creek Bridge structure likely contains ACM and LBP. A LBP survey for the existing bridge would be conducted during the project's design phase to plan and develop hazardous materials-related construction specifications. Although surface soils underneath the existing bridge may contain higher levels of lead due to deposition of LBP flakes, the project does not propose to remove or disturb surface soil from the banks under the existing bridge. Additionally, a survey of the bridge for ACM would be completed prior to demolition to assess asbestos requirements related to bridge removal. The findings from the bridge surveys would be used to develop appropriate hazardous materials-related construction specifications.

The ACM and LBP survey and subsequent survey report would take approximately three months to complete. The estimated cost of the survey is \$15,000. Asbestos Containing Material (ACM) and LBP would be handled and managed before the commencement of bridge demolition (if identified during the survey) according to the Caltrans special provision. The cost for handling, transportation and disposal of ACM and LBP would be part of the bridge removal lump sum cost. All Alternatives would have a negligible impact to hazardous waste/materials.

#### *No-Build Alternative*

The No-Build Alternative would not impact hazardous waste/materials.

#### **2.2.5.4 Avoidance, Minimization, and/or Mitigation Measures**

HAZ-1. If the project design shows that construction would result in a surplus of excavated material, a site investigation would be conducted to characterize the soil. This site investigation would be supplemental to the site investigation conducted in 2004 and would use the detailed Alameda Creek Bridge Replacement Project design plans to inform testing locations.

HAZ-2. Materials found to contain lead at concentrations above those considered potentially hazardous to either human health or the environment would be handled in accordance with all local, state, and federal rules and regulations and appropriate measures included in the Alameda Creek Bridge Replacement project's PS&E package.

HAZ-3. A LBP survey and an ACM survey for the existing Alameda Creek Bridge structure would be conducted during the project's design phase to confirm the presence of hazardous materials, and to plan and develop hazardous material related-construction specifications that specify the handling, transportation, and disposal requirements for LBP and ACM. Construction contract specifications for the handling, transportation, and disposal of hazardous waste, including storing hazardous waste and potentially hazardous waste separately from nonhazardous waste the job site, storing hazardous waste using metal containers approved by the US Department of Transportation for the transportation,

temporary storage of hazardous waste, storing hazardous waste away from storm drains, watercourses, moving vehicles, and equipment, etc., are located in Section 14-11 of Caltrans Standard Specifications (2015) and will be a part of the project construction contract.

## **2.2.6 Energy**

### **2.2.6.1 Regulatory Setting**

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

The CEQA Guidelines, Appendix F, Energy Conservation, state that EIRs are required to include a discussion of the potential energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful and unnecessary consumption of energy.

### **2.2.6.2 Affected Environment**

The affected environment is a two-lane, undivided, rural highway, located on SR-84 from postmile 13.0 to postmile 13.6.

### **2.2.6.3 Environmental Consequences**

#### *All Alternatives*

The proposed Alameda Creek Bridge Replacement Project would not result in an increase in long-term energy consumption rates from existing baseline conditions. The new facility would smooth out the alignment of the western approach to the Alameda Creek Bridge to achieve better sight distance. Traffic smoothing strategies that reduce the number and intensity of acceleration and deceleration events (for instance variable speed limits) are an improvement in managing traffic operations that can reduce CO<sub>2</sub> emissions (Barth, et. al., 2009), thereby reducing the consumption rates of energy. To the extent that a driver is accelerating and decelerating, the new alignment of all Alternatives would allow for a more continuous speed flow. Providing a facility that allows for a more continuous speed flow avoids the need to slow vehicular speed to accommodate the change in highway geometry, potentially reducing vehicular CO<sub>2</sub> emissions and reducing energy consumption rates.

Indirect energy use during the construction of the facility would increase as a result of construction activities; however, this impact would be temporary and would not result in permanent energy consumption rates.

#### *No-Build Alternative*

The No-Build Alternative would not impact existing energy use levels.

### **2.2.6.4 Avoidance, Minimization, and/or Mitigation Measures**

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

## **2.3 Biological Environment**

The Biological Environment consists of the following sections: Natural Communities, Wetlands and other Waters, Plant Species, Animal Species, Threatened and Endangered, and Invasive Species.

### **2.3.1 Natural Communities**

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

Habitat areas that have been designated as critical habitat under the Federal Endangered Species Act and fish passage issues associated with California Central Coast Distinct Population Segment (DPS) Steelhead, are discussed below in Section 2.3.5 Threatened and Endangered Species. Wetlands and other waters are discussed in Section 2.3.2.

#### **2.3.1.1 Affected Environment**

The following analysis is based on the Natural Environment Study prepared for the Alameda Creek Bridge Replacement Project (Caltrans, 2014l), the Addendum to the Natural Environment Study (Caltrans, 2015e), and the Second Addendum to the Natural Environment Study (Caltrans, 2016f). The Natural Environment Study was completed on October 22, 2014, the Addendum to the Natural Environment Study was completed on February 27, 2015, and the Second Addendum to the Natural Environment Study was completed on February 9, 2016. The affected environment is discussed in the context of seven land cover types that exist within the project area. These include California annual grasslands, oak woodlands, riparian woodland, coastal scrub, riverine, wetlands and other waters, and urban. A description of each community is provided below.

##### *California Annual Grassland*

California annual grasslands are an upland vegetation community composed of a dense-to-sparse cover of mainly introduced annual grasses, usually less than three feet in height. They sometimes include remnants of native perennial grasses, and often include a diverse assemblage of native annual forbs (wildflowers). California annual grasslands (approximately three acres total) are found throughout the western portions of the studied project limits on mesic soils (soils that retain adequate moisture year round), adjacent to the roadside or in patches between coast live oak woodland and disturbed sites along SR-84. Common annual grass species in these patches include various brome species (*Bromus spp.*), wild oats (*Avena fatua*), foxtail barley (*Hordeum marinum ssp. gussoneanum*), yellow star thistle (*Centaurea solstitialis*), poison hemlock (*Conium maculatum*), and other non-native herbs.

Many wildlife species use grasslands for foraging, but some require special habitat features such as cliffs, caves, ponds, or habitats with woody plants for breeding, resting, and escape cover. Characteristic reptiles that breed in annual grassland habitats include the western

fence lizard (*Sceloporus occidentalis*), common garter snake (*Thamnophis sirtalis*), and western rattlesnake (*Crotalus oregonus*). Mammals typically found in this habitat include the black-tailed jackrabbit, California ground squirrel (*Otospermophilus beechyi*), Botta's pocket gopher (*Thomomys bottae*), western harvest mouse (*Reithrodontomys megalotis*), California vole (*Microtus californicus*), American badger (*Taxidea taxus*), and coyote (*Canis latrans*). Birds commonly known to breed in annual grasslands include short-eared owl (*Asio flammeus*), horned lark (*Eremophila alpestris*), and western meadowlark (*Sturnella neglecta*). This habitat also provides important foraging habitat for the turkey vulture (*Cathartes aura*), northern harrier (*Circus cyaneus*), American kestrel (*Falco sparverius*), white-tailed kite (*Elanus leucurus*), and prairie falcon (*Falco mexicanus*) (Mayer and Laudenslayer 1988). Special-status species that may occur in grassland habitats include California red-legged frog (*Rana draytonii*), California tiger salamander (*Ambystoma californiense*), Alameda whipsnake (*Masticophis lateralis euryxanthus*), western burrowing owl (*Athene cunicularia hypugaea*), pallid bat (*Antrozous pallidus*), western mastiff bat (*Eumops perotis californicus*), and San Joaquin kit fox (*Vulpes macrotis mutica*).

#### *Coastal Oak Woodland*

Coastal oak woodland (approximately three acres total) is a common vegetation community within the project study limits, and occurs on the north- and west-facing slopes above Alameda Creek. The dominant hardwood species are California bay laurel (*Umbellularia californica*) and coast live oak (*Quercus agrifolia*). Common tree associates in this habitat include madrone (*Arbutus menziesii*), California buckeye (*Aesculus californica*), and big leaf maple (*Acer macrophyllum*). Poison oak (*Toxicodendron diversilobum*) and snowberry (*Symphoricarpos spp.*) are common understory associates. Although this vegetation community contains native species, it is still a disturbed community due to the proximity of SR-84.

The dense understory and thick layer of leaf litter found within this woodland type provide habitat for many common species of amphibian, reptile, and small mammal. At least 60 species of mammals may use oaks in some way, and as many as 110 species of birds have been observed during the breeding season in California habitats where oaks form a significant part of the canopy or subcanopy. Quail, turkeys, squirrels, and deer may be so dependent on acorns in fall and early winter that a poor acorn year can result in significant declines in their populations (Mayer and Laudenslayer 1988). Special-status species that may occur in oak woodland habitats include California red-legged frog, foothill yellow-legged frog (*Rana boylei*), California tiger salamander, Alameda whipsnake, pallid bat, western mastiff bat, and San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*).

#### *Valley Foothill Riparian*

The valley foothill riparian community (approximately eight acres total) within the project study limits is characterized by mature riparian forest with 40 to 80 percent canopy cover, often dominated by winter deciduous trees (trees that shed leaves annually during the winter months). The majority of the community occurs along the edges of Alameda Creek and northern boundary of the project study limits. Dominant over-story species include

western sycamore (*Platanus racemosa*), Fremont cottonwood (*Populus fremontii*), big leaf maple, and coast live oak. Sub-canopy species include arroyo willow (*Salix lasiolepis*), red willow (*Salix laevigata*), and blue elderberry (*Sambucus mexicana*). Understory species include poison oak, Himalayan blackberry (*Rubus discolor*), and wild grape (*Vitis californica*).

Riparian habitats provide food, water, migration and dispersal corridors, escape, nesting, and thermal cover for an abundance of wildlife. At least 50 amphibians and reptiles occur in lowland riparian systems. Bats also use riparian woodlands as foraging and roosting habitat. This habitat supports many permanent residents, but also provides habitat for transient or temporal visitors. In one study conducted on the Sacramento River, 147 bird species were recorded as nesters or winter visitors. Additionally, 55 species of mammals are known to use California's Central Valley riparian communities (Mayer and Laudenslayer 1988). Special-status species that may occur in riparian woodlands include California red-legged frog, California tiger salamander, foothill yellow-legged frog, yellow warbler (*Dendroica petechial brewsteri*), pallid bat, western mastiff bat, and San Francisco dusky-footed woodrat.

Although the vegetation and aquatic communities were classified using A Guide to Wildlife Habitats of California (Mayer and Laudenslayer 1988), certain areas within the valley foothill riparian community include California sycamore woodlands (Saywer et. al. 2009), a specialized alliance which is recognized with S3 Ranking by the State of California Natural Communities List (CDFW 2010). An S3 ranking is defined by CDFW as "vulnerable in the State because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it vulnerable to extirpation from the State (CDFW 2014b)." California sycamore woodlands occur in gullies, intermittent streams, springs, seeps, stream banks, and terraces adjacent to floodplains that are subject to high-intensity flooding. As a result of this inundation, few understory plants typically grow within this sub-habitat.

#### *Coastal Scrub*

Coastal scrub (approximately one-acre total) is the dominant vegetation community on the south-facing hills within the project study limits. Two types of coastal scrub are present within the project study limits:

- Coyote brush (*Baccharis pilularis*) scrub;
- California sagebrush (*Artemisia californica*) scrub.

Coyote brush scrub, common in more recently disturbed sites, is found in the ecotones between coastal oak woodland and California annual grasslands. Associate species include non-native grasses and small forbs. California sagebrush scrub is found on rocky, steep slopes. Patches of the California sagebrush scrub community are found on the southwestern boundary of the project study limits, above SR-84. Common species in this area include sticky monkey flower (*Diplacus [= Mimulus] aurantiacus*), soap plant (*Chlorogalum pomeridianum*), poison oak, and elegant clarkia (*Clarkia unguiculata*). Within the coastal scrub community on the southern portion of the project study limits is a small clump of Tasmanian blue gum eucalyptus (*Eucalyptus globulus*) near the southern project boundary, where approximately five individual trees are situated adjacent to SR-84.



Numerous bird, mammal, and reptile species utilize scrub habitats. Wildlife found in scrub habitat includes species such as white-crowned sparrow (*Zonotrichia leucophrys*), western fence lizard, whipsnakes (*Masticophis spp.*), gopher snake (*Pituophis catenifer*), and deer mouse (*Peromyscus maniculatus*). Special-status species that may occur in scrub include Alameda whipsnake, pallid bat, and western mastiff bat.

#### *Riverine*

The riverine community (approximately three acres total) is typically characterized by intermittent or continually running water. The riverine community within the project study limits is characterized as the active floodplain of Alameda Creek, including the cobble and boulder margins and islands within Alameda Creek. Riverine habitat contains vegetation such as torrent sedge (*Carex nudata*) shadowed by over-story trees, including white alder (*Alnus rhombifolia*), black walnut, Fremont cottonwood, and western sycamore. Tules (*Schoenoplectus spp.*), rushes (*Juncus spp.*), and a variety of strictly hydrophytic vegetation may also occur within this habitat.

Open water areas within large creeks or rivers provide resting and escape cover for many species of waterfowl. In addition, osprey (*Pandion haliaetus*), bald eagles (*Haliaeetus leucocephalus*), herons, various shorebirds, and belted kingfisher (*Megaceryle alcyon*) may forage over open water, or along the banks of creeks and rivers. Many species of insectivorous birds (i.e., swallows, swifts, flycatchers) catch their prey on the wing while over open water. Common mammals found in riverine habitats include river otter (*Lontra canadensis*), mink (*Mustela vison*), muskrat (*Ondatra zibethicus*), and beaver (*Castor canadensis*). Special-status species that may occur in riverine habitats include California red-legged frog, foothill yellow-legged frog, river lamprey (*Lampetra ayresii*), Pacific lamprey (*Entosphenus tridentatus*), steelhead (*Oncorhynchus mykiss irideus*), Coho salmon (*Oncorhynchus kisutch*), Chinook salmon (*Oncorhynchus tshawytscha*), western pond turtle (*Emys marmorata*), tricolored blackbird (*Agelaius tricolor*), yellow warbler, pallid bat, and western mastiff bat.

#### *Fresh Emergent Wetland*

The fresh emergent wetland vegetation community (approximately 0.6 acre total) is typically characterized by colonial hydrophytic vegetation in areas that are perennially wet, or inundated to the point of creating anaerobic soils. The fresh emergent wetlands within the project study limits are restricted to areas where the riparian and riverine habitats converge. This category is synonymous with the ‘palustrine emergent wetland’ and ‘riverine emergent wetland’ defined in the jurisdictional delineation for this project (USACE 2010). A ‘palustrine emergent wetland’ includes all nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean-derived salts is below 0.5 %. A ‘riverine emergent wetland’ includes all wetlands and deepwater habitats contained within a channel except those defined as palustrine wetlands. Dominant species within the fresh emergent wetland are typically monocots such as tule, chairmaker’s bulrush (*Schoenoplectus americanus*), and bur reed (*Sparganium eurycarpum ssp. eurycarpum*).

Common wildlife that could occur in freshwater marsh habitat include wading birds such as great blue heron (*Ardea herodias*) and green heron (*Butorides virescens*), as well as passerines such as sparrows and towhees. Freshwater marsh can provide breeding habitat for many amphibian species, including Pacific chorus frog (*Pseudacris regilla*) and western toad (*Bufo boreas*). Reptiles, such as aquatic garter snake (*Thamnophis atratus*) and western pond turtle, spend the majority of their life cycles in and around freshwater marsh habitats. Special-status species that may occur in fresh emergent habitats include California red-legged frog, foothill yellow-legged frog, California tiger salamander, western pond turtle, tricolored blackbird, yellow warbler, pallid bat, and western mastiff bat.

#### *Urban / Barren*

The term urban/barren (approximately three acres total) is used to describe the existing SR-84 roadway and shoulders, as well as the slope paving between PM 13.5 and 13.65. For purposes of this study, only the vegetation and aquatic communities that occur under the existing Alameda Creek Bridge – rather than the paved surface area of the bridge itself – were considered when discussing the urban impacts. Therefore, the area of vegetation under the existing paved bridge deck was counted in the total for the vegetation communities, and not in the urban/barren classification.

Urban habitats are capable of supporting a number of bird species associated with urban environments, and which are known to be tolerant of disturbance by human activities, such as wrentits (*Chamaea fasciata*), bushtits (*Psaltiriparus minimus*), oak titmouse (*Baeolophus inornatus*), chestnut-backed chickadee (*Poecile rufescens*), and California quail (*Callipepla californica*). Common mammals found in this environment are black-tailed deer (*Odocoileus hemionus*) and black-tailed jackrabbit (*Lepus californicus*). Gopher snake and western fence lizard also occur in this zone (Mayer and Laudenslayer 1988). Due to the disturbed nature of this habitat, it is not generally considered suitable for special-status species.

#### *Wildlife Corridor*

The riverine and riparian habitats within the project limits serve as wildlife corridors for wildlife to move from one side of SR-84 to the other. The use of Alameda Creek as a movement corridor is addressed in Sections 2.3.4 Animal Species and 2.3.5 Threatened and Endangered Species. Refer to these sections for a detailed discussion of the anticipated presence/absence of certain animal species during project construction activities.

### **2.3.1.2 Environmental Consequences**

#### *All Alternatives*

Each of the Alternatives would result in impacts to natural communities within the project limits. The type and extent of permanent and temporary impacts to habitat types vary depending upon Alternative (Tables 15-18). Permanent impact areas are associated with conversion of natural communities to a built environment as a result of project features and construction activities, whereas temporary impacted areas involve damage to the natural community, which may be preserved depending on the specific activity occurring near them, such as construction staging or the siting of a construction access road that could

disrupt habitat and/or damage natural communities and can be restored to their original natural community type. During the design phase, Caltrans' Office of Biological Science, and Permits and Caltrans' Office of Design would make an effort to reduce these impacts to natural communities in temporary impact areas to the greatest extent possible by designating environmentally sensitive areas on plan sheets and marking those locations in the field.

**Table 15. Land Acreages affected by Alternative 1**

Land Cover Type	Permanent Impact	Temporary Impact	Total Impact
Annual Grassland	0.416	0.446	0.863
Barren	0.078	0.204	0.282
Coastal Oak Woodland	0.729	0.849	1.578
Coastal Scrub	0.613	0.335	0.948
Fresh emergent wetland	0.002	0.324	0.3262
Riverine	0.0	0.240	0.240
Urban	0.197	0.418	0.615
Valley Foothill Riparian	0.782	1.794	2.576
Total:	2.817	4.610	7.428

**Table 16. Land Acreages affected by Alternative 2**

Land Cover Type	Permanent Impact	Temporary Impact	Total Impact
Annual Grassland	0.494	0.362	0.856
Barren	0.069	0.215	0.284
Coastal Oak Woodland	0.462	0.873	1.335
Coastal Scrub	0.265	0.428	0.693
Fresh emergent wetland	0.001	0.332	0.333
Riverine	0.0	0.256	0.256
Urban	0.223	0.442	0.665
Valley Foothill Riparian	0.680	1.707	2.387
Total:	2.194	4.615	6.809

**Table 17. Land Acreages affected by Alternative 3A**

Land Cover Type	Permanent Impact	Temporary Impact	Total Impact
Annual Grassland	0.504	0.390	0.894
Barren	0.109	0.182	0.291
Coastal Oak Woodland	0.739	0.843	1.582
Coastal Scrub	0.409	0.377	0.786
Fresh emergent wetland	0.001	0.333	0.334
Riverine	0.0	0.261	0.261
Urban	0.317	0.511	0.829
Valley Foothill Riparian	0.818	2.001	2.819
Total:	2.897	4.898	7.796

**Table 18. Land Acreages affected by Alternative 3B**

Land Cover Type	Permanent Impact	Temporary Impact	Total Impact
Annual Grassland	0.364	0.453	0.817
Barren	0.114	0.176	0.291
Coastal Oak Woodland	0.625	0.555	1.180
Coastal Scrub	0.359	0.385	0.744
Fresh emergent wetland	0.001	0.332	0.333
Riverine	0.0	0.260	0.260
Urban	0.295	0.534	0.828
Valley Foothill Riparian	0.314	1.566	1.880
Total:	2.072	4.261	6.333

Trees with a minimum diameter at breast height (DBH) of 4 inches were recorded during the study, resulting in a total of 1,135 trees within the project area. The majority of trees (1,051) are considered native to California. This number of trees represents the total number of trees within the project area and not the number of trees that would be impacted by the proposed project. The number of trees located within temporary or permanent impact areas differs depending on the Alternative. Trees located in permanent impact areas are likely to be removed during project activities. Some trees located in temporary impact areas may be preserved depending on the specific activity occurring near them. As the project progresses through the design phase, Caltrans' Office of Biological Science and Permits and Caltrans' Office of Design would make an effort to reduce impact to trees in temporary impact areas to the greatest extent possible by designating trees on plan sheets and marking trees with Environmentally Sensitive Area fencing. This will include coordination with Caltrans' construction staff to determine the minimal footprint necessary to perform construction activities. Detailed mapping identifying the trees that would be removed as a result of each Alternative is provided in Caltrans' NES (Figures 10a-10d in the NES) and the Addendum to the Natural Environment Study (Caltrans, 2015e). More detailed information about the trees is also provided in Tree Inventory (Appendix F) of the NES. Tables 19-24 identify the impacts to trees by Alternatives.

**Table 19. Impacts to Trees for Alternatives 1 and 2**

Species	Alternative 1 Permanent Impacts	Alternative 1 Temporary Impacts	Alternative 1 Total Impacts	Alternative 2 Permanent Impacts	Alternative 2 Temporary Impacts	Alternative 2 Total Impacts
Arroyo willow	0	11	11	9	21	30
Big-leaf maple	8	13	21	6	12	18
Black acacia	1	3	4	1	3	4
Blue elderberry	1	4	5	2	2	4
Box elder	0	1	1	0	1	1
California bay tree	43	56	99	19	42	61
California buckeye	6	3	9	6	2	2
Coast live oak	56	64	120	48	54	102
Eucalyptus species	8	4	12	17	2	19
Fremont cottonwood	0	12	12	4	15	19
Italian alder	0	1	1	0	1	1
N. CA black walnut	1	2	3	0	3	3
Ngaio	0	1	1	0	0	0
Plum species	1	1	2	0	1	1
Red willow	2	26	28	9	38	47
Western sycamore	25	38	63	11	38	49
White alder	0	23	23	4	37	41
Total	152	263	415	136	272	408



**Table 20. Impacts to Native Trees for Alternatives 1 and 2**

Species	Alternative 1 Permanent Impacts	Alternative 1 Temporary Impacts	Alternative 1 Total Impacts	Alternative 2 Permanent Impacts	Alternative 2 Temporary Impacts	Alternative 2 Total Impacts
Arroyo willow	0	11	11	9	21	30
Big-leaf maple	8	13	21	6	12	18
Blue elderberry	1	4	5	2	2	4
Box elder	0	1	1	0	1	1
California bay tree	43	56	99	19	42	61
California buckeye	6	3	9	6	2	8
Coast live oak	56	64	120	48	54	102
Fremont cottonwood	0	12	12	4	15	19
N. CA black walnut	1	2	3	0	3	3
Red willow	2	26	28	9	38	47
Western sycamore	25	38	63	11	38	49
White alder	0	23	23	4	37	41
Total	142	253	395	118	265	383

**Table 21. Impacts to Non-native Trees for Alternatives 1 and 2**

Species	Alternative 1 Permanent Impacts	Alternative 1 Temporary Impacts	Alternative 1 Total Impacts	Alternative 2 Permanent Impacts	Alternative 2 Temporary Impacts	Alternative 2 Total Impacts
Black acacia	1	3	4	1	3	4
Eucalyptus species	8	4	12	17	2	19
Italian alder	0	1	1	0	1	1
Ngaio	0	1	1	0	0	0
Plum species	1	1	2	0	1	1
Total	10	10	20	18	7	25

**Table 22. Impacts to Trees for Alternatives 3A and 3B**

Species	Alternative 3A Permanent Impacts	Alternative 3A Temporary Impacts	Alternative 3A Total Impacts	Alternative 3B Permanent Impacts	Alternative 3B Temporary Impacts	Alternative 3B Total Impacts
Arroyo willow	4	27	31	0	7	7
Big-leaf maple	7	12	19	4	11	15
Black acacia	2	2	4	3	1	4
Blue elderberry	3	1	4	0	1	1
Box elder	0	1	1	0	1	1
California bay tree	37	39	76	22	21	43
California buckeye	7	1	8	7	1	8
Coast live oak	59	51	110	50	52	102
Eucalyptus species	24	0	24	6	0	6
Fremont cottonwood	1	18	18	0	11	11
Italian alder	0	1	1	0	1	1
N. CA black walnut	0	4	4	0	2	2
Plum species	0	1	1	0	1	1
Red willow	5	42	47	0	23	23
Western sycamore	16	40	56	16	36	52
White alder	1	36	37	0	19	19
Total	166	278	444	108	188	296

**Table 23. Impacts to Native Trees for Alternatives 3A and 3B**

Species	Alternative 3A Permanent Impacts	Alternative 3A Temporary Impacts	Alternative 3A Total Impacts	Alternative 3B Permanent Impacts	Alternative 3B Temporary Impacts	Alternative 3B Total Impacts
Arroyo willow	4	27	31	0	7	7
Big-leaf maple	7	12	19	4	11	15
Blue elderberry	3	1	4	0	1	1
Box elder	0	1	1	0	1	1
California bay tree	37	39	76	22	21	43
California buckeye	7	1	8	7	1	8
Coast live oak	59	51	110	50	52	102
Fremont cottonwood	1	18	19	0	11	11
N. CA black walnut	0	4	4	0	2	2
Red willow	5	42	47	0	23	23
Western sycamore	16	40	56	16	36	52
White alder	1	36	37	0	19	19
Total	140	272	412	99	185	284

**Table 24. Impacts to Non-native Trees for Alternatives 3A and 3B**

Species	Alternative 3A Permanent Impacts	Alternative 3A Temporary Impacts	Alternative 3A Total Impacts	Alternative 3B Permanent Impacts	Alternative 3B Temporary Impacts	Alternative 3B Total Impacts
Black acacia	2	2	4	3	1	4
Eucalyptus species	24	0	24	6	0	6
Italian alder	0	1	1	0	1	1
Plum species	0	1	1	0	1	1
Total	26	4	30	9	3	12

Of the various habitat types present within the project limits, annual grassland, coastal oak woodland, coastal scrub, fresh emergent wetland, riverine, and valley foothill riparian are considered sensitive natural communities. Impacts to wetlands and other waters of the U.S are discussed in Section 2.3.2, Wetlands and Other Waters. Impacts related to special-status plant and animal species are discussed in Sections 2.3.3, Plant Species, 2.3.4, Animal Species, and 2.3.5 Threatened and Endangered Species. Alameda Creek Bridge Replacement Project impacts to natural communities are identified below.

#### *Annual Grassland*

Depending on the Alternative selected, the project would have approximately 0.4 to 0.5 acres of temporary impacts and 0.4 to 0.5 acres of permanent impacts to annual grassland habitat. Areas of permanent impact would result in habitat conversion. In the Short-term, areas of temporary impact could result in habitat fragmentation during construction activities through exclusion and disturbance of Alameda whipsnake, which use annual grassland for hunting and foraging and California red-legged frog, which use the annual grassland for burrows and western pond turtle, which use the annual grassland for nesting habitat. Migratory birds also use annual grasslands for breeding and foraging. The Alameda Creek Bridge Replacement Project would minimally impact annual grassland function on foraging habitat and also habitats that provide breeding, resting, and escape cover.

#### *Coastal Oak Woodland*

Depending on the Alternative selected, the project would have approximately 0.6 to 0.9 acres of temporary impacts and 0.5 to 0.7 acres of permanent impacts to coastal oak woodland habitat. Coastal oak woodland habitat provide breeding and foraging habitat for nesting birds, foraging habitat for bats, and shelter and foraging habitat for San Francisco dusky-footed woodrat. Permanent impacts would result in habitat conversion and the removal of trees. Some trees located in temporary impact areas may be preserved depending on the specific activity occurring near them. During construction, Caltrans would make an effort to reduce impacts to coastal oak woodland habitat in temporary impact areas to the greatest extent possible by designating environmentally sensitive areas on plan sheets and marking those locations in the field. Impacts to coastal oak woodland habitat would occur adjacent to SR-84 in marginal habitat areas.

#### *Coastal Scrub*

Depending on the Alternative selected, the project would have approximately 0.3 to 0.4 acres of temporary impacts and approximately 0.3 to 0.6 acres of permanent impacts. Coastal oak scrub habitat provides breeding and foraging habitat for the Alameda whipsnake and for nesting birds. Areas of permanent impact would result in habitat conversion. Areas of temporary impact could result in habitat fragmentation during construction activities through exclusion and disturbance of Alameda whipsnake, which use coastal scrub for hunting and foraging and migratory birds, which use coastal scrub for breeding and foraging. The majority of impacts to coastal scrub habitat would occur adjacent to SR-84, which would minimally impact the function of foraging and breeding habitat for wildlife.

#### *Fresh emergent wetland*

Depending on the Alternative selected, the project would have approximately 0 to 0.002 acres of permanent impacts on fresh emergent wetlands. All Alternatives would have between 0.324-0.333 acres of temporary impacts to fresh emergent wetland habitat. Fresh emergent wetland habitat is an important functional habitat associated with Alameda Creek. Fresh emergent wetland provides foraging and basking habitat for western pond turtle and foraging habitat for California red-legged frog and nesting birds. Areas of permanent impact would result in minimal habitat conversion. Areas of temporary impact could result in habitat fragmentation during construction activities through the exclusion and disturbance of California red-legged frog, western pond turtle, and nesting birds. Ultimately, a net benefit impact to fresh emergent wetland habitat is anticipated as a result of the proposed project as the project involves the removal of the concrete weir upstream of the existing bridge, removal of current in-stream bridge columns for the existing bridge, removal of invasive giant reed and pampas grass populations within the project area, and restoring and re-vegetating all temporarily impacted wetlands. These activities will off-set project effects by allowing the stream to take on a more natural morphology, facilitating the development of linear in-stream wetlands along the banks.

#### *Riverine*

Permanent effects to riverine habitat are anticipated through the installation of the new bridge columns for all Alternatives. Permanent effects to the riverine habitat are anticipated through the installation of new bridge columns. The new pier footprint will be smaller than the existing pier walls in the stream channel (which will be removed). As a result, there would be a reduction of permanent hard structure in riverine habitat. Depending on the Alternative selected, the project would have approximately 0.2 to 0.3 acres of temporary impacts.

Riverine is an important functional habitat associated with Alameda Creek. Riverine provides potential spawning and rearing habitat for steelhead and river and Pacific lamprey, basking habitat for the western pond turtle, and foraging habitat for bats. Areas of permanent impact would result in minimal habitat conversion. Temporary impacts to riverine habitat would occur from the dewatering of Alameda Creek, and from the removal of the concrete weir, which would ultimately improve the hydrology of Alameda Creek. None of the Alternatives would impact the creek channel or creek banks during normal

flow periods. Impacts are only present in riparian areas that are subject to water flow during high flow events and are therefore, within the Ordinary High Water Mark.

### *Valley Foothill Riparian*

Depending on the Alternative selected, the project would have approximately 0.3 to 0.8 acres of permanent impacts and 1.6 to 2.0 acres of temporary impacts. Valley foothill riparian habitat provides a wildlife corridor within the Alameda Creek watershed as well as breeding and foraging habitat for California red-legged frog, San Francisco dusky-footed woodrat, and birds, a movement corridor for Alameda whipsnake, roosting habitat for bats, and general breeding and foraging habitat for other wildlife. Valley foothill riparian habitat also provides shading of Alameda Creek for potential steelhead rearing habitat when the Bay Area Rapid Transit (BART) weir is removed. Currently, fish passage between Alameda Creek and San Francisco Bay is blocked within the City of Fremont by a concrete grade control structure operated by the ACFCF. This inoperable, static structure, located approximately 3.75 miles downstream from the Alameda Creek Bridge, is commonly referred to as “the BART weir” because of its proximity to the BART system tracks. The Alameda Creek Bridge Replacement Project would minimally affect the canopy above the creek. Tree shading along the portion of the creek within the project limits is marginal, and tree removal would be minimized in the area. In addition, the new bridge would provide more shade to the creek than the existing structure. Areas of permanent impact would result in habitat conversion and removal of trees within valley foothill riparian habitat. Some trees located in temporary impact areas may be preserved depending on the specific activity occurring near them<sup>29</sup>. During construction, Caltrans will make an effort to reduce impacts to riparian habitat in temporary impact areas to the greatest extent possible by designating sensitive habitat on plan sheets and marking the habitat with Environmentally Sensitive Area fencing.

Alternative 1 would require the placement of one column in riparian habitat while Alternatives 2, 3A, and 3B would require the placement of two columns in riparian habitat. Impacts to valley foothill riparian habitat on the eastern approach would be reduced by Alternative 3B, which involves the construction of a sidehill viaduct. Table 25 identifies the impacts to riparian habitat for the eastern approach to the Alameda Creek Bridge and Tables 26 and 27 identifies the impacts to native and non-native trees on the eastern approach to the Alameda Creek Bridge.

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<sup>29</sup> Permanent impact areas are associated with conversion of natural communities to a built environment as a result of project features and construction activities. Whereas temporary impacted areas involve damage to the natural community, which may be preserved depending on the specific activity occurring near them, such as construction staging or the siting of a construction access road that could disrupt habitat and/or damage natural communities and can be restored to their original natural community type. During the design phase, Caltrans’ Office of Biological Science, and Permits and Caltrans’ Office of Design would make an effort to reduce these impacts to natural communities in temporary impact areas to the greatest extent possible by designating environmentally sensitive areas on plan sheets and marking those locations in the field.



**Table 25. Impacts to Riparian Habitat<sup>30</sup> for the Eastern Approach to the Alameda Creek Bridge by Alternative**

Eastern Approach	Alternative 1		Alternative 2		Alternative 3A		Alternative 3B	
	Permanent Impact	Temporary Impact	Permanent Impact	Temporary Impact	Permanent Impact	Temporary Impact	Permanent Impact	Temporary Impact
	0.211	0.990	0.541	1.110	0.497	1.184	0.013	0.767
Total	1.201		1.651		1.681		0.780	

**Table 26. Impacts to Native Trees on the Eastern Approach to the Alameda Creek Bridge by Alternative**

Eastern Approach	Alternative 1		Alternative 2		Alternative 3A		Alternative 3B	
Tree Species	Permanent Impact	Temporary Impact	Permanent Impact	Temporary Impact	Permanent Impact	Temporary Impact	Permanent Impact	Temporary Impact
Arroyo willow	0	10	9	20	4	24	0	4
Big-leaf maple	3	4	2	2	3	2	0	1
Blue elderberry	1	4	2	2	3	1	0	1
California bay tree	19	41	4	34	19	35	4	16
California buckeye	2	0	1	1	2	0	2	0
Coast live oak	8	10	8	9	9	9	0	9
Fremont cottonwood	0	5	4	8	1	10	0	0
N. CA black walnut	0	0	0	2	0	2	0	0
Red willow	1	12	9	24	5	28	0	9
Western sycamore	1	0	1	3	1	3	0	0
White alder	0	12	4	26	1	25	0	8
Total	35	98	44	131	48	139	6	48

<sup>30</sup> Permanent impact areas are associated with conversion of natural communities to a built environment as a result of project features and construction activities. Whereas temporary impacted areas involve damage to the natural community, which may be preserved depending on the specific activity occurring near them, such as construction staging or the siting of a construction access road that could disrupt habitat and/or damage natural communities and can be restored to their original natural community type. During the design phase, Caltrans' Office of Biological Science, and Permits and Design would make an effort to reduce these impacts to natural communities in temporary impact areas to the greatest extent possible by designating environmentally sensitive areas on plan sheets and marking those locations in the field.

**Table 27. Impacts to Non-Native Trees on the Eastern Approach to the Alameda Creek Bridge by Alternative**

Eastern Approach	Alt 1		Alt 2		Alt 3A		Alt 3B	
Tree Species	Permanent Impact	Temporary Impact	Permanent Impact	Temporary Impact	Permanent Impact	Temporary Impact	Permanent Impact	Temporary Impact
Eucalyptus species	6	0	11	2	18	0	6	4
Plum species	0	1	0	1	0	1	0	1
Tree of heaven	0	0	0	0	0	3	0	0
Total	6	1	11	3	18	4	6	5

*Impacts to Wildlife Corridors within the Alameda Creek Bridge Replacement Project Area*

The Alameda Creek Bridge Replacement Project would have temporary construction impacts on wildlife corridors as the project would impact riverine and valley foothill riparian habitat. The riverine and riparian habitats within the project limits serve as wildlife corridors for wildlife to move from one side of SR-84 to the other. The Alameda Creek Bridge Replacement Project would not result in the construction of any permanent barriers that would sever or negatively impact wildlife corridors in the project limits.

*Geotechnical Borings*

Impacts to natural communities would occur through tree and vegetation removal in summer 2017 to create access roads in order to conduct the geotechnical investigations as described in Section 1.4.1. Access to five of the geotechnical boring locations would require tree trimming and brush trimming. Trimming would consist of cutting vegetation off at ground level to facilitate access. The access road would be sited to avoid cutting down mature trees. Impacts would occur from the removal of vegetation to create an approximately 10-foot wide access road that would be constructed of non-recycled, granular material (for example, Caltrans Class 2 aggregate subbase or aggregate base) placed on a layer of geofabric. Additionally, incidental moving of boulders may be required to complete the access road, but each boulder designated to be moved would be photographed and restored to its original position upon removal of the access road.

The access roads created for the geotechnical borings would also serve as the construction access roads during project construction. Following the construction completion, the access roads would be removed and restored to their original condition, including the placement of boulders in their original positions.

*No-Build Alternative*

The No-Build Alternative would not impact natural communities within the project limits.

**2.3.1.3 Avoidance, Minimization, and/or Mitigation Measures**

In addition to the measures listed below, the avoidance and minimization measures identified in Section 2.1.4.4 (VISUAL-6-7) and Section 2.2.1.4 (WATER-1-4) also apply as measures to reduce impacts to natural communities.

UPLAND TREES-1. During the design phase of the project, Caltrans' Office of Biological Science and Permits would work with the Caltrans Design team to avoid and minimize project impacts to upland trees. Efforts to preserve trees in place (by designating trees on plan sheets and marking trees with Environmentally Sensitive Area fencing) would be made to avoid or minimize project impacts to trees located in temporarily impacted areas. For upland trees that are removed, Caltrans would provide tree replacement on-site at a minimum 1:1 ratio in the existing SR-84 alignment, to maximize the given space available. Caltrans anticipates that no off-site planting would be needed for upland trees as of July 2017. However, in the event that off-site planting is determined necessary, potential planting locations would be identified working with local stakeholders, private landholders, and public agencies including, but not limited to, East Bay Regional Parks District,

Alameda County, and San Francisco Public Utilities Commission. Upland trees would be planted within two years of completion of the Alameda Creek Bridge Replacement Project construction and would be monitored for three years following the planting to ensure that the mortality rate does not exceed 30% of all upland trees planted.

RIPARIAN TREES-1. During the design phase of the project, Caltrans' Office of Biological Science and Permits would work with the Caltrans Design team to avoid and minimize project impacts to riparian trees. Efforts to preserve trees in place (by designating trees on plan sheets and marking trees with Environmentally Sensitive Area fencing) would be made to avoid or minimize project impacts to trees located in temporarily impacted areas. Trees removed from the riparian zone would be replaced at a minimum 3:1<sup>31</sup> ratio on-site, to the maximum extent possible given space available. Caltrans anticipates a need for off-site riparian planting as of July 2017. Potential planting locations within the Alameda Creek watershed would be identified working with local stakeholders, private and/or public landholders, and public agencies including, but not limited to, East Bay Regional Parks District, Alameda County, and San Francisco Public Utilities Commission. On-site riparian trees would be planted within two years of completion of the Alameda Creek Bridge Replacement Project construction and would be monitored for three years following the planting to ensure that the mortality rate does not exceed 30% of all riparian trees planted<sup>32</sup>. Details for off-site planting and riparian tree planting success criteria would be determined during the design and permitting phase of the project with CDFW (1602 Streambed Alteration Agreement) and RWQCB (401 Certification).

NATURAL COMMUNITIES-1. Worker Environmental Awareness Training. All construction personnel will attend a mandatory environmental education program delivered by an agency-approved biologist prior to working on the project. At a minimum the training will include a description of listed species; migratory birds and their habitats; the occurrence of these species within the action area; an explanation of these species and protection under the Act; the measures to be implemented to conserve listed species and their habitats as they relate to the work site; and boundaries within which construction may occur. A fact sheet conveying this information will be prepared and distributed to all construction crews and project personnel entering the project footprint. Upon completion of the program, personnel will sign a form stating that they attended the program and understand all the avoidance and minimization measures and implications of the Act.

NATURAL COMMUNITIES-2. Pre-construction Surveys. Pre-construction surveys will be conducted no more than 20 calendar days prior to any initial ground disturbance by an agency-approved biologist for listed wildlife and plant species. These surveys will consist of walking surveys of the project limits and, if possible, accessible adjacent areas within at least 50 feet of the project limits. The biologist(s) will investigate all potential cover sites. This includes thorough investigation of mammal burrows, rocky outcrops, appropriately sized soil cracks, tree cavities, and debris. Native vertebrates found in the cover sites within the project limits will be documented and relocated to an adequate cover site in the vicinity.

<sup>31</sup> A 3:1 ratio is a CDFW 1602 Streambed Alteration Agreement standard for offsite mitigation.

<sup>32</sup> The California Riparian Habitat Restoration Handbook (July 2009) identifies that most contracts call for cumulative survival of all plants and trees after the maintenance period of at least 70%.

NATURAL COMMUNITIES-3. Prevention of Wildlife Entrapment. To prevent inadvertent entrapment of listed species during construction, excavated holes or trenches more than one foot deep with walls steeper than 30 degrees will be covered at the close of each working day by plywood or similar materials. Alternatively, an additional four-foot high vertical barrier, independent of exclusionary fences, will be used to further prevent the inadvertent entrapment of listed species. If it is not feasible to cover an excavation or provide an additional four-foot high vertical barrier, independent of exclusionary fences, one or more escape ramps constructed of earth fill or wooden planks will be installed. Before such holes or trenches are filled, they will be thoroughly inspected for trapped animals. If at any time a trapped listed animal is discovered, the on-site biologist will immediately place escape ramps or other appropriate structures to allow the animal to escape or the USFWS will be contacted by telephone for guidance. The USFWS will be notified of the incident by telephone and electronic mail within 24 hours.

NATURAL COMMUNITIES-4. Wildlife Exclusion Fencing. The limits of construction zones within suitable habitat for listed species will be delineated with Environmentally Sensitive Area wildlife exclusion fencing at least four feet in height to prevent wildlife from accessing the construction footprint. The fencing will be removed only when all construction equipment is removed from the site. No project activities will occur outside the delineated project area. Wildlife exclusion fencing is not required for construction activities occurring outside of suitable habitat for listed species.

NATURAL COMMUNITIES-5. Water Diversion Structures. Cofferdam and/or water diversion will be constructed to exclude construction activities from adversely impacting the water quality of Alameda Creek while maintaining flow through the project area. The contractor will be required to submit a Water Diversion Plan to appropriate regulatory agencies for approval prior to construction.

NATURAL COMMUNITIES-6. Water Quality Inspection. Water quality inspector(s) will inspect the construction site after a rain event to ensure that the stormwater BMPs are adequate.

NATURAL COMMUNITIES-7. Vehicle Use. Project employees will be required to comply with guidance governing vehicle use, speed limits on unpaved roads, fire prevention, and other hazards.

NATURAL COMMUNITIES-8. Night Work. To the extent practicable, nighttime construction will be minimized. All nighttime work would require pre-construction surveys and biological monitoring to identify if listed species are present within the project limits. If listed species are observed or present, under the authority of the Resident Engineer or their designee, the biological monitor would have the authority to cease work until species' specific measures are implemented or until appropriate agency coordination occurs. No work would occur if there is a 50% probability of precipitation within 48 hours of the planned activity. No night work would occur until bat exclusion measures are implemented.

NATURAL COMMUNITIES-9. Night Lighting. Artificial lighting of the proposed project area during nighttime hours will be minimized to the maximum extent practicable. If night lighting is needed, special precautions including directing the artificial lighting away from listed species habitat and/or the use of physical barriers to block light pollution from project related activities would be implemented.

NATURAL COMMUNITIES-10. Trash Control. 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 a day from the work area.

NATURAL COMMUNITIES-11. Firearms. No firearms will be allowed in the project area except for those carried by authorized security personnel, or local, State, or Federal law enforcement officials.

NATURAL COMMUNITIES-12. Pets. To prevent harassment, injury or mortality of sensitive species, no pets will be permitted on the project site.

NATURAL COMMUNITIES-13. Caltrans Standard BMPs. The potential for adverse effects to water quality will be avoided by implementing temporary and permanent BMPs outlined in Section 13-2 of the Caltrans Standard Specifications. Caltrans erosion control BMPs will be used to minimize any wind or water-related erosion. The SWRQCB has issued a National Pollution Discharge Elimination System Statewide Storm Water Permit to Caltrans to regulate storm water and non-storm water discharges from Caltrans facilities. A SWPPP will be developed for the project, as one is required for all projects that have at least 1.0 acre of soil disturbance. The SWPPP complies with the Caltrans Storm Water Management Plan (SWMP). The SWMP includes guidance for Design staff to include provisions in construction contracts to include measures to protect sensitive areas and to prevent and minimize storm water and non-storm water discharges.

The SWPPP will reference the Caltrans Construction Site BMPs Manual. This manual is comprehensive and includes many other protective measures and guidance to prevent and minimize pollutant discharges and can be found at the following website: <http://www.dot.ca.gov/hq/construc/stormwater/manuals.htm>

Protective measures will be included in the contract, including, at a minimum:

- a. No discharge of pollutants from vehicle and equipment cleaning are allowed into the storm drain or water courses.
- b. Vehicle and equipment fueling and maintenance operations must be at least 50 feet away from water courses.
- c. Concrete wastes are collected in washouts and water from curing operations is collected and disposed of and not allowed into water courses.
- d. Dust control will be implemented, including use of water trucks and tackifiers to control dust in excavation and fill areas, rocking temporary access road entrances and exits, and covering temporary stockpiles when weather conditions require.



- e. Coir rolls will be installed along or at the base of slopes during construction to capture sediment and temporary organic hydro-mulching will be applied to all unfinished disturbed and graded areas.
- f. Work areas where temporary disturbance has removed the pre-existing vegetation will be restored and re-seeded with a native seed mix.
- g. Graded areas will be protected from erosion using a combination of silt fences, fiber rolls along toe of slopes or along edges of designated staging areas, and erosion-control netting (such as jute or coir) as appropriate.
- h. A Revegetation Plan will be prepared for restoration of temporary work areas. Pavement and base will be removed; topography blended with the surrounding area; and topsoil will be salvaged from the new alignment area to be placed over the restored area, which will then be revegetated with native grassland species.

NATURAL COMMUNITIES-14. Monofilament Erosion Control. Plastic mono-filament netting (erosion control matting) or similar material will not be used for the project because CRLF and AWS may become entangled or trapped in it. Acceptable substitutes include coconut coir matting or tackified hydroseeding compounds.

NATURAL COMMUNITIES-15. Concrete Waste and Stockpiles. All grindings and asphaltic-concrete waste will be stored within previously disturbed areas absent of habitat and at a minimum of 150 feet from any aquatic habitat, culvert, or drainage feature.

NATURAL COMMUNITIES-16. Revegetation Following Construction. All areas that are temporarily affected during construction will be revegetated with an assemblage of native grass, shrub, and trees as appropriate. Invasive, exotic plants will be controlled within the project area to the maximum extent practicable, pursuant to Executive Order 13112.

NATURAL COMMUNITIES-17. Environmentally Sensitive Area Fencing. Prior to ground disturbance, active areas within the project footprint will be delineated with Environmentally Sensitive Area fencing to prevent the encroachment of construction personnel and equipment outside the described project footprint. The fencing will be removed after all construction equipment is removed from those segments of the project.

NATURAL COMMUNITIES-18. Removal of Aquatic Exotic Wildlife Species. The agency-approved biologist will permanently remove aquatic exotic wildlife species, such as bullfrogs and crayfish, to the extent possible.

NATURAL COMMUNITIES-19. Weather Forecast Monitoring. The biologist will monitor the forecast for qualifying storm events, rain events that produces or is forecasted to produce at least 0.50 inch of precipitation at the time of discharge with a 72-hour dry period between events. 48 hours prior to a qualifying storm event, a qualified Caltrans Stormwater practitioner will conduct pre-event site inspection of the project erosion control and water quality BMPs to insure that the SWPPP measures are installed and

adequately maintained. The inspector will provide recommendations for repair/replacement of or additional BMPs, which may include:

- a. Silt fence, fiber rolls, and gravel bags, to capture sediment;
- b. Tarps, straw or other cover for disturbed slopes; or
- c. Tarps, fiber rolls or gravel bags to stabilize or contain stockpiled soils/fill materials.
- d. Before a qualifying storm event, all materials and equipment will be removed from stream channels or waterways. If practicable, creek or stream diversions will be removed before the event. In addition, runoff will be monitored and sampled for sediment loads to determine if a discharge has occurred.

NATURAL COMMUNITIES-20. No Work During Rain Event. No work will occur within undisturbed special-status species habitat 48 hours before and during a forecasted rain event. An agency-approved biologist will inspect the site during and/or within two calendar days following the rain event prior to the continuation of work to avoid harming CRLF and/or its habitat. Work will be prohibited in areas where ponding in special-status species habitat has occurred as a result of a rain event.

NATURAL COMMUNITIES-21. USFWS Access. If requested before, during, or upon completion of groundbreaking and construction activities, Caltrans will allow access by USFWS personnel into the project footprint to inspect the project and its activities.

## **2.3.2 Wetlands and Other Waters**

### **2.3.2.1 Regulatory Setting**

Wetlands and other waters are protected under a number of laws and regulations. At the federal level, the Federal Water Pollution Control Act, more commonly referred to as the CWA (33 United States Code [USC] 1344), is the primary law regulating wetlands and surface waters. One purpose of the CWA is to regulate the discharge of dredged or fill material into waters of the U.S., including wetlands. Waters of the U.S. include navigable waters, interstate waters, territorial seas and other waters that may be used in interstate or foreign commerce. To classify wetlands for the purposes of the CWA, a three-parameter approach is used that includes the presence of hydrophytic (water-loving) vegetation, wetland hydrology, and hydric soils (soils formed during saturation/inundation). All three parameters must be present, under normal circumstances, for an area to be designated as a jurisdictional wetland under the CWA.

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

The USACE issues two types of 404 permits: General and Standard permits. There are two types of General permits: Regional permits and Nationwide permits. Regional permits are issued for a general category of activities when they are similar in nature and cause minimal

environmental effect. Nationwide permits are issued to allow a variety of minor project activities with no more than minimal effects.

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

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

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

The RWQCBs were established under the Porter-Cologne Water Quality Control Act to oversee water quality. Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements (WDRs) and may be required even when the discharge is already permitted or exempt under the CWA. In compliance with Section 401 of the CWA, the RWQCBs also issue water quality certifications for activities which may result in a discharge to waters of the U.S. This is most frequently required in tandem with a Section 404 permit request. Section 2.2.2 Water Quality contains further details about the CWA Section 401 permit request.

### 2.3.2.2 Affected Environment

The following analysis is based on the Natural Environment Study prepared for the Alameda Creek Bridge Replacement Project (Caltrans, 2014l), the Addendum to the Natural Environment Study, and the Second Addendum to the Natural Environment Study (Caltrans, 2016f). The Natural Environment Study was completed on October 22, 2014, the Addendum to the Natural Environment Study was completed on February 27, 2015, and the Second Addendum to the Natural Environment Study was completed on February 9, 2016. A preliminary investigation of jurisdictional waters for approximately 11.1 acres around the Alameda Creek Bridge was completed in 2009 (Caltrans, 2014l). This investigation was subsequently verified and revised by the Caltrans Liaison at the USACE in 2010 (Caltrans, 2014l). This revised investigation noted 0.4 acre of jurisdictional wetlands and 2.1 acres of other waters of the U.S. within the previous project study limits. An additional field investigation on June 11, 2014 delineated potential waters of the U.S., including wetlands and water features in new areas of the project limits (approximately 9.8 acres). This investigation served as an amendment to the field verifications completed in 2010. The field delineation was conducted during the early summer (June 2014). The winter of 2013-2014 was among the top three driest water years on record in California, and 2013 was the all-time driest calendar year. However, the identification of wetlands is based on hydric soil characteristics, direct hydrologic indicators, and vegetation types. This combination of criteria allowed investigators to determine presence of wetlands under the low-precipitation conditions.

The field delineation identified approximately 3.8 acres of potential-jurisdictional water features within the 9.8 acres of new areas of the current project area, including approximately 0.2 acre of wetlands and 3.6 acres of other waters. Based on criteria as described in 33 CFR 328.3, all of the mapped potential waters of the U.S. within the new areas of the project area are considered jurisdictional. The jurisdiction of individual features, as discussed in this report, should be verified by the USACE. Combined with the previous delineation from 2010, there are a total 6.2 acres of potentially jurisdictional wetlands or other water features in the project area (refer to Table 28).

**Table 28. Wetlands and Other Waters in the Project Study Limits**

Feature Type	Area (acres)	Area (ft <sup>2</sup> )
Wetland Total	0.66	26,005
Other Waters of the U.S.	5.6	245,417
Total	6.2	271,422

### 2.3.2.3 Environmental Consequences

#### *All Alternatives*

Within the project study limits, there are 6.2 acres of potentially jurisdictional wetland or water features. Of this acreage, all Alternatives would result in some level of temporary and permanent impacts to wetlands and other waters within the project limits, as identified in Table 29.

**Table 29. Impacts to Wetlands and Other Waters by Alternative**

Type	Temporary Impacts (Acres)				Permanent Impacts (Acres)				Total Impacts (Acres)			
Alternative	1	2	3A	3B	1	2	3A	3B	1	2	3A	3B
Wetland	0.324	0.332	0.333	0.332	0.002	0.001	0.001	0.001	0.326	0.333	0.334	0.333
Other Waters	0.886	1.006	0.999	0.814	0.000	0.170	0.120	0.001	0.886	1.176	1.119	0.815
Total	1.210	1.338	1.332	1.146	0.002	0.171	0.121	0.002	1.212	1.509	1.453	1.148

Figures 40-43 identify the impacts of each Alternative within the project limits.

**Figure 40. Alternative 1 Impacts to Jurisdictional Wetlands and Other Waters**

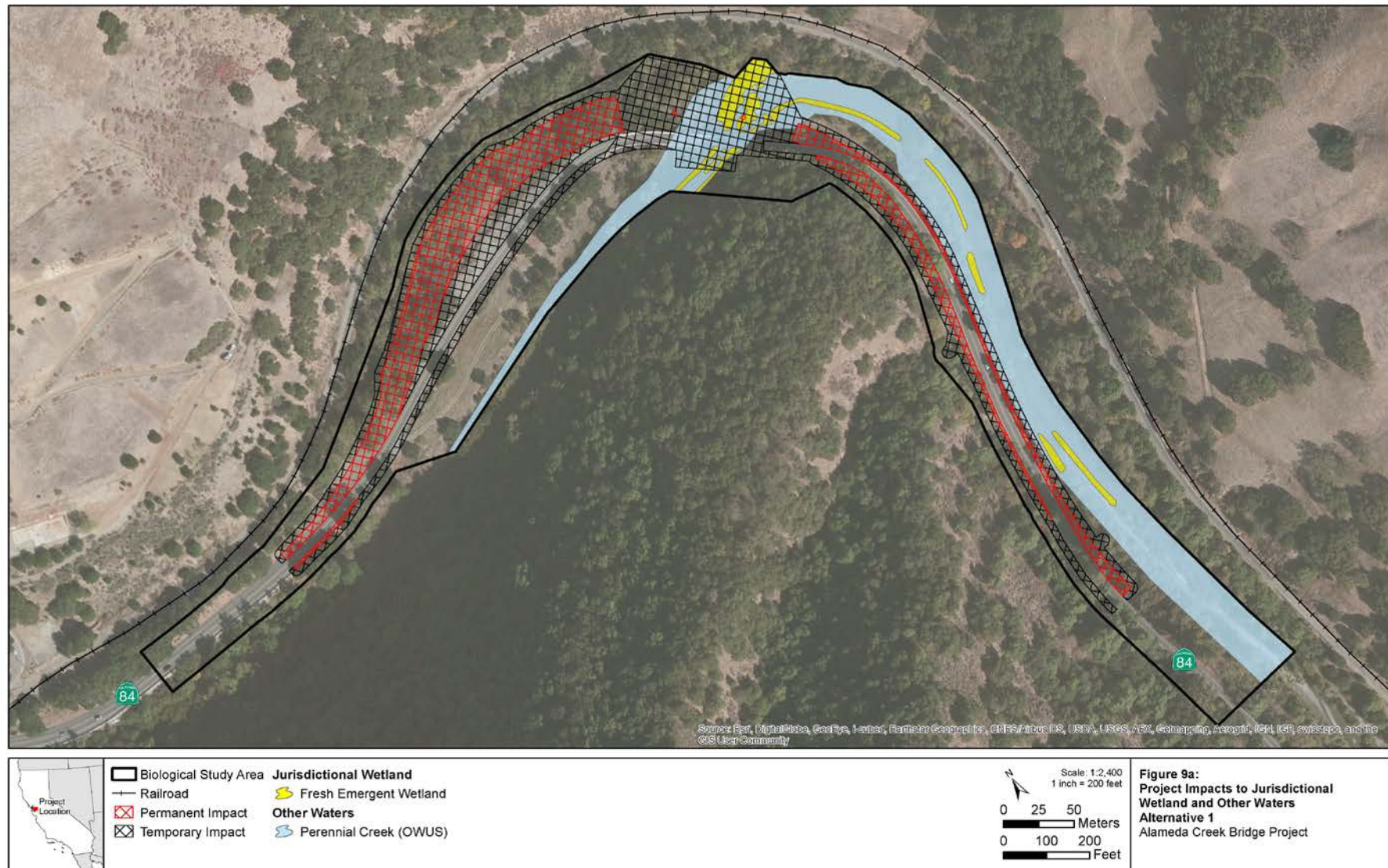
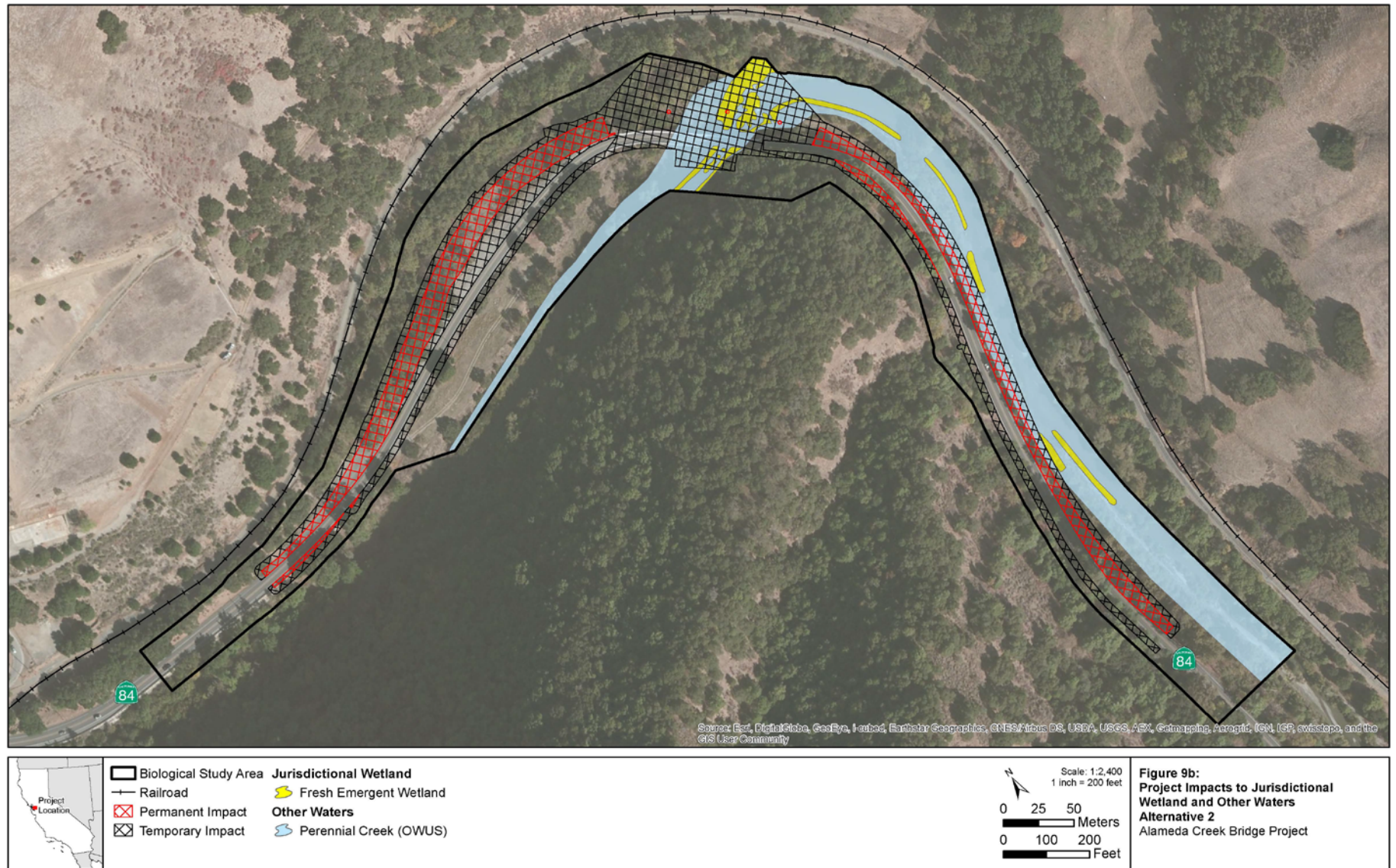




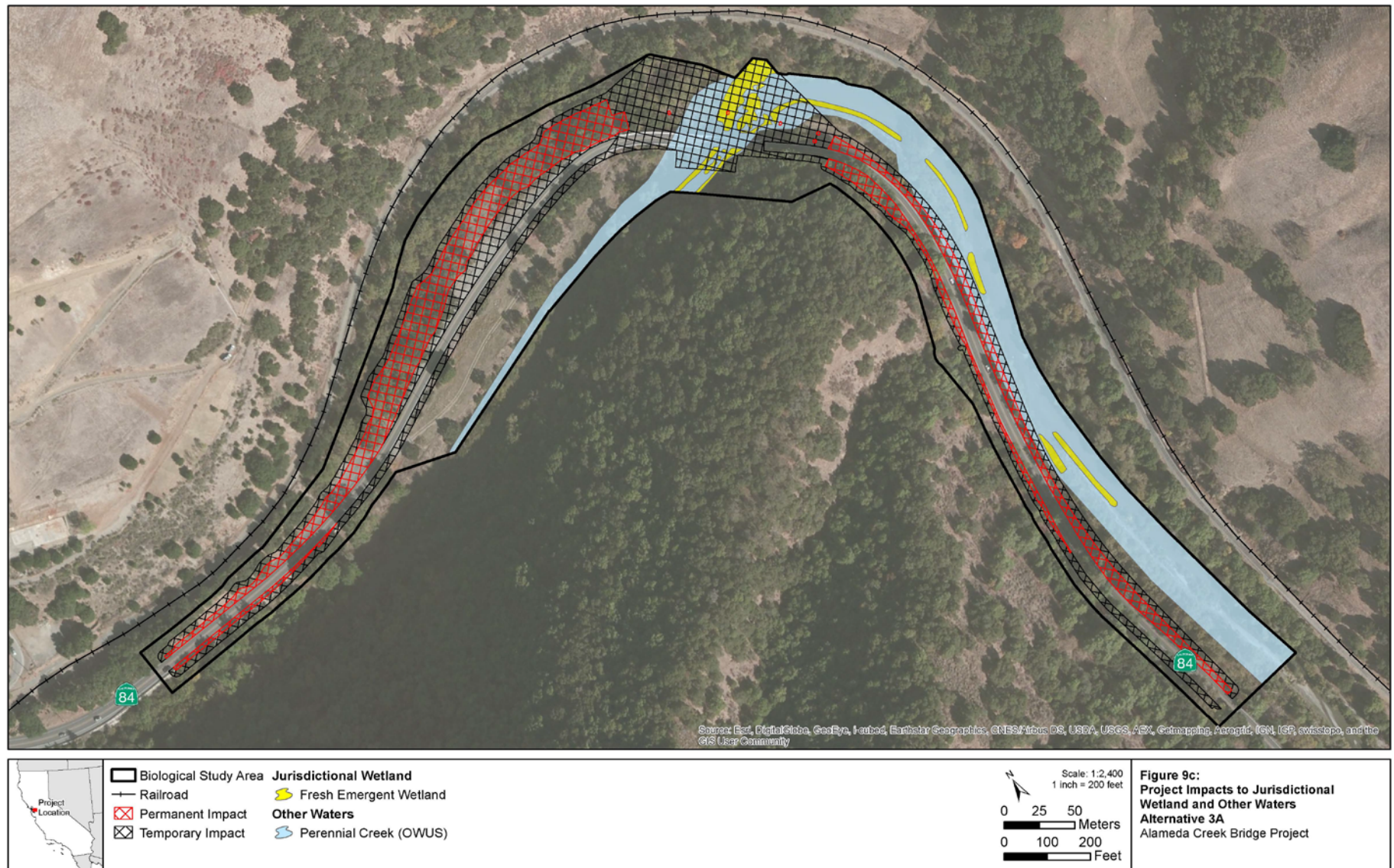
Figure 41. Alternative 2 Impacts to Jurisdictional Wetlands and Other Waters



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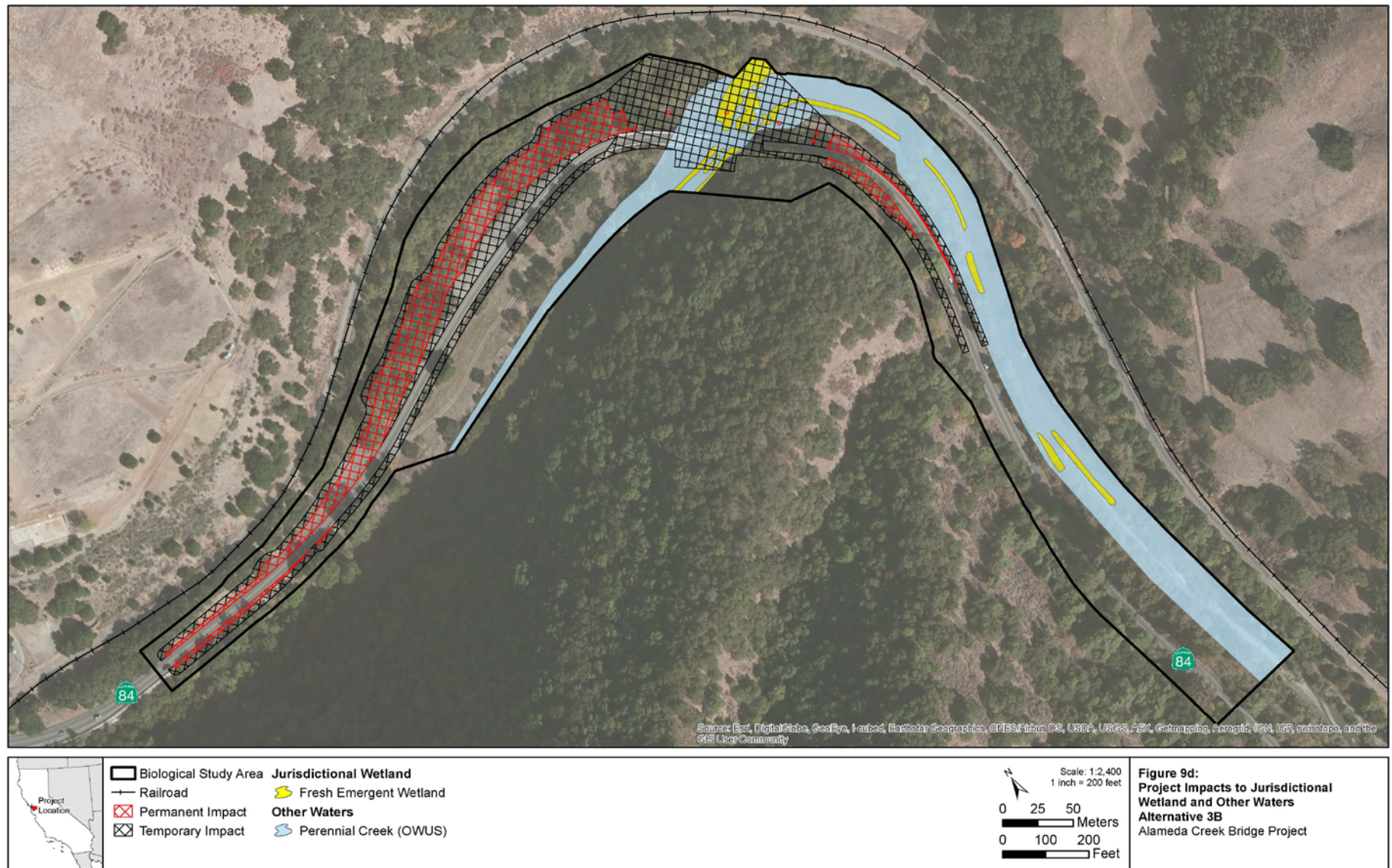
**Figure 42. Alternative 3A Impacts to Jurisdictional Wetlands and Other Waters**



10/22/2014



Figure 43. Alternative 3B Impacts to Jurisdictional Wetlands and Other Waters



10/22/2014

All Alternatives would result in minor permanent loss of wetlands and other waters. Alternative 2 would result in the largest amount of permanent impacts to other waters while Alternatives 1 and 3B are the alternatives with the least amount of permanent impacts to wetlands and other waters. Although all Alternatives result in permanent wetland or other waters loss, overall net long-term impacts on wetland and water features associated with the Alameda Creek Bridge Replacement Project are positive. On-site restoration efforts, included as part of the project, propose the removal of the existing Alameda Creek Bridge (including in-stream columns) and removal of the invasive giant reed and pampas grass populations within the project area. Additionally, all temporarily impacted wetlands and other waters would be restored and revegetated when the project is complete.

In addition to the on-site restoration efforts included as part of the project, all Alternatives propose to remove the existing footings and concrete wall of an older bridge, located upstream of the existing Alameda Creek Bridge. These bridge footings and concrete wall act as a weir and serve as a low-flow fish passage barrier. The removal of the concrete weir will beneficially impact Alameda Creek by allowing the stream to take on a more natural morphology, in addition to facilitating the development of linear in-stream wetlands along the banks, further reducing project impacts to wetlands and other waters. Per preliminary discussion and consultation with the USACE, RWQCB, CDFW, and NMFS, the removal of these bridge footings would address anticipated compensatory mitigation requirements for project impacts under the federal Endangered Species Act (ESA) consultation and the following permits: 1602 Streambed Alteration Agreement and Clean Water Act (CWA) Section 404 and 401 permits.

While the Alameda Creek Bridge Replacement Project would temporarily impact wetlands and other waters within the project limits, the project would ultimately improve the long-term health of wetland and other water features in this section of Alameda Creek. Compensatory mitigation under the CWA, as identified in avoidance, minimization, and/or mitigation measure WETLANDS-1, would be provided at a minimum 1:1 ratio for all permanent wetland impacts. Proposed compensation for wetland impacts include removal of the concrete weir upstream of the existing bridge, removal of current in-stream bridge columns for the existing bridge, removal of invasive giant reed and pampas grass populations within the project area, and restoring and re-vegetating all temporarily impacted wetlands.

#### *No-Build Alternative*

The No-Build Alternative would result in no wetland or other waters loss. The No-Build Alternative would not remove the concrete weir and the invasive giant weed populations in the project vicinity would not be removed from the channel. Alameda Creek would not be restored to a more natural morphology.

#### **2.3.2.4 Avoidance, Minimization, and/or Mitigation Measures**

In addition to the measures listed below, the avoidance and minimization measures identified in Section 2.2.1.4 (WATER-1-4) and Section 2.3.1.3 (NATURAL COMMUNITIES-5, 6, and 13) also apply as measures to reduce impacts to wetlands and other waters.

WETLANDS-1. Compensatory mitigation under the CWA at a minimum 1:1 ratio is required for all permanent wetland impacts. Proposed compensation for wetland impacts include removal of the concrete weir upstream of the existing bridge, removal of current in-stream bridge columns for the existing bridge, removal of invasive giant reed and pampas grass populations within the project area, and restoring and re-vegetating all temporarily impacted wetlands. These activities will off-set project effects by allowing the stream to take on a more natural morphology, facilitating the development of linear in-stream wetlands along the banks, and removing a barrier to steelhead.

WETLANDS-2. Permits. Caltrans will include a copy of all relevant permits, which include the CWA 401 Certification (RWQCB), BO<sup>33</sup> (USFWS), Streambed Alteration Agreement (CDFW), and the Incidental Take Permit (CDFW), within the construction bid package of the proposed project. The Resident Engineer or their designee will be responsible for implementing the Conditions of the USACE 404 permit.

#### **2.3.2.5 Wetlands Only Practicable Alternative Finding**

The following analysis of the project alternatives, including the No-Build and discussion of all practicable measures to minimize the extent of wetland impacts, is provided to satisfy the requirement of Executive Order 11990, Protection of Wetlands.

All Alternatives would result in minor permanent loss of wetlands and other waters. All of the alternatives propose to install support columns within Alameda Creek and remove the existing footings and concrete wall of an older bridge, located upstream of the existing Alameda Creek Bridge. These bridge footings and concrete wall act as a weir and serve as a low-flow fish passage barrier. The removal of the concrete weir will beneficially impact Alameda Creek by allowing the stream to take on a more natural morphology, in addition to facilitating the development of linear in-stream wetlands along the banks, further reducing project impacts to wetlands and other waters. While the Alameda Creek Bridge Replacement Project would temporarily impact wetlands and other waters within the project limits, the project would ultimately improve the long-term health of wetland and other water features in this section of Alameda Creek.

As described in Table 29, Alternative 3B, the Build Alternative, would have the least amount of impacts to wetlands and other waters. Although the Build Alternative would result in permanent wetland or other waters loss, overall net long-term impacts on

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<sup>33</sup> Fish passage between Alameda Creek and San Francisco Bay is blocked within the City of Fremont as of July 2017, by a concrete grade control structure. As a result, these fish are not currently considered to be anadromous Central California Coast DPS steelhead and do not receive protection under the FESA. ACWD is scheduled to install a fish ladder that will circumvent this structure in 2019 (ACWD 2014). As a result, fish passage between San Francisco Bay and the Alameda Creek watershed would be restored, and steelhead within Alameda Creek will be included by NMFS as part of the federally threatened Central California Coast steelhead DPS. Caltrans has concluded that a “No Effect” determination applies under the Federal Endangered Species Act based on the fact that no steelhead are currently present; however, Caltrans acknowledges the planned removal of various obstructions and installation of fish ladders in Alameda Creek (including, but not limited to, the BART weir) and will be implementing avoidance and minimization measures in anticipation of improved fish passage through the corridor.

wetland and water features associated with the Alameda Creek Bridge Replacement Project are positive. On-site restoration efforts, included as part of the project, propose the removal of the existing Alameda Creek Bridge (including in-stream columns) and removal of the invasive giant reed and pampas grass populations within the project area. Additionally, all temporarily impacted wetlands and other waters would be restored and revegetated when the project is complete.

The No-Build Alternative would not result in wetland impacts. However, the No-Build Alternative would not meet the purpose and need of the project because the deficiencies at the Alameda Creek Bridge would remain.

### **2.3.3 Plant Species**

#### **2.3.3.1 Regulatory Setting**

The U.S. Fish and Wildlife Service (USFWS) and CDFW have regulatory responsibility for the protection of special-status plant species. “Special-status” species are selected for protection because they are rare and/or subject to population and habitat declines. Special status is a general term for species that are provided varying levels of regulatory protection. The highest level of protection is given to threatened and endangered species; these are species that are formally listed or proposed for listing as endangered or threatened under the Federal Endangered Species Act (FESA) and/or the California Endangered Species Act (CESA). Please see Section 2.3.5 Threatened and Endangered Species in this document for detailed information about these species.

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

The regulatory requirements for FESA can be found at 16 United States Code (USC) Section 1531, et seq. See also 50 Code of Federal Regulations (CFR) Part 402. The regulatory requirements for CESA can be found at California FGC, Section 2050, et seq. Caltrans projects are also subject to the Native Plant Protection Act, found at FGC, Section 1900-1913, and CEQA, CA PRC, Sections 2100-21177.

#### **2.3.3.2 Affected Environment**

The following analysis is based on the Natural Environment Study prepared for the Alameda Creek Bridge Replacement Project (Caltrans, 2014l), the Addendum to the Natural Environment Study (Caltrans, 2015e), and the Second Addendum to the Natural Environment Study (Caltrans, 2016f). The Natural Environment Study was completed on October 22, 2014, the Addendum to the Natural Environment Study was completed on February 27, 2015, and the Second Addendum to the Natural Environment Study was completed on February 9, 2016. Based on literature and database searches, prior botanical surveys, and familiarity with the region, a total of 38 plant species were initially evaluated, and 25 species were determined to have the potential to occur within the project study limits. Rare plant species occurrences within five miles of the project study limits include Congdon’s tarplant (*Centromadia parryi ssp. congdonii*), Santa Clara red ribbons (*Clarkia concinna ssp. automixa*), most beautiful jewelflower (*Streptanthus albidus ssp.*



*peramoenus*), slender-leaved pondweed (*Stuckenia filiformis ssp. alpine*), and chaparral harebell (*Campanula exigua*). On May 15, 2009, URS Corporation completed a rare plant survey for a previous iteration of the project, which documented no rare plants (Caltrans, 2014l). For the proposed project, a rare plant survey was conducted within the project study limits in May and July 2014, March and May 2015, and August 2015 and no special-status plants were observed.

The following plants (identified by vegetation type) in Table 30 are located in the proposed project limits.

**Table 30. Plant species by Vegetation type**

Vegetation Type	Potentially impacted plant species within the vegetation type
California annual grasslands	Various brome species ( <i>Bromus spp.</i> ), wild oats ( <i>Avena fatua</i> ), foxtail barley ( <i>Hordeum marinum ssp. gussoneanum</i> ), yellow star thistle ( <i>Centaurea solstitialis</i> ), poison hemlock ( <i>Conium maculatum</i> ), other non-native herbs, and native annual forbs (wildflowers).
Coastal oak woodland	The dominant hardwood species are California bay laurel ( <i>Umbellularia californica</i> ) and coast live oak ( <i>Quercus agrifolia</i> ). Common tree associates in this habitat include madrone ( <i>Arbutus menziesii</i> ), California buckeye ( <i>Aesculus californica</i> ), and big leaf maple ( <i>Acer macrophyllum</i> ). Poison oak ( <i>Toxicodendron diversilobum</i> ) and snowberry ( <i>Symphoricarpos spp.</i> ) are common understory associates.
Valley foothill riparian	Dominant over-story species include western sycamore ( <i>Platanus racemosa</i> ), Fremont cottonwood ( <i>Populus fremontii</i> ), big leaf maple, and coast live oak. Sub-canopy species include arroyo willow ( <i>Salix lasiolepis</i> ), red willow ( <i>Salix laevigata</i> ), and blue elderberry ( <i>Sambucus mexicana</i> ). Understory species include poison oak, Himalayan blackberry ( <i>Rubus discolor</i> ), and wild grape ( <i>Vitis californica</i> ).
Coastal scrub	Coyote brush ( <i>Baccharis pilularis</i> ) scrub and California sagebrush ( <i>Artemisia californica</i> ) scrub.
Riverine	Riverine habitat contains vegetation such as torrent sedge ( <i>Carex nudata</i> ) shadowed by over-story trees, including white alder ( <i>Alnus rhombifolia</i> ), black walnut, Fremont cottonwood, and western sycamore. Tules ( <i>Schoenoplectus spp.</i> ), rushes ( <i>Juncus spp.</i> ), and a variety of strictly hydrophytic vegetation may also occur within this habitat.
Fresh emergent wetland	Dominant species within the fresh emergent wetland are typically monocots such as tule, chairmaker's bulrush ( <i>Schoenoplectus americanus</i> ), and bur reed ( <i>Sparganium eurycarpum ssp. eurycarpum</i> ).

### 2.3.3.3 Environmental Consequences

#### *All Alternatives*

The results of the 2009, May and July 2014, and March, May, and August 2015 plant surveys indicate there is a low potential for rare plant occurrences in the project study limits.

As discussed in Section 2.3.1, the Alameda Creek Bridge Replacement Project limits contain several vegetation types including California annual grasslands, coastal oak woodland, valley foothill riparian, coastal scrub, riverine, and fresh emergent wetland.

As identified in Tables 15-18, all Alternatives would have permanent and temporary impacts to several vegetation types in the project limits and would impact the indicated plant species in each vegetation type.

#### *No-Build Alternative*

The No-Build Alternative would not change existing conditions and would not result in impacts to plant species. The No-Build Alternative would not involve the removal of invasive giant reed and pampas grass populations within the project limits.

#### **2.3.3.4 Avoidance, Minimization, and/or Mitigation Measures**

In addition to the measure listed below, Section 2.1.4.4 (VISUAL6-7) and Section 2.3.1.3 (NATURAL COMMUNITIES-1 and NATURAL COMMUNITIES-2) also applies as plant species avoidance and minimization measures.

PLANT-1. If listed plant species are discovered within the construction zone, protective measures would be established. These protective measures would include setting a temporary protective buffer around the plant and conducting appropriate agency coordination, which may result in moving the species to another location within Caltrans right-of-way and then replanting the species during the restoration phase of the project.

#### **2.3.4 Animal Species**

##### **2.3.4.1 Regulatory Setting**

Many state and federal laws regulate impacts to wildlife. The USFWS, National Marine Fisheries Service (NMFS), and the CDFW are responsible for implementing these laws. This section discusses potential impacts and permit requirements associated with animals not listed or proposed for listing under the federal or state ESA. Species listed or proposed for listing as threatened or endangered are discussed in Section 2.3.5 below. All other special-status animal species are discussed here, including CDFW fully protected species and species of special concern, and USFWS or National Oceanic and Atmospheric Administration (NOAA) Fisheries Service candidate species.

Federal laws and regulations relevant to wildlife include the following:

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

State laws and regulations relevant to wildlife include the following:

- California Environmental Quality Act
- Sections 1600 – 1603 of the California FGC
- Sections 4150 and 4152 of the California FGC

##### **2.3.4.2 Affected Environment**

The following analysis is based on the Natural Environment Study prepared for the Alameda Creek Bridge Replacement Project (Caltrans, 2014l), the Addendum to the Natural Environment Study (Caltrans, 2015e), and the Second Addendum to the Natural Environment Study (Caltrans, 2016f). The Natural Environment Study was completed on

October 22, 2014, the Addendum to the Natural Environment Study was completed on February 27, 2015, and the Second Addendum to the Natural Environment Study was completed on February 9, 2016. Wildlife studies were completed in the project study limits in spring and summer 2014, including a reconnaissance bat survey, wildlife assessment, and bat roosting habitat survey. Based on literature and database searches, past wildlife studies, and familiarity with the region, a total of 63 wildlife species were initially considered to potentially occur within the project area. Following the wildlife studies, 42 of these species were dropped from consideration based on lack of suitable habitat. Three federal and/or state-listed species (discussed in Section 2.3.5), and seven California species of special concern were considered to have at least a moderate potential to occur in the project area.

**California Species of Special Concern with Moderate/High Potential to Occur**

- River lamprey (*Lampetra ayresii*)
- Western pond turtle (*Emys marmorata*)
- Yellow warbler (*Dendroica petechial brewsteri*)
- Pallid bat (*Antrozous pallidus*)
- Townsend's big-eared bat (*Corynorhinus townsendii*)
- Western red bat (*Lasiurus blossevillei*)
- San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*)

**Other Special-Status Animals with Moderate/High Potential to Occur**

- Pacific lamprey (*Entosphenus tridentatus*), CDFW special animal
- Hoary bat (*Lasiurus cinereus*), CDFW special animal
- Long-eared myotis (*Myotis evotis*), CDFW special animal
- Fringed myotis (*Myotis thysanodes*), CDFW special animal
- Yuma myotis (*Myotis yumanensis*), CDFW special animal
- Migratory birds, Migratory Bird Treaty Act and California FGC

**River lamprey (California species of special concern) and Pacific Lamprey (CDFW special animal)**

The river lamprey is a California species of special concern, and the Pacific lamprey is on CDFW's special animals list. Both of these species are anadromous fish. Adults are predatory, attaching to and feeding on other fish (most commonly herring and salmon) while inhabiting marine coastal and estuarine waters (Caltrans, 2014l). Spawning takes place in gravelly riffles during the spring, with adults dying after spawning. Ammocetes (lamprey larvae) partially bury themselves in silty backwaters and eddies to feed on algae and microorganisms (Leidy 2007). Although they are generally anadromous, river lampreys and Pacific lampreys are thought to be capable of completing their life cycle in fresh water in cases where they are landlocked (Caltrans, 2014l).

Currently, fish passage between Alameda Creek and San Francisco Bay is blocked within the City of Fremont by a concrete grade control structure operated by the ACFCF. This inoperable, static structure, located approximately 3.75 miles downstream from the Alameda Creek Bridge, is commonly referred to as "the BART weir" because of its proximity to the BART system tracks. The most recent confirmed observation of a river lamprey in Alameda Creek occurred in 1966. However, anadromous Pacific lampreys have been recently documented upstream of the project area within the Alameda Creek watershed, which indicates that Pacific lampreys are capable of traversing the BART weir (Caltrans, 2014l). Pacific and river lamprey are difficult to differentiate using morphological clues, and therefore it is possible that some of the sightings of Pacific lamprey in Alameda Creek may have been river lamprey. A lamprey of indeterminate species was observed during the fish habitat assessment conducted in 2011 for this project (Caltrans, 2014l). Since river lamprey may be capable of traversing the BART weir structure in the same manner as the Pacific lamprey, and suitable spawning and rearing habitat exists within Alameda Creek, both species are considered to have a moderate potential to occur within the project area. The planned restoration of fish passage at the BART weir, as discussed in Section 2.4.4.8, would allow these species greater access to Alameda Creek.

**Western pond turtle (California species of special concern)**

The western pond turtle is a California species of special concern. Western pond turtles range throughout California, from southern coastal California and the Central Valley, north to the Cascade and eastern Sierra Nevada mountain ranges. Western pond turtles occur in a variety of permanent and intermittent aquatic habitats, such as ponds, marshes, rivers, streams, and ephemeral pools. They require slack or slow water habitat for feeding as well as suitable dry habitat such as rocks or fallen logs for basking and hauling out. In addition to appropriate aquatic habitat, these turtles require an upland nesting site in the vicinity of the aquatic habitat, often within 200 meters (656 feet). Nests are typically dug in grassy, open fields with soils that are high in clay or silt. Egg-laying usually takes place between March and August (Caltrans, 2014l).

There are six occurrences of western pond turtle within five miles of the project area (Caltrans, 2014l). The nearest of these was recorded approximately 1.5 miles east of the project area, in a reach of Alameda Creek upstream from the Alameda Creek Bridge. This

record includes two occurrences in the exact same area; one was a museum specimen collected in 1961, and the other was an adult male found near Alameda Creek in 2006. There is another occurrence recorded in 2007 approximately 2.3 miles southwest of the project area near the point where SR 237 crosses over Alameda Creek in Fremont. Within the project area, foraging and basking habitat is present in slower-moving reaches of Alameda Creek, though faster moving and heavily shaded reaches are not suitable for this species. Suitable nesting habitat is also present in the project area in south-facing areas where grasslands with hard-packed soils are adjacent to Alameda Creek. Therefore, the western pond turtle is considered to have a moderate potential to occur within the project area. No individuals were observed within the project area and no nesting behavior was observed during field surveys.

### **San Francisco dusky-footed woodrat (California species of special concern)**

The San Francisco dusky-footed woodrat is a California species of special concern and is locally common in undisturbed portions of habitat throughout its range. This subspecies occurs only in the southern half of the Bay Area (south of Golden Gate through the Santa Cruz Mountains to the Pajaro River and in the East Bay, south of the Suisun Bay along the western slope of the Diablo Range). As a unique subspecies, this designation was confirmed by genetic studies based on mitochondrial DNA (Caltrans, 2014I), although the range may extend slightly farther south along the inner coast range. Woodrats feed mostly on woody plants such as coast live oak, other oaks, big-leaf maple, coffeeberry (*Rhamnus crocea*), alder (*Alnus spp.*), elderberry (*Sambucus spp.*), toyon (*Heteromeles arbutifolia*), and poison oak (Johnston and Cezniak 2004). Woodrats are active mainly at night, when they venture out to collect food (Caltrans, 2014I).

A nocturnal lifestyle allows them to avoid high daytime temperatures and predators. They build large stick nests referred to as “houses” that are typically made of twigs and leaves at the base of a tree, within a set of large logs or tree branches, or in a shrub such as poison oak or toyon. Some houses are constructed off the ground in the lower branches of large trees, typically live or blue oak (*Quercus douglasii*). Houses are usually built under the canopy of trees and the abundance of houses may be limited by the availability of house-building materials (Caltrans, 2014I). Dusky-footed woodrats live in loosely-cooperative societies and have a matrilineal (mother-offspring associations; through the maternal line) social structure (Caltrans, 2014I). Females generally remain close to their birth den, while males disperse away from their birth den and are highly territorial and aggressive, especially during the breeding season. Woodrats have a maximum dispersal range of one mile (Caltrans, 2014I). The breeding season of dusky-footed woodrats can extend from February through November (Caltrans, 2014I).

Active woodrat houses are well distributed throughout the project area. Location data for woodrat houses was collected during a tree survey conducted by Garcia and Associates (GANDA) in May and June 2014. A total of 21 houses were located within the project area. These houses were constructed primarily at the base of large trees. In addition, there is a California Natural Diversity Database (CNDDB) occurrence approximately two miles east of the project area, where many houses and individuals were recorded along Alameda

Creek in 2006 (Caltrans, 2014l). Based on the presence of numerous woodrat houses, this species is considered to have a high potential to occur within the project area.

### **Roosting Bats**

Bats are widespread within California, and may be found in any habitat. They are nocturnal aerial predators of insects and other arthropods, and often forage over open water, marshes, and other moist, open areas where flying insects tend to congregate. Different bat species have different roosting requirements and roosts can be found in a variety of habitats and locations. Day roosts, used from sunrise to sunset, provide a protected and sheltered location for bats to rest and sleep within a short flight to foraging areas and a site to raise their young (Caltrans, 2014l). Day roosts are an important habitat feature, which are believed to be limited in the landscape, and heavily influence the local geographic distribution of bats (Caltrans, 2014l). During the day, bats may use three types of roosts: crevices, cavities, and foliage. Crevice and cavity roosts may be found in natural and human-made features such as caves, cliffs, rock outcrops, trees, mines, buildings, bridges, and tunnels. During the breeding season (April through September), crevice and cavity roosting species typically gather in groups of mothers and young (maternity colonies) that may number in the thousands or even tens of thousands of individuals. In contrast, foliage-roosting bats may be solitary or occur in small groups while breeding. Roosts used during the day and as maternity roosts tend to be well-hidden and require precise temperature and humidity conditions that favor the growth of the young.

Night roosts, which are used from approximately sunset to sunrise, are primarily sites where animals congregate to rest and digest their food between foraging bouts (Caltrans, 2014l). Bats often use separate roosts at night as temporary resting locations in between foraging bouts. Night roosts are often located in more open but protected areas such as overhangs on buildings and recessed areas on the undersides of bridges where warm air is trapped, and the concrete and steel thermo-regulate and retain heat better. Eight special-status bat species have potential to occur within the project area based on range, habitat, and recorded occurrences in the region. CNDDB occurrences are reported in the individual species descriptions below. Bats in general may be under-reported to the CNDDB relative to their actual abundance in the environment because they are nocturnal, difficult to detect, and difficult to positively identify and count when detected.

### **Pallid Bat (California species of special concern)**

The pallid bat is a California species of special concern. It is a medium-sized bat that occurs throughout much of the state. They may occur in a wide variety of grasslands, shrublands, and woodlands, though they are generally found in dry, open areas at lower elevations. They typically fly low while foraging for prey, which are caught on the ground or gleaned off of foliage. Prey species include beetles, orthopterans, homopterans, moths, spiders, scorpions, and solpugids (Caltrans, 2014l). The species is capable of taking heavy-bodied insects such as June beetles and Jerusalem crickets as well (Caltrans, 2014l). Pallid bats make day roosts within crevices and cavities in caves, rocky outcrops, crevasses, mines, tree hollows, bridges, and buildings. Night roosts are typically in more open areas such as under porches and open buildings. Pallid bats are particularly sensitive to disturbance from humans at roost sites (Caltrans, 2014l). There is one occurrence of pallid bat recorded



within five miles of the project area. It was recorded in 2001, but this occurrence is considered sensitive, and its specific locality is suppressed by the CNDDDB. It is located somewhere within the La Costa Valley quad, which includes the San Antonio Reservoir and Sunol Regional Park areas (Caltrans, 2014l).

At least 13 pallid bats were observed using the Alameda Creek Bridge for night roosting during the bat roosting habitat survey in July 2014, and the riparian corridor within the project area is suitable foraging habitat for this species. Suitable roosting habitat may also occur in trees within the project area. Based on their confirmed presence in the project area and the presence of suitable foraging habitat, pallid bats are considered to have a high potential to occur within the project area.

#### **Townsend's Big-eared Bat (California species of special concern)**

Townsend's big-eared bat is a California species of special concern. Townsend's big-eared bat is found throughout California except at high elevations. This species is dependent on cave-like roosting habitat and prefers to forage in native vegetation. Maternity colonies have been found in caves, mines, and buildings (Caltrans, 2014l), and they will hibernate during the winter in roosts which are cold, but not below freezing. This species feeds primarily on small moths, though beetles and other insects may be taken as well. They capture prey both in flight and by gleaning insects from foliage. This species is highly sensitive to disturbance at roost sites (Caltrans, 2014l). There is one occurrence of Townsend's big-eared bat within five miles of the project area. This occurrence was recorded in 1943 approximately 3.5 miles south of the project area, in the vicinity of Mission San Jose (Caltrans, 2014l).

Both of the abutments of the Alameda Creek Bridge contain semi-enclosed spaces with low ceilings that could be used by Townsend's big-eared bats for roosting. However, there is considerable evidence of human activity in this space, including graffiti and trash, which greatly reduces the probability that this space would be used for roosting due to the species' sensitivity to disturbance. For this reason, roosting habitat on the bridge is marginal for Townsend's big-eared bat. However, trees within the project area may have suitable habitat for this species, and suitable foraging habitat is present throughout the project area and the rest of Niles Canyon. Based on the presence of suitable roosting and foraging habitat, Townsend's big-eared bat is considered to have a moderate potential to occur within the project area. This species was not detected during the bat roosting habitat survey in July 2014.

#### **Western Red Bat (California species of special concern)**

The western red bat is a California species of special concern. It is widely distributed throughout California and known to occur in a variety of habitats, including forested canyons, riparian zones and arid areas where they primarily roost in trees and sometimes shrubs (Caltrans, 2014l). This non-colonial species roosts in foliage, under overhanging leaves. Western red bats are commonly associated with cottonwood/sycamore and willow riparian habitats (Pierson et al. 2006; Pierson and Rainey 2002). There are no recorded occurrences of western red bat in the CNDDDB within five miles of the project area (Caltrans, 2014l).

Western red bats may forage throughout the project area, and they may roost in trees within any of the vegetated habitats. Because this species roosts in foliage, they are not expected to roost on the bridge itself. Based on the presence of suitable foraging and tree roosting habitat, western red bats are considered to have a moderate potential to occur within the project area. This species was not detected during the bat roosting habitat survey in July 2014.

**Hoary Bat (CDFW special animal list)**

The hoary bat is included on CDFW's special animals list. It is a widespread species found in a variety of habitats throughout California. This solitary bat is most commonly found in association with forested habitats near water (Caltrans, 2014l). Roosting sites are generally in dense foliage of both coniferous and deciduous trees, at the ends of branches 10-40 feet above the ground, and with open flying space below (Caltrans, 2014l). Moths are the primary food source for hoary bats (Caltrans, 2014l). Females give birth to young in mid-May through early July. There are no recorded occurrences of hoary bat in the CNDDDB within five miles of the project area (Caltrans, 2014l).

Hoary bats may forage throughout the project area, and they may roost in trees within any of the vegetated habitats. Because this species roosts exclusively in foliage, they are not expected to roost on the bridge itself. Based on the presence of suitable foraging and roosting habitat, hoary bats are considered to have a moderate potential to occur within the project area. This species was not detected during the bat roosting habitat survey in July 2014.

**Long-eared Myotis (CDFW special animal list)**

The long-eared myotis is included on CDFW special animal list. It can be found throughout California except in the Central Valley and southern deserts. They may occur in all brush, woodland, and forest habitats, though coniferous woodlands and forests seem to be preferred. Roosts are made in buildings, crevices, under tree bark, and in snags. This species roosts singly or in small groups, with nursery colonies ranging from 12-30 individuals. Long-eared myotis prey on a variety of insects and other small arthropods, which are captured in the air, gleaned from foliage, or occasionally taken from the ground (Caltrans, 2014l). There are no recorded occurrences of long-eared myotis in the CNDDDB within five miles of the project area (Caltrans, 2014l).

Long-eared myotis may roost in crevices within the Alameda Creek Bridge, or in tree crevices or cavities throughout the project area. This species may also forage throughout the project area. Two acoustic detections that are attributed to either long-eared myotis or fringed myotis were recorded within the project area during the July 2014 survey. Based on the presence of suitable roosting and foraging habitat, and the possible acoustic detection of this species, long-eared myotis is considered to have a moderate potential to occur within the project area.

**Fringed Myotis (CDFW special animals list)**

The fringed myotis is included on CDFW's special animal list. It occurs throughout California except for the Central Valley and southern deserts. They may occur in a wide variety of habitats, although pinyon-juniper, valley foothill hardwood, and hardwood-conifer habitats are apparently preferred. Caves, mines, buildings, and crevices are all used for roosting, and maternity colonies can contain up to 200 individuals. Fringed myotis feed mostly on beetles, but other insects and arthropods are also taken. They feed over water, over open areas, and by gleaning from foliage (Caltrans, 2014l). There are no recorded occurrences of fringed myotis in the CNDDDB within five miles of the project area (Caltrans, 2014l).

Fringed myotis may roost in crevices within the Alameda Creek Bridge, or in tree crevices or cavities throughout the project area. This species may also forage throughout the project area. Two acoustic detections that are attributed to either long-eared myotis or fringed myotis were recorded within the project area during the July 2014 survey. Based on the presence of suitable roosting and foraging habitat, and the possible acoustic detection of this species, fringed myotis is considered to have a moderate potential to occur within the project area.

#### **Yuma Myotis (CDFW's special animals list)**

The Yuma myotis is included on CDFW's special animal list. It is a common species occurring throughout California except in the arid Mojave and Colorado Desert regions. They feed on a variety of small insects, and generally forage over water sources such as rivers, lakes, ponds, and stock tanks, most often in open woodland or forest areas. Roosting habitat includes crevices in caves, large trees, mines, buildings, tunnels, and bridges. During the April through September breeding season the females gather into maternity colonies that number in the hundreds to thousands of individuals. Night roosts may be located in more open areas (Caltrans, 2014l). There is one occurrence of Yuma myotis recorded within five miles of the project area. It was recorded in 2006 approximately 1.2 miles southeast of the project area, in a drainage in the hills just south of Niles Canyon (Caltrans, 2014l).

Three Yuma myotis maternity colony roost locations were found in expansion joints of the Alameda Creek Bridge during the bat roosting habitat survey in July 2014. Yuma myotis may also roost in trees within the project area. Suitable foraging habitat is present throughout the project area, especially where the creek pools and the water is slow-moving. Based on their confirmed presence in 2014, the Yuma myotis is considered to have a high potential to occur during the construction period.

#### **Migratory Birds**

Under the federal Migratory Bird Treaty Act (MBTA) and California FGC Sections 3503-3505, 3513, and 3800, migratory birds, their nests, and eggs are protected from disturbance or destruction. Removal or disturbance of active nests would be in violation of these regulations. All birds are protected under the MBTA and California FGC except for two non-native species, the European starling (*Sturnus vulgaris*) and the house sparrow (*Passer domesticus*).

Migratory bird species may nest in any of the habitat types within the project area except for paved road surfaces and riverine aquatic areas. Riparian woodlands are particularly attractive for nesting birds. Numerous species could also nest within oak woodlands, coastal scrub, and grassland areas. Even barren areas may be used by ground-nesting birds such as killdeer for nesting.

During the wildlife habitat assessment, several mud nests constructed by cliff swallows (*Petrochelidon pyrrhonota*) were observed on the northeast side of the Alameda Creek Bridge. Cliff swallows were observed flying into and out of some of these nests, indicating that they were active and likely contained eggs or chicks at the time of the survey. Cliff swallows nest colonially, and return to the same nesting areas year after year. Other common bird species that may nest on the bridge include but are not limited to black phoebe (*Sayornis nigricans*), northern rough-winged swallow (*Stelgidopteryx serripennis*), and house finch (*Carpodacus mexicanus*), all of which nest variously on ledges, in crevices, or on sheltered vertical surfaces.

In addition to common bird species, several special-status birds have at least some potential to nest and/or forage within the project area, including those listed below:

- Cooper's hawk (*Accipiter cooperii*), CDFW special animal
- White-tailed kite (*Elanus leucurus*), CDFW fully protected
- Yellow warbler (*Setophaga petechial*), California species of special concern
- Heron and Egret Rookeries, CDFW special animals
  - Great blue heron (*Ardea herodias*)
  - Great egret (*Ardea alba*)
  - Snowy egret (*Egretta thula*)
  - Black-crowned night heron (*Nycticorax nycticorax*)

There are three CNDDDB occurrences of nesting Cooper's hawks recorded within five miles of the project area. All three were recorded in 2006 in the hills just south of Niles Canyon, and the closest occurrence is approximately 0.5 mile south of the project area (Caltrans, 2014l). Cooper's hawks may nest in any of the tall trees in the oak woodland and riparian habitats within the project area, and may forage throughout the area. Based on the presence of suitable nesting and foraging habitat, Cooper's hawks are considered to have a moderate potential to occur within the project area.

There are no CNDDDB records of white-tailed kite nesting within five miles of the project area (Caltrans, 2014l). However, white-tailed kites are a common nesting and winter resident bird in the Bay Area. White-tailed kites may nest in trees throughout the project area. Although grasslands are present within the project area, they are of marginal quality for foraging due to their small size. White-tailed kites typically forage in more open areas, so the relatively small patches of open grassland within the project area are of marginal quality for foraging. Based on the presence of suitable nesting habitat and marginally suitable foraging habitat, white-tailed kites have a moderate potential to occur within the project area.

There are no occurrences of yellow warbler recorded in the CNDDDB within five miles of the project area (Caltrans, 2014l). However, riparian woodland along Alameda Creek

constitutes suitable nesting habitat for this species, and they may forage in trees and shrubs anywhere within the project area. Based on the presence of suitable nesting and foraging habitat, yellow warbler is considered to have a moderate potential to occur within the project area.

There are two occurrences of great blue heron rookeries within five miles of the project area recorded in the CNDDB. The first is located approximately two miles east of the project area near the east end of Niles Canyon, where two active nests were observed along Alameda Creek in 2002. The other is a record of nine nests observed in 1990 in the Quarry Lakes Regional Recreation Area in Fremont, approximately 3.2 miles southwest of the project area (Caltrans, 2014l). Another great blue heron rookery with an unknown number of nests has been documented near the Sunol Water Temple, three miles east of the project area (Caltrans, 2014l), and a large rookery used by over a hundred nesting pairs of black-crowned night herons, great egrets, and snowy egrets is located at Lake Elizabeth, approximately 3.5 miles to the south (Caltrans, 2014l).

Suitable nesting habitat for herons and egrets is present in tall trees throughout the project area and the rest of Niles Canyon. Suitable foraging habitat is present along the banks of Alameda Creek, and great blue herons, snowy egrets, and black-crowned night herons were all observed in or near the creek during field surveys conducted for this project. No heron or egret rookeries were observed during the wildlife habitat assessment, and there are no indications that any colonies have traditionally nested in this part of Niles Canyon. However, based on these species' ubiquity in the region and the presence of suitable nesting and foraging habitat, heron and egret rookeries are considered to have a moderate potential to occur within the project area.

### **2.3.4.3 Environmental Consequences**

#### *All Alternatives*

##### **River Lamprey and Pacific Lamprey**

Direct impacts to lamprey may result from construction work within riverine or wetland portions of the project area. Indirect impacts may result from habitat exclusion, and construction activities may include water quality degradation from erosion or sediment loading. The water quality impacts are unlikely, given the proposed avoidance and minimization measures and implementation of Caltrans water quality BMPs (Caltrans 2010b). Implementing the project would result in the removal of the existing bridge footings from the creek channel and the removal of invasive giant reed and pampas grass populations. This would beneficially impact Alameda Creek by allowing the stream to take on a more natural morphology and facilitating the development of linear in-stream wetlands along the banks.

##### **Western Pond Turtle**

Direct impacts to western pond turtle may result from relocation efforts and earth-moving activities in potential habitat. Indirect impacts may result from habitat exclusion, water quality degradation from erosion or sediment loading due to construction activities, and removal of potential basking habitat with the removal of the concrete weir. The water quality impacts are unlikely, given the proposed avoidance and minimization measures and

implementation of Caltrans water quality BMPs (Caltrans, 2010b). The removal of potential basking habitat would be minimal due to a substantial amount of alternative basking habitat available in the surrounding area. Implementing the project would result in the removal of the existing bridge footings from the creek channel and removal of invasive giant reed and pampas grass populations. This would benefit Alameda Creek by allowing the stream to take on a more natural morphology and facilitating the development of linear in-stream wetlands along the banks.

### **San Francisco Dusky-Footed Woodrat**

Riparian and oak woodland habitats within the project area provide habitat for woodrats. Nests located in permanent impact areas would have to be removed and/or relocated. If any nests are located in the zone of temporary impact, they may not need to be removed depending on the type of project activities that would occur, but construction could disturb the woodrats enough to cause nest abandonment. The numbers of houses that are located within the temporary and permanent impact areas are summarized in Table 31.

**Table 31. Permanent and Temporary Impacts to San Francisco Dusky-Footed Woodrat Houses by Alternative**

Alternative	Permanent Impact (# of Houses)	Temporary Impact (# of Houses)	Total Impact (# of Houses)
1	6	6	12
2	6	5	11
3A	7	4	11
3B	5	3	8

### **Roosting Bats**

Project related construction work within riparian woodland habitats is likely to have temporary and permanent impacts on roosting bats. Ground disturbing activities and the operation of equipment near known roost sites under the current Alameda Creek Bridge have the potential to harass individual bats. Harassment of these individuals may result in the temporary avoidance of roost sites during project activities, including the Yuma myotis maternity roost. Removal of the existing Alameda Creek Bridge would permanently remove a known day and night roost site for several species of bats, including the Yuma myotis maternity roost. In addition to demolishing the bridge, implementing the project would result in the removal of the existing bridge footings from the creek channel, removal of the upstream concrete weir and removal of invasive giant reed and pampas grass populations. This would benefit Alameda Creek and bat foraging habitat by allowing the stream to take on a more natural morphology and facilitating the development of linear in-stream wetlands along the banks.



### **Migratory Birds**

The proposed project could result in temporary loss or disturbance of habitats that are used by nesting migratory birds. During project-related construction, common migratory birds may be temporarily displaced by habitat alteration or noise from construction equipment. The proposed project would remove or disturb a small amount of unoccupied habitat used by nesting or foraging migratory birds. This impact would be temporary in nature and limited to a relatively small area in relationship to the extensive nesting and foraging habitat adjacent to the project area. Unlike bats, which use the Alameda Creek Bridge as permanent habitat, migratory birds usually use the bridge for construction of their nests and typically do not use the bridge for other purposes. The loss of nesting habitat for migratory birds on the current Alameda Creek Bridge would be replaced through the creation of potential new nesting substrate on the new Alameda Creek Bridge.

#### *No-Build Alternative*

The No-Build Alternative would have no impact to special status and locally rare species as the existing bridge would remain in place and no habitat would be affected.

#### **2.3.4.4 Avoidance, Minimization, and/or Mitigation Measures**

In addition to the measures listed below, the avoidance and minimization measures identified in Section 2.2.2.4 (WATER-1-4) also apply as measures to reduce impacts to animal species.

LAMPREY-1. Impacts to pacific lamprey would be reduced through the implementation of the following measures: NATURAL COMMUNITIES-1, NATURAL COMMUNITIES-2, NATURAL COMMUNITIES-5, NATURAL COMMUNITIES-6, THREATENED & ENDANGERED-SPECIES-3, THREATENED & ENDANGERED SPECIES-5, and WATER-6.

WESTERN POND TURTLE-1. Impacts to western pond turtle would be reduced through the implementation of the following measures: NATURAL COMMUNITIES-1, NATURAL COMMUNITIES-2, NATURAL COMMUNITIES-5, NATURAL COMMUNITIES-6, THREATENED & ENDANGERED-SPECIES-3, THREATENED & ENDANGERED SPECIES-5, and WATER-6.

WOODRAT-1. Caltrans proposes a woodrat relocation plan which involves the trapping of dusky-footed woodrats at woodrat houses that would be impacted and the construction of new houses within Caltrans right-of-way. These houses would be located outside the project footprint, but as close to the existing woodrat houses as possible. Any associated individuals would be trapped and relocated concurrently. If it is determined during the pre-construction survey that a dusky-footed woodrat house within 30 feet of project activities would not be disturbed, then that house would remain in its existing location and Environmentally Sensitive Area fencing would be installed between the house and the project footprint to ensure complete avoidance. These baseline conditions of the woodrat relocation plan would undergo review with CDFW as Caltrans would be requesting a Memorandum of Understanding (MOU) on the woodrat relocation plan.

BATS-1. No more than two weeks prior to tree removal, a qualified biologist will conduct a pre-construction survey for crevice and cavity roosting habitat in trees within the project area that are 12 inches or greater in diameter at breast height. If active roosting habitat is identified, minimization measures will be identified through coordination with CDFW.

BATS-2. A roosting bat exclusion plan will be implemented during the non-breeding season. The bat exclusion plan would describe installation of a physical barrier, which may include plywood, plastic tarps, canvas tarps, and filling foam, and would address how one-way exclusion devices would be used to allow bats to safely exit the current bridge prior to its removal. This physical barrier would prevent bats from re-entering their roost and induce them to find alternate roost habitat. Exclusion of bats would only occur between October and March to avoid the reproductive season. Specific day and night bat roost avoidance and minimization measures would be further developed through technical assistance with CDFW and bat specialists.

BATS-3. To compensate for the loss of day and night roosting habitat from the removal of the existing bridge, Caltrans would incorporate daytime crevice roosts and recessed night roosts constructed out of concrete into the underside of the new bridge structure. Bridge elements and configurations that support night and day roosting would be installed where feasible in the new Alameda Creek Bridge. Bridge replacements should consider use of a similar bridge design when the roost is large, unique or supports a rare species. Critical issues include access, ventilation, and protection. Crevice roosts should be replaced with crevices of similar area and cavities should be replaced with cavities of similar parameters. If this is not possible due to engineering requirements, e.g., safety, replacement habitat may be considered. Supplemental habitat may also be considered when exclusion will occur for more than one season.

BIRDS-1. Work Window for Nesting Birds. To the extent practicable, clearing and grubbing activities will be conducted during the non-nesting season, from September 1 to February 14. If clearing and grubbing activities cannot be conducted from September 1 to February 14, preconstruction surveys will be conducted, as identified in measure BIRDS-2.

BIRDS-2. Pre-construction Surveys for Nesting Birds. Pre-construction surveys for nesting birds will be conducted by a qualified biologist no more than 72 hours prior to the start of construction for activities occurring during the breeding season (February 15 to August 31).

BIRDS-3. Non-Disturbance Buffer for Nesting Birds. If work is to occur within 300 feet of active raptor nests or 50 feet of active passerine nests, a non-disturbance buffer will be established 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.

BIRDS-4. A bird exclusion plan would be implemented during the non-breeding season. The bird exclusion plan would describe installation of a physical barrier, which may include plywood, plastic tarps, canvas tarps, or filling foam. Other abatement strategies

include plugging weep holes or blocking man-made nesting habitat with bird deterrent devices. In addition, as part of the bird exclusion plan, bird nests under construction would be removed prior to egg laying. The bird exclusion plan would be developed by the project contractor and approved by Caltrans prior to the demolition of the existing Alameda Creek Bridge.

### **2.3.5 Threatened and Endangered Species**

#### **2.3.5.1 Regulatory Setting**

The primary federal law protecting threatened and endangered species is the Federal Endangered Species Act (FESA): 16 United States Code (USC) Section 1531, et seq. See also 50 CFR Part 402. This act and later amendments provide for the conservation of endangered and threatened species and the ecosystems upon which they depend. Under Section 7 of this act, federal agencies, such as the FHWA, are required to consult with the USFWS and the NMFS to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat. Critical habitat is defined as geographic locations critical to the existence of a threatened or endangered species. The outcome of consultation under Section 7 may include a Biological Opinion with an Incidental Take statement, a Letter of Concurrence and/or documentation of a No Effect finding. Section 3 of FESA defines take as “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect or any attempt at such conduct.”

California has enacted a similar law at the state level, CESA, California FGC Section 2050, et seq. CESA emphasizes early consultation to avoid potential impacts to rare, endangered, and threatened species and to develop appropriate planning to offset project-caused losses of listed species populations and their essential habitats. The CDFW is the agency responsible for implementing CESA. Section 2081 of the FGC prohibits “take” of any species determined to be an endangered species or a threatened species. Take is defined in Section 86 of the FGC as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.” CESA allows for take incidental to otherwise lawful development projects; for these actions an incidental take permit is issued by the CDFW. For species listed under both FESA and CESA requiring a Biological Opinion under Section 7 of the FESA, the CDFW may also authorize impacts to CESA species by issuing a Consistency Determination under Section 2080.1 of the FGC.

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

### 2.3.5.2 Affected Environment

The following analysis is based on the Natural Environment Study prepared for the Alameda Creek Bridge Replacement Project (Caltrans, 2014l), the Addendum to the Natural Environment Study (Caltrans, 2015e), the Second Addendum to the Natural Environment Study (Caltrans, 2016f), and the Biological Opinion with USFWS (Appendix J). The Natural Environment Study was completed on October 22, 2014, the Addendum to the Natural Environment Study was completed on February 27, 2015, and the Second Addendum to the Natural Environment Study was completed on February 9, 2016. Three federally threatened and endangered species, the California red-legged frog, the Alameda whipsnake, and steelhead – California Central Coast DPS are located within the project limits and are discussed in further detail below.

#### California Red-legged Frog

The California red-legged frog (CRLF) was federally listed as a threatened species on May 23, 1996 (Caltrans, 2014l). Revised critical habitat for this species was designated by USFWS on March 17, 2010 (Caltrans, 2014l). It is also a California species of special concern.

The project study limits are within the historic and current range of CRLF (Caltrans, 2014l). The proposed project is also within the boundary of the South and East San Francisco Bay Recovery Unit, based on the core area maps provided in the California Red-legged Frog Recovery Plan (Caltrans, 2014l). The proposed project is located outside of CRLF critical habitat. A review of the CNDDDB (Caltrans, 2014l) indicated that a total of nine CNDDDB occurrences of CRLF have been reported within a five-mile radius of the project study limits, the closest of which is approximately one mile from the project. Occurrences within two miles of the project study limits, which is the maximum dispersal distance of CRLF recognized by the USFWS (Caltrans, 2014l), include:

- CNDDDB occurrences 568 and 569 (2000) – One juvenile was collected in a stock pond in grazed grassland at Vargas Ranch, approximately 1 mile south of the project area (occurrence 569), and one larvae was collected in a stock pond also on Vargas Ranch, approximately 1.5 miles southeast of the project area (occurrence 568), both in May 2000.
- CNDDDB occurrence 581 (2000) – Two larvae were observed and collected in a stock pond in grazed grassland, 1.3 miles north-northeast of the intersection of Morrison Canyon Road and Vargas Road, approximately 1 mile southeast of the project area, in June 2000.

No protocol-level surveys for CRLF were conducted within the project study limits, and no CRLFs were observed during the technical field studies related to the development of this document. There is potential aquatic and dispersal CRLF habitat within the project area. The fresh emergent wetland, riverine, and valley foothill riparian communities provide suitable aquatic and riparian habitat for the species. The fresh emergent wetland and valley foothill riparian communities likely provide the dense riparian vegetation that CRLF use for cover. The riverine habitat throughout the project area, which has an average depth of two to four feet in summer months, also contains overhanging vegetation and

islands of fresh emergent wetlands within the middle of the active channel which contribute to the suitability of the habitat as aquatic habitat for CRLF.

The riverine habitat of Alameda Creek and associated fresh emergent wetlands within the project area do not provide suitable breeding habitat for CRLF. During the CRLF breeding season (November through April) Alameda Creek can experience flood events with high velocity flows that prevent successful breeding. Areas affected by such flows include the slow moving pools and wetland margins within the project area. Alameda Creek is known to support predatory, non-native fish that prey on CRLF tadpoles or eggs.

Because the project area does not contain suitable breeding habitat it is unlikely to support a high density of CRLF. However, CRLF may be present in low numbers during periods of movement, particularly when using upland communities adjacent to these aquatic habitats, including California annual grassland, coastal oak woodland, and coastal scrub. The Alameda Creek corridor and its tributaries likely provide dispersal and refuge habitat for CRLF.

Given the proximity of recent CNDDDB records to the project area connected by the relatively undisturbed riparian corridor of Alameda Creek, and the suitable aquatic and dispersal habitat within the project area, the species has the potential to occur within the project area. As a result, Caltrans has inferred that CRLF are present, and may use the project area as dispersal and foraging habitat.

### **Alameda Whipsnake**

The Alameda whipsnake (AWS) is listed as threatened under both the FESA and CESA. It was federally listed in 1997 (Caltrans, 2014l), and state listed in 1971. The range of this species is primarily restricted to the inner Coast Range in western and central Contra Costa and Alameda Counties, though there are also records in San Joaquin and Santa Clara Counties (Caltrans, 2014l). AWS are 30 to 60 inches long, with dark brown or black on the back and wide orange stripes down the sides. The underside is also orange, becoming pink toward the tail (Caltrans, 2014l).

There are 31 recorded occurrences of AWS within the nine-quad CNDDDB search area around the project area. Due to the sensitivity of the species, the specific localities of AWS occurrences are suppressed in CNDDDB, and only the quad in which each occurrence is located is mapped. During trapping surveys for the Caltrans Tyler Ranch Project, 12 individual AWS were captured and released between May 8 and May 29, 2012. This trapping was conducted approximately two miles east of the project area. Caltrans reported these AWS occurrences to the CNDDDB, but this data has not yet been entered into the public database. Critical habitat was designated for AWS in 2006 (Caltrans, 2014l), and 3.55 acres of critical habitat (Critical Habitat Unit 3 – Hayward Pleasanton Ridge) occur within the project area. The total area of Recovery Unit 3 is approximately 25,965 acres.

When designating critical habitat, USFWS is required to list the known primary constituent elements (PCE), which are habitat components essential to the conservation of the species

and which may require special management considerations and protection (50 CFR §424.12). The PCEs for the AWS include the following:

- PCE 1 – Scrub/shrub communities with a mosaic of open and closed canopy
- PCE 2 – Woodland and annual grassland plant communities contiguous to lands containing PCE 1
- PCE 3 – Lands containing rock outcrops, talus, and small mammal burrows within or adjacent to PCE 1 and or PCE 2

All areas finalized as critical habitat for the AWS are considered occupied, within the subspecies' historic geographic range, and contain sufficient PCEs to support at least one life history function, as defined in the published final rule designating critical habitat on October 2, 2006 (71 CFR 58191).

No protocol-level surveys for AWS were conducted in the project area, and no AWS were observed during the technical field studies related to the development of this document. The wildlife habitat assessment determined that suitable AWS habitat exists within the project area. The upland communities, including coastal scrub, coastal oak woodland, valley foothill riparian, and California annual grassland, provide suitable dispersal, foraging, and limited breeding habitat for the species. All of these communities likely provide suitable refuge areas, including limited small mammal burrows and rock outcrops, which the AWS may use during overland movements from March through November. The communities also likely support a western fence lizard population that could serve as a prey base for the AWS. Although the species is unlikely to use the riverine and fresh emergent wetland communities for reproduction or foraging, Alameda Creek has been noted as a movement corridor connecting populations on either side of the Ala-680 freeway (Caltrans, 2014l). AWS may access Alameda Creek and travel along the east-west stream corridor of Alameda Creek from areas immediately outside of the project area.

Given the proximity of CNDDDB records, the suitable habitat within the project area, and the project occurring within Critical Habitat Unit 3, Caltrans has inferred presence of AWS. Caltrans suspects that AWS largely are using the project area for dispersal and foraging. There is a very low potential for areas within the project area to be used as breeding habitat.

### **Steelhead – Central California Coast Distinct Population Segment (DPS)**

The Central California Coast Distinct Population Segment (DPS) of steelhead (*Oncorhynchus mykiss irideus*) is a federally listed threatened species. Their range is defined by the NMFS as all naturally spawned populations from the Russian River south to Aptos Creek in Santa Cruz County, including drainages of San Francisco, San Pablo, and Suisun Bays eastward to Chipps Island at the confluence of the Sacramento and San Joaquin Rivers. Steelhead employ a variety of life history strategies that take advantage of the diversity of river systems and regional conditions to which they are adapted.

Currently, fish passage between Alameda Creek and San Francisco Bay is blocked within the City of Fremont by a concrete grade control structure operated by the ACFCF. This inoperable, static structure, located approximately 3.75 miles downstream from the



Alameda Creek Bridge, is commonly referred to as “the BART weir” because of its proximity to the BART system tracks. Steelhead are known to occur within the Alameda Creek watershed (Caltrans, 2014l). Because these fish are prevented from entering the watershed by the BART weir, they are not currently considered to be anadromous Central California Coast DPS steelhead and do not receive protection under the FESA. Instead, they are considered to be landlocked rainbow trout. ACWD is scheduled to install a fish ladder that will circumvent this structure in 2019 (ACWD, 2014a). If that occurs, fish passage between San Francisco Bay and the Alameda Creek watershed would be restored, and steelhead within Alameda Creek will be included by NMFS as part of the federally threatened Central California Coast steelhead DPS.

Downstream of the project area, Alameda Creek has been extensively modified for flood control and groundwater recharge. Upstream of the project area, the creek has been modified by quarry activity and reservoir construction (Caltrans, 2014l). The SFPUC also regulates flow in Alameda Creek for flood protection and water management, which typically moderates flows during rain events (Caltrans, 2014l). These actions may influence the suitability of habitat for various life stages of steelhead.

In a genetic study conducted by Nielsen in 2002, rainbow trout within Alameda Creek were found to be most closely related to naturally-occurring steelhead spawning in Lagunitas Creek, Marin County, which is part of the federally threatened Central California Coast steelhead DPS. Rainbow trout in Arroyo Mocho, a stream which runs through urbanized areas of the Livermore Valley in the northern part of the Alameda Creek watershed, were found to be genetically distinct from other trout in the watershed. These fish are more closely related to stock from the Mount Whitney Hatchery in Inyo County, though it is unknown if this genetic association is due to historic undocumented stocking activities in Arroyo Mocho, or if the fish in Arroyo Mocho are a natural resident population from which the Mount Whitney Hatchery stock was originally derived (Caltrans, 2014l). Both the Alameda Creek population and the Arroyo Mocho population would move through the project area to access San Francisco Bay and further oceanic waters in the event that passage is restored at the BART weir. Currently, fish passage between Alameda Creek and San Francisco Bay is blocked within the City of Fremont by a concrete grade control structure operated by the ACFCF. This inoperable, static structure, located approximately 3.75 miles downstream from the Alameda Creek Bridge, is commonly referred to as “the BART weir” because of its proximity to the BART system tracks.

A fish habitat assessment conducted by URS in 2011 (Caltrans, 2014l) found that no suitable steelhead spawning habitat was present within the project area downstream of the concrete weir, and that spawning habitat upstream was marginal due to the presence of fine sediments that could inhibit the necessary flow of oxygenated water to eggs. Rearing habitat for juveniles is present throughout the riverine habitat in the project area, provided that summer water temperatures remain relatively low.

This assessment also concluded that the potential for steelhead to occur in the project area was largely affected by downstream barriers. As mentioned earlier, the BART weir functions as a complete barrier to fish passage. In addition, several other structures

downstream of the project area act as barriers during moderate to low-flow conditions. The middle and upper inflatable dams (located between the BART weir and where Alameda Creek crosses Mission Boulevard) are 13 feet high when inflated, and act as fish barriers during these periods (Caltrans, 2014l). Similar to the BART weir, other public agencies are planning the installation of fish ladders at both locations to allow for fish passage, and to connect steelhead in Alameda Creek to San Francisco Bay. A USGS gauging station, located approximately one mile upstream of the Mission Boulevard crossing, can act as a potential barrier during moderate to low-flow conditions in Alameda Creek (Caltrans, 2014l). The concrete weir located just upstream of the project area is likely to be a partial passage barrier to fish in Alameda Creek, particularly in low-flow conditions. At low-flow conditions, the weir's height above water prevents juvenile fish from physically moving upstream. As flows increase and water levels rise, fish are able to pass the barrier. The installation of the fish passage features downstream and at the BART weir will restore fish passage to this section of the Alameda Creek. However, other features upstream of the project area would prevent connectivity of the entire Alameda Creek Watershed to the San Francisco Bay. Per preliminary discussion and consultation with the USACE, RWQCB, CDFW, and NMFS, the removal of these bridge footings would address anticipated compensatory mitigation requirements for project impacts under the federal Endangered Species Act (ESA) consultation and the following permits: 1602 Streambed Alteration Agreement and Clean Water Act (CWA) Section 404 and 401 permits.

### 2.3.5.3 Environmental Consequences

Appendix I includes an Effect Table for species with the potential to occur in the project limits. Appendix J includes the Biological Opinion number 08ESMF00-2015-F-0073-2, obtained from the USFWS on May 4, 2017 for this project

Caltrans has determined that all Alternatives would have “no effect” to the following federally-listed species:

- Large-flowered fiddleneck (*Amsinckia grandiflora*)
- Pallid manzanita (*Arctostaphylos pallida*)
- Palmate-bracted bird's beak (*Chloropyron palmatum*)
- Robust spineflower (*Chorizanthe robusta* var. *robusta*)
- Presidio clarkia (*Clarkia franciscana*)
- Santa Cruz tarplant (*Holocarpha macradenia*)
- Contra Costa goldfields (*Lasthenia conjugens*)
- Beach layia (*Layia carnosa*)
- California seablite (*Suaeda californica*)
- Conservancy fairy shrimp (*Branchinecta conservatio*)
- Longhorn fairy shrimp (*Branchinecta longiantenna*)
- Vernal pool fairy shrimp (*Branchinecta lynchi*)
- San Bruno elfin butterfly (*Callophrys mossii bayensis*)
- Bay checkerspot butterfly (*Euphydryas editha bayensis*)
- Vernal pool tadpole shrimp (*Lepidurus packardi*)
- Green sturgeon – southern DPS (*Acipenser medirostris*)
- Delta smelt (*Hypomesus transpacificus*)

- Coho salmon – central California coast ESU (*Oncorhynchus kisutch*)
- Steelhead- Central California Coast Distinct Population Segment (DPS) (*Oncorhynchus mykiss irideus*)
- Steelhead –Central Valley DPS (*Oncorhynchus mykiss irideus*)
- Chinook salmon – Central Valley spring-run ESU (*Oncorhynchus tshawytscha*)
- Chinook salmon – Sacramento River winter-run ESU (*Oncorhynchus tshawytscha*)
- California tiger salamander (*Ambystoma californiense*)
- Giant garter snake (*Thamnophis gigas*)
- Western snowy plover (*Charadrius alexandrinus nivosus*)
- Yellow-billed cuckoo (*Coccyzus americanus*)
- California clapper rail (*Rallus longirostris obsoletus*)
- California least tern (*Sternula antillarum browni*)
- Salt-marsh harvest mouse (*Reithrodontomys raviventris*)
- San Joaquin kit fox (*Vulpes macrotis mutica*)

### **California Red-legged Frog**

#### *All Alternatives*

The Niles Canyon corridor runs through a large tract of relatively undisturbed habitat within Alameda County. The hillsides surrounding this corridor include stock ponds, seasonal depression, and tributaries to Alameda Creek that support populations of CRLF. There are known CNDDDB occurrences within the surrounding hillsides and CRLF are known to use localities within two miles of suitable breeding habitat. Given the proximity of the CNDDDB occurrences and the presence of vegetated habitat, the project area has the potential to be used by CRLF. The species may also disperse through ruderal and barren areas, although it is less likely due to the lack of cover and suitable habitat.

As a result, direct effects to habitat for CRLF could occur. Habitat effects to CRLF are summarized in Table 32. The barren road shoulder areas within the project area were not included in this calculation because these areas do not provide habitat for the species. Additionally, the barren road shoulder areas would remain barren, or would be revegetated maintaining the current dispersal characteristics for the species. Caltrans does not anticipate any effects to breeding habitat as there is no suitable CRLF breeding habitat within the project area.

Direct effects to individual CRLF may occur throughout the project area as a result of construction activities, including site preparation, use of heavy equipment, placement of new permanent structures and the placement of temporary and permanent fills within dispersal and foraging habitat. Activities during construction could result in injury or death to the species in the construction area during these activities. All efforts to minimize direct effects would be made with the implementation of avoidance and minimization measures. Due to the cryptic nature of the species, there is a low potential for direct mortality of individuals due to excavation and grading activities with heavy equipment. Indirect impacts may result from habitat exclusion, and construction activities could include water quality degradation from erosion or sediment loading. The water quality impacts are unlikely, given the proposed avoidance and minimization measures and Caltrans BMPs.

**Table 32. Summary of Impacts to California red-legged frog habitat by Alternative**

Land Cover	Temporary Impacts (Acres)				Prolonged Temporary Impacts (Acres)	Permanent Impacts (Acres)				Total Impacts (Acres)			
	1	2	3A	3B		1	2	3A	3B	1	2	3A	3B
Alternative	1	2	3A	3B	3B	1	2	3A	3B	1	2	3A	3B
Annual Grassland	0.446	0.362	0.390	0.161	0.292	0.416	0.494	0.504	0.364	0.862	0.856	0.894	0.817
Coastal Oak Woodland	0.849	0.873	0.843	0.000	0.555	0.729	0.462	0.739	0.625	1.578	1.335	1.582	1.180
Valley Foothill Riparian	1.794	1.707	2.001	0.000	1.566	0.782	0.680	0.818	0.314	2.576	2.387	2.819	1.880
Fresh Emergent Wetland	0.324	0.333	0.333	0.332	0.000	0.002	0.001	0.001	0.001	0.326	0.334	0.334	0.333
Coastal Scrub	0.335	0.428	0.377	0.000	0.385	0.613	0.265	0.409	0.359	0.948	0.693	0.786	0.744
Riverine	0.24	0.256	0.261	0.260	0.000	0.000	0.000	0.000	0.000	0.24	0.256	0.261	0.260
Total	3.988	3.959	4.205	0.753	2.798	2.542	1.902	2.471	1.663	6.676	5.861	6.631	5.214

The proposed compensation impact ratios for California red-legged frog and Alameda whipsnake have been updated to reflect the Biological Opinion (BO) number 08ESMF00-2015-F-0073-2, obtained from the USFWS on May 4, 2017 for this project. The BO covers impacts associated with preferred Alternative 3B, and divides the impacts up into three categories: temporary, prolonged temporary, and permanent. The prolonged temporary category was defined as an area that was either subjected to multiple years of disturbance or would take over a year to restore to baseline conditions present prior to construction.

Work in Alameda Creek would be conducted during the dry season (June 1 – October 15), when adult CRLF are not expected to be dispersing through the project area. Long-term impacts on CRLF habitat are expected to be beneficial as the Alameda Creek Bridge Replacement Project would remove the existing bridge (including in-stream columns) and remove invasive giant reed and pampas grass populations within the project area. This would allow the stream to take on a more natural morphology and facilitate the development of linear in-stream wetlands along the banks. Caltrans does not anticipate the project would increase barriers to wildlife movement or cause increased roadside mortality.

**Caltrans concludes that all project Alternatives may affect and are likely to adversely affect the California red-legged frog.**

#### *No-Build Alternative*

The No-Build Alternative would not impact CRLF habitat or individual CRLF.

#### **Alameda Whipsnake**

##### *All Alternatives*

The Niles Canyon corridor in the project vicinity intersects a large tract of relatively undisturbed habitat within Alameda County that contains suitable AWS habitat and is known to support AWS. All vegetated upland communities within the project area have the potential to be used by AWS because AWS is a highly mobile species and uses a wide variety of habitats adjacent to scrub habitat. The species may disperse through the barren

areas, although it is less likely due to the lack of cover and suitable habitat. Temporary and permanent impacts to AWS habitat are anticipated within the project area. These impacts are summarized in Table 33. The barren road shoulder areas within the project area were not included in this calculation because these areas do not provide habitat for the species.

Direct effects to individual AWS may occur throughout the project area as a result of construction activities, including site preparation, use of heavy equipment, placement of new permanent structures and the placement of temporary and permanent fills within dispersal and foraging habitat. Activities during construction could result in injury or death in the construction area. There is a low potential for direct mortality of individuals, due to excavation and grading activities with heavy equipment. Although this is not anticipated, it is possible due to the cryptic nature of the species. Indirect impacts may result from temporary habitat exclusion and degradation, during periods of construction activities.

**Table 33. Summary of Impacts to Alameda whipsnake by Alternative**

Land Cover	Temporary Impacts (Acres)				Prolonged Temporary Impact (Acres)	Permanent Impacts (Acres)				Total Impacts (Acres)			
	1	2	3A	3B	3B	1	2	3A	3B	1	2	3A	3B
Alternative													
Annual Grassland	0.446	0.362	0.390	0.161	0.292	0.416	0.494	0.504	0.364	0.863	0.856	0.894	0.817
Coastal Oak Woodland	0.849	0.873	0.843	0.000	0.555	0.729	0.462	0.739	0.625	1.578	1.335	1.582	1.180
Valley Foothill Riparian	1.794	1.707	2.001	0.000	1.566	0.782	0.680	0.818	0.314	2.576	2.387	2.819	1.880
Coastal Scrub	0.335	0.428	0.377	0.000	0.385	0.613	0.265	0.409	0.359	0.948	0.693	0.786	0.744
Total	3.424	3.370	3.611	0.161	2.798	2.540	1.901	2.470	1.662	5.964	5.271	6.081	4.621

The proposed compensation impact ratios for California red-legged frog and Alameda whipsnake have been updated to reflect the Biological Opinion (BO) number 08ESMF00-2015-F-0073-2, obtained from the USFWS on May 4, 2017 for this project. The BO divides the impacts up into three categories: temporary, prolonged temporary, and permanent. The prolonged temporary category was defined as an area that was either subjected to multiple years of disturbance or would take over a year to restore to baseline conditions present prior to construction.

Impacts to critical habitat must not adversely modify the critical habitat to the point that it can no longer aid in the species recovery. Within the project area, temporary impacts and permanent impacts are anticipated to AWS critical habitat from the proposed project (Table 34). Under Alternative 1 (the alternative with the greatest impacts), the total project related impacts to critical habitat is approximately two acres, which is less than one hundredth of a percent of the total area (~26,000 acres) of Critical Habitat Unit 3. The very small portion of critical habitat within the project area represents the very southern edge of the critical habitat unit. The project would not create any additional fragmentation of habitat or

fragmentation of the Critical Habitat Unit. The scrub habitat within the project area is low quality due to the large amount of non-native plants.

**Table 34. Summary of Impacts to AWS Critical Habitat Unit 3 by Alternative**

<b>Alternative</b>	<b>Temporary Impacts (Acres)</b>	<b>Permanent Impacts (Acres)</b>	<b>Total Impacts (Acres)</b>
1	0.842	1.168	2.010
2	0.767	0.385	1.152
3A	0.838	0.610	1.447
3B	0.833	0.605	1.439

**Caltrans concludes that all project Alternatives may affect and are likely to adversely affect the Alameda whipsnake.**

*No-Build Alternative*

The No-Build Alternative would not impact Alameda whipsnake habitat or any Alameda whipsnake Critical Habitat Unit 3.

**Steelhead- Central California Coast Distinct Population Segment (DPS)**

*All Alternatives*

Direct effects to protected steelhead are not anticipated from the proposed project. Indirect impacts may result from habitat exclusion, and construction activities could include water quality degradation from erosion or sediment loading. The water quality impacts are unlikely, given the proposed avoidance and minimization measures and Caltrans BMPs. In addition to the main creek channel, riparian vegetation adjacent to the creek improves steelhead habitat by providing cover in the form of woody debris, bank stability, and input of food sources. Temporary impacts to habitat in the project area for protected steelhead may result from installation of water diversion structures, placement of falsework, new bridge construction, and removal of the original bridge structure within the dry working environment. Riparian vegetation adjacent to the main creek channel also would be affected by the proposed project. Streamside trees and other vegetation would be removed for access. Removal of this vegetation would occur for geotechnical analysis, installation of the new bridge structure, new bridge approaches, and the creation of retaining and soil-nail walls. Table 35 summarizes project effects to steelhead habitat by alternative.

Permanent effects to the riverine habitat are anticipated through the installation of new bridge columns. The new pier footprint would be smaller than the existing pier walls in the stream channel resulting in a reduction of hard structure in Alameda Creek. There are potential shade changes that could occur within the project area at Alameda Creek due to vegetation removal and changes to the bridge deck. However, there would be continuity of shade provided in Alameda Creek as the construction of the new Alameda Creek Bridge would occur prior to the demolition of the existing bridge. Efforts to further minimize direct effects to individual steelhead during construction activities would occur with the



implementation of project avoidance and minimization measures. Overall, potential long-term impacts on steelhead habitat associated with the replacement of Alameda Creek Bridge are expected to be beneficial. Implementing the Alameda Creek Bridge Replacement Project would result in the removal of the existing bridge footings from the creek channel and the removal of invasive giant reed and pampas grass populations. The reduction of hard structure in Alameda Creek would allow the stream to take on a more natural morphology and remove a low-flow passage barrier to steelhead.

**Table 35. Permanent and Temporary Effects to Steelhead habitat by Alternative**

Land Cover	Temporary Impacts (Acres)				Permanent Impacts (Acres)				Total Impacts (Acres)			
	1	2	3A	3B	1	2	3A	3B	1	2	3A	3B
Fresh emergent wetland	0.324	0.333	0.333	0.332	0.002	0.001	0.001	0.001	0.326	0.334	0.334	0.333
Riverine	0.240	0.256	0.261	0.260	0.000	0.000	0.000	0.000	0.240	0.256	0.261	0.260
Valley Foothill Riparian	1.794	1.707	2.001	1.566	0.782	0.680	0.818	0.314	2.576	2.387	2.819	1.880
Total	2.358	2.296	2.595	2.158	0.784	0.681	0.819	0.315	3.142	2.977	3.414	2.473

**Caltrans concludes that all project Alternatives would have no effect<sup>34</sup> on steelhead.**

#### *No-Build Alternative*

The No-Build Alternative would not change the existing conditions of the project vicinity. The weir would remain in the creek and continue to pose as a barrier to fish passage.

#### **2.3.5.4 Avoidance, Minimization, and/or Mitigation Measures**

In addition to the measures listed below, the avoidance and minimization measures identified in Section 2.1.4.4 (VISUAL-6-7), Section 2.2.2.4 (WATER-1-4), and also apply as measures to reduce impacts to Threatened and Endangered Species.

CRLF-1. Caltrans would provide compensation for impacts to CRLF through on-site restoration of temporarily impacted areas (at a 1:1 ratio), and compensation for prolonged temporarily (at a 1:5:1 ratio) and permanently impacted areas (at a 3:1 ratio) through a combination of off-site habitat preservation and on-site restoration and enhancement activities<sup>35</sup>. Proposed compensation by Alternative is shown in Table 36. On-site restoration and enhancement activities would consist of the restoration of disturbed areas

<sup>34</sup> Fish passage between Alameda Creek and San Francisco Bay is blocked within the City of Fremont as of July 2017, by a concrete grade control structure. As a result, these fish are not currently considered to be anadromous Central California Coast DPS steelhead and do not receive protection under the FESA. ACWD is scheduled to install a fish ladder that will circumvent this structure in 2019 (ACWD 2014). As a result, fish passage between San Francisco Bay and the Alameda Creek watershed would be restored, and steelhead within Alameda Creek will be included by NMFS as part of the federally threatened Central California Coast steelhead DPS. Caltrans has concluded that a “No Effect” determination applies under the Federal Endangered Species Act based on the fact that no steelhead are currently present; however, Caltrans acknowledges the planned removal of various obstructions and installation of fish ladders in Alameda Creek (including, but not limited to, the BART weir) and will be implementing avoidance and minimization measures in anticipation of improved fish passage through the corridor.

<sup>35</sup> The proposed compensation impact ratios for California red-legged frog and Alameda whipsnake have been updated to reflect the Biological Opinion (BO) number 08ESMF00-2015-F-0073-2, obtained from the USFWS on May 4, 2017 for this project.

to pre-existing or better quality. Success would be measured by total % ground cover and % survival of planted trees. On-site trees would be monitored for three years following the planting to ensure that the mortality rate does not exceed 30% of all trees planted, with reporting to CDFW and USFWS. Landscaping of impact areas would include the planting of native plants associated with California bay/coast live oak woodland, fresh water emergent wetland, valley foothill riparian, and coastal scrub habitat. A portion of this proposed compensation will be covered by the reclamation of the current bridge columns and roadway approaches. Caltrans anticipates a need for off-site compensation and plans to purchase multi-species bank credits from Ohlone West or Ohlone Preserve Conservation Banks. As of July 2017, Ohlone Preserve has credits available for California red-legged frog and the project is within the approved service area for this species. If Ohlone Preserve no longer has credits available by the time of the credit purchase (in advance of the project construction), Caltrans would purchase bank credits from Ohlone West. The most recent information states that the bank credits are available as of July 2017, and therefore, they would be open for purchase well in advance of the project's projected start date. Funding for the purchase of compensatory mitigation credits is designated within the project's right of way data sheet. In accordance with permit conditions and consultation with the resource agencies, approved banking credits shall be purchased within six months prior to the start of the bridge construction phase. In the event that bank credits are not available, Caltrans would purchase and conserve habitat to address the species' requirement.

**Table 36. Proposed Compensation for impacts to California red-legged frog by Alternative**

Design Alternative	Total (Acres)
<b>Alternative 1 Compensation</b>	
1:1 Ratio for Temporary	3.988
3:1 Ratio for Permanent	7.626
Total Compensation	11.614
<b>Alternative 2 Compensation</b>	
1:1 Ratio for Temporary	3.959
3:1 Ratio for Permanent	5.7
Total Compensation	9.665
<b>Alternative 3A Compensation</b>	
1:1 Ratio for Temporary	4.205
3:1 Ratio for Permanent	7.413
Total Compensation	11.618
<b>Alternative 3B Compensation</b>	
1:1 Ratio for Temporary	0.753
1.5:1 Ratio for Prolonged Temporary	4.197
3:1 Ratio for Permanent	4.989
Total Compensation	9.939

The proposed compensation impact ratios for California red-legged frog and Alameda whipsnake have been updated to reflect the Biological Opinion (BO) number 08ESMF00-2015-F-0073-2, obtained from the USFWS on May 4, 2017 for this project. The BO covers impacts associated with preferred Alternative 3B, and divides the impacts up into three categories: temporary, prolonged temporary, and permanent. The prolonged temporary category was defined as an area that was either subjected to multiple years of disturbance or would take over a year to restore to baseline conditions present prior to construction.

AWS-1. Compensation for the minor disturbance to AWS Critical Habitat Unit 3 for AWS would occur through on-site restoration of temporarily impacted areas (at a 1:1 ratio), on-site restoration and enhancement of the existing SR-84 roadway and through compensation for prolonged temporarily (at 1.5:1 ratio) and permanently impacted areas (at a 3:1 ratio) through a combination of off-site habitat preservation and on-site restoration and enhancement activities<sup>36</sup>. Proposed compensation by Alternative is shown in Table 37. On-site restoration and enhancement activities would consist of the restoration of disturbed areas to pre-existing or better quality. Success would be measured by total % ground cover and % survival of planted trees. On-site trees would be monitored for three years following the planting to ensure that the mortality rate does not exceed 30% of all trees planted, with reporting to CDFW and USFWS. Landscaping of impact areas would include the planting of native plants associated with California bay/coast live oak woodland, fresh water emergent wetland, valley foothill riparian, and coastal scrub habitat. A portion of the

<sup>36</sup> The proposed compensation impact ratios for California red-legged frog and Alameda whipsnake have been updated to reflect the Biological Opinion (BO) number 08ESMF00-2015-F-0073-2, obtained from the USFWS on May 4, 2017 for this project.

proposed compensation for permanent impacts will be covered by the reclamation of the current bridge columns and roadway approaches. Caltrans anticipates a need for off-site compensation and plans to purchase multi-species bank credits from Ohlone West or Ohlone Preserve Conservation Banks. As of July 2017, Ohlone Preserve has credits available for Alameda whipsnake and the project is within the approved service area for this species. If Ohlone Preserve no longer has credits available by the time of the credit purchase (in advance of the project construction), Caltrans would purchase bank credits from Ohlone West. The most recent information states that the bank credits are available as of July 2017, and therefore, they should be open for purchase well in advance of the project's projected start date. Funding for the purchase of mitigation credits is designated within the project's right of way data sheet. In accordance with permit conditions and consultation with the resource agencies, approved banking credits shall be purchased within six months prior to the start of the bridge construction phase. In the event that bank credits are not available, Caltrans would purchase and conserve habitat to address the species' requirement.

**Table 37. Proposed Compensation for impacts to Alameda whipsnake by  
Alternative**

Design Alternative	Total (Acres)
Alternative 1 Compensation	
1:1 Ratio for Temporary	3.424
3:1 Ratio for Permanent	7.620
Total Compensation	11.044
Alternative 2 Compensation	
1:1 Ratio for Temporary	3.370
3:1 Ratio for Permanent	5.703
Total Compensation	9.073
Alternative 3A Compensation	
1:1 Ratio for Temporary	3.611
3:1 Ratio for Permanent	7.41
Total Compensation	11.021
Alternative 3B Compensation	
1:1 Ratio for Temporary	0.161
1.5:1 Ratio for Prolonged Temporary	4.197
3:1 Ratio for Permanent	4.986
Total Compensation	9.344

STEELHEAD-1. Fish passage between Alameda Creek and San Francisco Bay is blocked within the City of Fremont as of July 2017, by a concrete grade control structure. As a result, these fish are not currently considered to be anadromous Central California Coast DPS steelhead and do not receive protection under the FESA. ACWD is scheduled to install a fish ladder that will circumvent this structure in 2019 (ACWD 2014). As a result, fish passage between San Francisco Bay and the Alameda Creek watershed would be restored, and steelhead within Alameda Creek will be included by NMFS as part of the federally threatened Central California Coast steelhead DPS. Caltrans has concluded that a “No Effect” determination applies under the Federal Endangered Species Act based on the fact that no steelhead are currently present; however, Caltrans acknowledges the planned removal of various obstructions and installation of fish ladders in Alameda Creek (including, but not limited to, the BART weir) and will be implementing avoidance and minimization measures in anticipation of improved fish passage through the corridor. Permanent effects to steelhead habitat as a result of the proposed project would be off-set through the restoration of riparian, wetland, and riverine areas currently occupied by the existing Alameda Creek Bridge piers and abutments and the removal of invasive giant reed populations in the project area. Additionally, all Alternatives propose to remove the remnants of the existing footings and concrete wall of a former bridge, located upstream of the existing Alameda Creek Bridge. These bridge footings and concrete wall act as a weir and serve as a low-flow fish passage barrier. Removal or modification of the concrete weir during low-flow conditions would provide further connectivity to the creek system



for juvenile steelhead. However, other features upstream of the project area would prevent connectivity of the entire Alameda Creek Watershed to the San Francisco Bay. Per preliminary discussion and consultation with the USACE, RWQCB, CDFW, and NMFS, the removal of these bridge footings would address anticipated compensatory mitigation requirements for project impacts under the federal Endangered Species Act (ESA) consultation and the following permits: 1602 Streambed Alteration Agreement and Clean Water Act (CWA) Section 404 and 401 permits.

**THREATENED & ENDANGERED SPECIES-1. Permits.** Caltrans will include a copy of all relevant permits within the construction bid package of the proposed project. The Resident Engineer or their designee will be responsible for implementing the Conservation Measures and Terms and Conditions of the USFWS Biological Opinion (BO)<sup>37</sup> and the CDFW Incidental Take Permit.

**THREATENED & ENDANGERED SPECIES-2. Biological Monitor Approval.** Caltrans will submit the names and qualifications of the biological monitor(s) for USFWS approval prior to initiating construction activities for the proposed project.

**THREATENED & ENDANGERED SPECIES-3. Biological Monitoring.** The agency-approved biologist(s) will conduct clearance surveys immediately prior to the initial ground disturbance, be on site during initial ground disturbing activities, and thereafter as needed to fulfill the role of the approved biologist as specified in project permits. Within 30 minutes following the initial disturbance of that given area, the agency-approved biologist will investigate areas of disturbed soil for signs of listed species. The biologist(s) will keep copies of applicable permits in their possession when on-site. Through the Resident Engineer or their designee, the agency-approved biologist(s) shall be given the authority to communicate either verbally, by telephone, email or hardcopy with all project personnel to ensure that take of listed species is minimized and permit requirements are fully implemented. Through the Resident Engineer or their designee, the agency-approved biologist(s) shall have the authority to stop project activities to minimize take of listed species or if he/she determines that any permit requirements are not fully implemented. If the agency-approved biologist(s) exercises this authority, the agencies shall be notified by telephone and email within 24 hours.

**THREATENED & ENDANGERED SPECIES-4. Listed Species On Site.** The Resident Engineer will immediately contact the agency-approved project biologist(s) in the event

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<sup>37</sup> Fish passage between Alameda Creek and San Francisco Bay is blocked within the City of Fremont as of July 2017, by a concrete grade control structure. As a result, these fish are not currently considered to be anadromous Central California Coast DPS steelhead and do not receive protection under the FESA. ACWD is scheduled to install a fish ladder that will circumvent this structure in 2019 (ACWD 2014). As a result, fish passage between San Francisco Bay and the Alameda Creek watershed would be restored, and steelhead within Alameda Creek will be included by NMFS as part of the federally threatened Central California Coast steelhead DPS. Caltrans has concluded that a “No Effect” determination applies under the Federal Endangered Species Act based on the fact that no steelhead are currently present; however, Caltrans acknowledges the planned removal of various obstructions and installation of fish ladders in Alameda Creek (including, but not limited to, the BART weir) and will be implementing avoidance and minimization measures in anticipation of improved fish passage through the corridor.

that an AWS or CRLF is observed within a construction zone. The Resident Engineer will suspend construction activities within a 50-foot radius of the animal until the animal leaves the site voluntarily or is removed by the agency-approved biologist to a release site using USFWS-approved transportation techniques.

**THREATENED & ENDANGERED SPECIES-5. Work Window.** All work within suitable aquatic habitat for steelhead and California red-legged frog will occur between June 1 and October 15, when there is less potential for an individual to enter the work area. All work within suitable upland habitat for California red-legged frog and AWS will occur between March 1 and November 30. During this time, AWS is typically active and able to move away from construction activities to avoid harm, and CRLF will have a lower potential for movement across upland habitat.

**THREATENED & ENDANGERED SPECIES-6. Cover Boards.** The agency-approved biologist will place cover boards in strategic locations throughout the project footprint during the pre-construction surveys. During construction, these cover boards will be checked on a daily basis for CRLF and AWS when the agency-approved biologist is onsite.

**THREATENED & ENDANGERED SPECIES-7. Wire Mesh for Dewatering Pumps.** If pumping will be used for dewatering, the intakes will be completely screened with wire mesh no larger than 0.2-inch to prevent CRLF from entering the pump.

### **2.3.6 Invasive Species**

#### **2.3.6.1 Regulatory Setting**

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

#### **2.3.6.2 Affected Environment**

The following analysis is based on the Natural Environment Study prepared for the Alameda Creek Bridge Replacement Project (Caltrans, 2014l), the Addendum to the Natural Environment Study (Caltrans, 2015e), and the Second Addendum to the Natural Environment Study (Caltrans, 2016f). The Natural Environment Study was completed on October 22, 2014, the Addendum to the Natural Environment Study was completed on February 27, 2015, and the Second Addendum to the Natural Environment Study was completed on February 9, 2016. A total of 1,135 trees were recorded within the project study limits of which 84 non-native trees were identified; these included scattered individuals of nine non-invasive varieties (e.g. Juniper, Australian pine) as well as more invasive species such as tree of heaven (*Ailanthus altissima*). Additionally, invasive giant

reed populations, pampas grass, and tree of heaven are located within the project study limits.

### **2.3.6.3 Environmental Consequences**

#### *All Alternatives*

All Alternatives would have a minimal impact on the distribution of invasive species within the project limits. Construction equipment would arrive at the project clean and free of soil, seed, and plant parts to reduce the likelihood of introducing new weed species.

The proposed project would remove invasive giant reed and pampas grass populations located within the project footprint and replace them with native vegetation. These invasive species would be mowed, controlled and removed with machinery, likely by a hand tool, backhoe, or excavator. The removal and control of giant reeds and pampas grass populations would be conducted along with planting and/or seeding of desired native species as follow up. Any removal of below-ground roots would be dependent on their location; roots would not be removed where the potential for erosion into the creek is high. All biomass debris from invasive species would be removed and disposed from the site per Executive Order 13112.

Specifications regarding vegetation and tree replacement would be provided during the design phase of the project. Caltrans Standard Specifications will control the spread or introduction of invasive species in the project vicinity (Caltrans, 2010b). None of the species on the California list of noxious weeds is used by Caltrans for erosion control or landscaping.

#### *No-Build Alternative*

The No-Build Alternative would not change existing conditions and would not remove the invasive giant reeds and pampas grass populations located within the project footprint.

### **2.3.6.4 Avoidance, Minimization, and/or Mitigation Measures**

In addition to the measures listed below, the avoidance and minimization measure identified in Section 2.1.4.4 (VISUAL-7) also apply as a measure to reduce the impact on the distribution of invasive species within the project limits.

INVASIVE-1. The project will remove invasive giant reed and pampas grass populations located within the project footprint and replace with native vegetation.

INVASIVE-2. Construction equipment would arrive at the project clean and free of soil, seed, and plant parts to reduce the likelihood of introducing new weed species. Any imported fill material soil amendments, gravel, or other materials required for construction and/or restoration activities that will be placed within the upper 12 inches of the ground surface shall be free of vegetation and plant material. Certified weed-free imported erosion control materials (or rice straw in upland areas) shall be used exclusively, if possible.

INVASIVE-3. To reduce the movement of invasive weeds into uninfested areas, the contractor shall stockpile topsoil removed during excavation (e.g., during grading of

staging areas or excavation to accommodate installation of the temporary stair system and work platform) and shall subsequently reuse the stockpiled soil for re-establishment of disturbed project areas.

INVASIVE-4. To prevent the introduction of non-native pathogens and weeds into the Alameda watershed, any potted plants used on the project shall be from a licensed Nursery participating in the CA Nursery Services Program and implements California Department Food and Agriculture (CDFA) protocols for disease standards. The Caltrans Landscape Construction Inspector shall visit the nurseries as needed.

INVASIVE-5. To prevent the introduction of non-native pathogens and weeds into the Alameda watershed, imported compost shall be from a US Composting Council (USCC) Seal of Testing Assurance Participant Producer. The Caltrans Landscape Construction Inspector shall visit the compost Producer's Facilities as needed. The imported soil will also undergo a Growth Trial to test for the presence of weed seed.

## **2.4 Cumulative Impacts**

### **2.4.1 Regulatory Setting**

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

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

The California Environmental Quality Act (CEQA) Guidelines Section 15130 describes when a cumulative impact analysis is necessary and what elements are necessary for an adequate discussion of cumulative impacts, "An EIR shall discuss cumulative impacts of a project when the project's incremental effect is cumulatively considerable, as defined in section 15065 (a) (3). Where a lead agency is examining a project with an incremental effect, that is not 'cumulatively considerable,' a lead agency need not consider that effect significant, but shall briefly describes its basis for concluding that the incremental effect is not cumulatively considerable.". The definition of cumulative impacts under CEQA can be found in Section 15355 of the CEQA Guidelines, "'Cumulative impacts' refers to two or more individual effects which, when considered together, are considerable or which compound to increase other environmental impacts.". A definition of cumulative impacts, under the National Environmental Policy Act (NEPA), can be found in 40 Code of Federal Regulations (CFR) Section 1508.7 of the CEQ Regulations, "Cumulative impact is the impact on the environment which results from the incremental impact of the action when

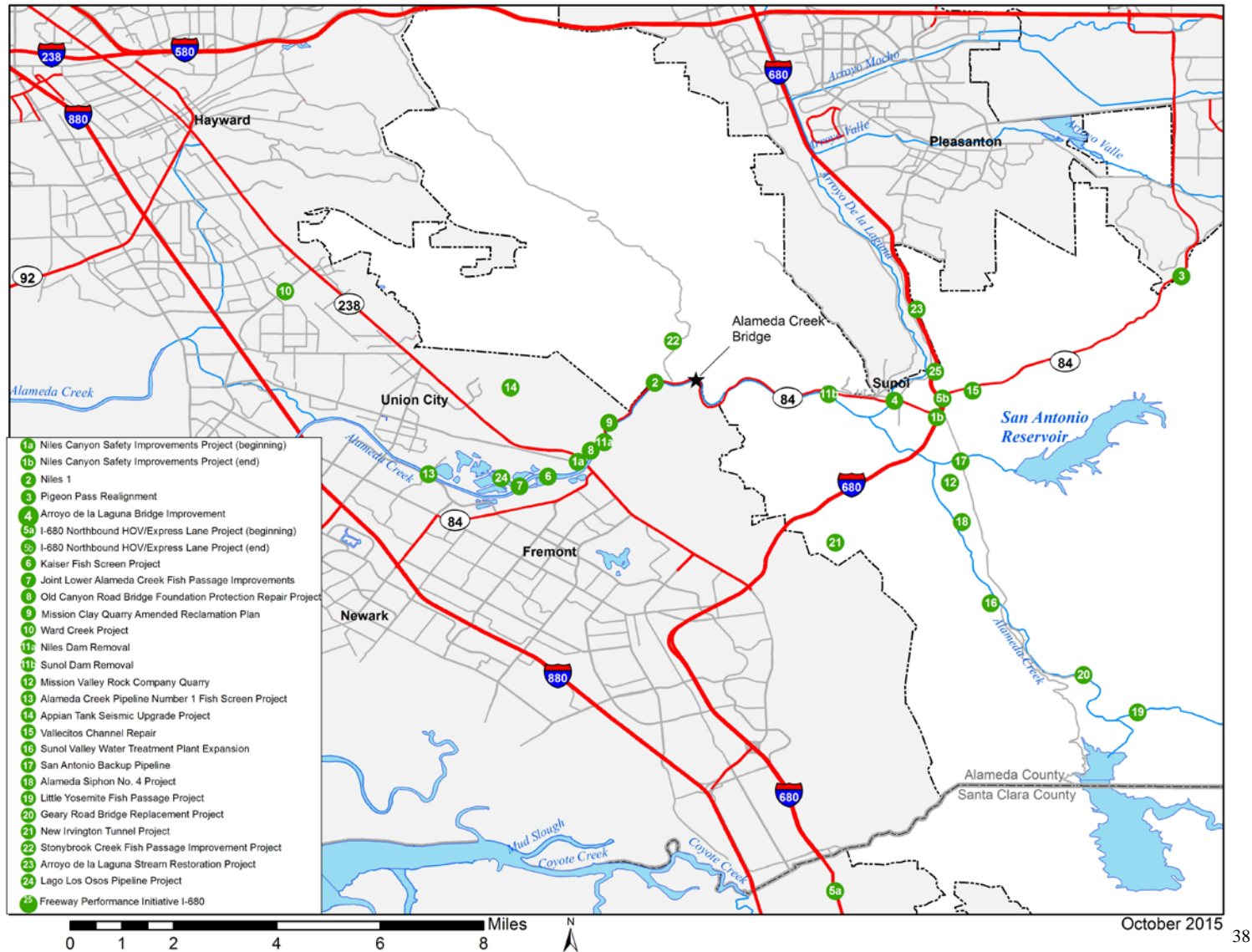
added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other action. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time”.

#### **2.4.2 Projects Considered for Cumulative Impact Analysis**

Caltrans collected information on past, present, and reasonably foreseeable future projects through research and coordination with the County of Alameda, the City of Fremont, and landowners in the Niles Canyon corridor, including ACFCD, ACWD, SFPUC, and EBRPD. A summary of these past, present, and future actions listing the proponent, status, location, and description of each project is included in Table 38. List of Projects Considered for Cumulative Impact Analysis. Figure 44 consists of a map identifying the projects considered as part of this cumulative impact analysis.

PG&E’s Pipeline Pathways Program was considered for inclusion in this cumulative impact analysis. However, PG&E’s Pipeline Pathways Program is still in the scoping and development process and has not officially begun the environmental process. Therefore, this project is not included as a project considered as part of the cumulative impact analysis.

**Figure 44. Projects Considered for Cumulative Impact Analysis**



<sup>38</sup> Figure does not include ACWD/Rubber Dam No. 2 Decommissioning & Foundation Modification Project, ACWD/Bunting Pond Fish Screen, SFPUC/Sunol Long Term Improvements Project, SFPUC/Fish Passage Facilities within the Alameda Creek Watershed, SFPUC/Calaveras Dam Replacement Project, ACTC/I-880 to Mission Blvd East-West Connector Project. See Table 38 for details.

Alameda Creek Bridge Replacement Project



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**Table 38. List of Projects Considered for Cumulative Impact Analysis**

<b>Number on Figure 44</b>	<b>Project Proponent/ Project Name</b>	<b>Project Status</b>	<b>Location</b>	<b>Project Description</b>
1a/1b	Caltrans/Niles Canyon Short-Term Improvements Project (also called the Niles Canyon Short-Term Safety Improvements Project)	Past; project construction completed in September 2016.	Niles Canyon Corridor, SR-84 from Mission Boulevard (SR-238) to I-680.	The project constructed various safety improvements along the Niles Canyon corridor; all improvements were made on paved surfaces. Off pavement work was not authorized.
1a/1b	Caltrans/Niles Canyon Safety Improvements Project (also called Medium-Term Improvements)	Future project; project is currently in the environmental phase. The draft environmental document issued October 2016 and final document anticipated Fall 2017.	Niles Canyon Corridor, SR-84 from Mission Boulevard (SR-238) to I-680.	The project will construct various safety improvements including, but not limited to, the installation of two rock drapery systems, one location of curve correction, spot shoulder widening, and the signalization of the Pleasanton-Sunol intersection
2	Caltrans/Route 84 Safety Improvements Project (also referred to as Niles 1)	Past project; project was terminated.	Western portion of the Niles Canyon Corridor, SR-84 from Mission Boulevard (SR-238) to the Alameda Creek Bridge.	The project was terminated in 2011. However, prior to construction, approximately 150 native trees in the project limits were impacted.
3	Caltrans/Pigeon Pass Realignment	Past project; construction completed.	SR-84, between I-680 and I-580.	The project realigned the two-lane state route facility to improve the horizontal and vertical alignment, added standard outside shoulders, a

Number on Figure 44	Project Proponent/ Project Name	Project Status	Location	Project Description
				median buffer, and climbing lanes in each direction.
4	Caltrans/Arroyo de la Laguna Bridge Scour Project	Future project; project is currently in the environmental phase.	SR-84, near the town of Sunol.	The project is proposed to mitigate bridge scour and protect the bridge's structural integrity. The project would also replace the existing bridge rail and would widen the bridge by three feet. Widening would be done to the extent feasible without adding any additional substructures.
5a/5b	Caltrans/I-680 Northbound High Occupancy Vehicle (HOV)/Express Lane Project	Future project; project is currently in the design phase. The Final Environmental Document was signed in July 2015.	I-680, from Calaveras Road (SR- 237) to Vallecitos Road (SR-84).	The project proposes to construct an approximately 15-mile HOV/express lane on northbound I-680 from south of SR-237 (Calaveras Boulevard) in Santa Clara County to north of SR-84 (Vallecitos Road) in Alameda County. The HOV/express lane would be a specially-designated freeway lane that is free for carpool and other eligible HOV users, but also gives single-occupancy-vehicles

Number on Figure 44	Project Proponent/ Project Name	Project Status	Location	Project Description
				the option to pay tolls to use the HOV/express lane.
6	Alameda County Water District/Kaiser Fish Screen Project	Past project; construction completed in fall 2014.	The project is located on the south side of the ACFCD.	The project involved construction of a new diversion pipeline and cylindrical fish screen in order to abandon the existing unscreened pipeline. The replacement facility was be constructed about 530 feet downstream of the existing diversion pipe and 2,400 feet upstream of ACWD's Rubber Dam 1 where the Union Pacific Railroad and BART Bridges cross over Alameda Creek. The purpose of this action was to prevent fish in the vicinity of this diversion from being entrained into ACWD's groundwater recharge basins.
7	Alameda County Water District /Alameda County Flood Control District - Joint Lower Alameda Creek Fish Passage Improvements	Future project; construction planned for Summer 2019.	Alameda Creek, between Mission Boulevard and the Alameda County Flood Control District drop structure between the Union Pacific Railroad and BART Bridge.	The Alameda County Water District and Alameda County Flood Control District propose to construct a new fish ladder at Alameda County Water District's rubber dam 1 and Alameda

Number on Figure 44	Project Proponent/ Project Name	Project Status	Location	Project Description
				County Flood Control's drop structure, a new fish ladder at ACWD's rubber dam 3, replace the existing rubber dam 1 bag, equipment and controls with new materials, and construct a new Shinn diversion and fish screening facility and decommission the existing unscreened facility.
8	City of Fremont/Old Canyon Road Bridge Foundation Protection Repair Project	Future project; City of Fremont selected a bid in April 2016.	City of Fremont on the Old Canyon Road, near Mission Boulevard and Niles Canyon Road. Project location is 0.1 mile northeast of SR-84.	The project would stabilize the Old Canyon Bridge footings by replacing the rock rip-rap and installing the cobble in the Alameda Creek channel.
9	City of Fremont/Mission Clay Quarry Amended Reclamation Plan	Past project; construction completed.	Mission Clay Products Quarry, 2225 Old Canyon Road, Fremont	The project is an amendment to the reclamation plan previously approved in 2005 for the former Mission Clay Products quarry and brick clay pipe manufacturing factory located in Niles Canyon. The approved reclamation plans affects 19-acres of the property and dismantled all remaining structures, break up and

Number on Figure 44	Project Proponent/ Project Name	Project Status	Location	Project Description
				remove all impervious surfaces, clean up and dispose of all debris off site, re-grade disturbed areas to a topography that blends with the surrounding geography and is geologically stable, and revegetating all disturbed soils to prevent erosion and allow for the establishment of native plant communities consistent with the surrounding area.
10	Alameda County Flood Control and Water Conservation District/Floodwall Improvements Along Zone 3A Line D: Phase 2, Between Huntwood Avenue and Bart, Hayward, California or Ward Creek Project	Future project; environmental phase completed in April 2014. Anticipated construction date is unknown.	City of Hayward, between Huntwood Avenue and Hayward BART station.	The project will install floodwalls along approximately 1,630 linear feet of the Zone 3A, Line D channel (Ward Creek) between Huntwood Avenue, and the Union Pacific Railroad.
11a/11b	San Francisco City and County - SFPUC/Sunol and Niles Dam Removal	Past project; construction completed in 2006.	The Sunol Dam is located in the Niles Canyon reach of Alameda Creek at river mile 16.2. SR-84 (Niles Canyon Road) parallels the creek through Niles	The project involved partial removal of Sunol and Niles Dams to remove barriers to fish passage and reduce or eliminate an existing public safety hazard and related



Number on Figure 44	Project Proponent/ Project Name	Project Status	Location	Project Description
			Canyon, and lies to the north of the dam. Niles Dam is located on Alameda Creek at river mile 12.8, near the downstream end of Niles Canyon. SR-84 (Niles Canyon Road) lies directly adjacent to the dam site.	SFPUC risk management concerns. In association with the removal of the dams, impounded sediment was left in place to move downstream naturally over the next several decades.
12	Alameda County/Proposed Expansion/Deepening of Surface Mining Permit, Mission Valley Rock Company Quarry	Past project; environmental completed in 2002.	City of Fremont at the Quarry Lakes.	The project modified the original quarry and reclamation plan by expanding the amount of volume of material that could be removed. This expansion involved both deepening of the existing pit from 140 feet to as much as 200 feet, and to expand the footprint of the quarry by six acres toward the east, onto the lands of SFPUC and nearer to the streambed of Alameda Creek.
13	Alameda County Water District/ Alameda Creek Pipeline Number 1 Fish Screen Project	Past project; construction completed in Winter 2008.	City of Fremont, Mission Boulevard to Isherwood Way.	The project installed fish screens for an existing water diversion.

Number on Figure 44	Project Proponent/ Project Name	Project Status	Location	Project Description
14	Alameda County Water District/Appian Tank Seismic Upgrade Project	Past project; construction completed 2016.	Various locations in Fremont and Union City.	The project consisted of replacing the existing water storage tank in the Fremont city limits along with replacing a storm drain outfall and installing auxiliary improvements at the tank site. The existing access road would be rehabilitated, an existing water pipeline along the access road would be replaced by a new pipeline, and a new power line would be installed along the existing access road, which is located within the city limits of Union City and Fremont.
15	Alameda County Water District/Vallecitos Channel Repair	Past project; construction completed 2016.	City of Fremont, SR-84 at Vallecitos Lane	The project improved an existing unlined water conveyance channel and adjacent access road. The purpose of the work repaired localized bank damage, prevent further erosion, and restore channel hydraulics and water conveyance efficiency. The project

Number on Figure 44	Project Proponent/ Project Name	Project Status	Location	Project Description
				involved the installation of vegetated soil lift revetment, installation of transverse log stabilizers, and installation of a low-flow channel.
16	San Francisco City and County – SFPUC/Sunol Valley Water Treatment Plant Expansion	Past project; construction completed in winter 2013.	The project is located in an unincorporated portion of Alameda County in the Sunol Valley. The nearest community is the town of Sunol, located 4.8 miles north of the project site.	The project involved the construction of an additional flocculation and sedimentation basin, a new 17.5 million-gallon treated water reservoir, a new chlorine contact tank and associated water treatment facilities, and construction of new effluent pipelines within the Sunol Valley Water Treatment Plant and a new 78-inch pipeline connecting the new treated water reservoir to the existing 78-inch plant discharge pipeline.
17	San Francisco City and County – SFPUC/San Antonio Backup Pipeline	Past project; construction completed June 2015.	The project is located in unincorporated Alameda County along the west side of Calaveras Road, south of the intersection of I-680 and SR-84.	The project included the construction of several new facilities and improvements to provide reliable conveyance capacity for planned and emergency discharges of Hetch Hetchy water out of the SFPUC regional water system under future flow conditions.

<b>Number on Figure 44</b>	<b>Project Proponent/ Project Name</b>	<b>Project Status</b>	<b>Location</b>	<b>Project Description</b>
18	San Francisco City and County – SFPUC/Alameda Siphon No. 4 Project	Past project; construction completed August 2012.	The project extends from the Alameda East Portal to the Alameda West Portal.	The project installed a 66 inch diameter welded steel pipeline with 310 feet of seismically-designed special trench thicker-walled pipe in the fault rupture zone, and tunnel crossing under Alameda Creek and a 96 diameter “blending structure” that consists of a pipe and valve manifold near the Alameda West Portal that will blend water from the Sunol Valley Water Treatment Plant and Hetch Hetchy, so the existing and new Irvington Tunnels will receive a uniform quality of water.
19	San Francisco City and County – SFPUC/Little Yosemite Fish Passage Project	Current project; construction anticipated to be completed December 2018.	The project site is located off Camp Ohlone Road in unincorporated Alameda County, approximately 2.6 miles downstream of the Alameda Creek Diversion Dam and the Alameda Creek Diversion Tunnel.	The project would construct concrete weirs shaped like natural boulders or bedrock in three strategically located water features.
20	San Francisco City and County - SFPUC/Geary	Past project; construction completed.	Sunol Ohlone Wilderness Park, approximately seven	The project involved the construction of a new 150-

Number on Figure 44	Project Proponent/ Project Name	Project Status	Location	Project Description
	Road Bridge Replacement Project		miles south of the town of Sunol.	foot long concrete and weathered steel bridge that crosses Alameda Creek.
21	San Francisco City and County - SFPUC/New Irvington Tunnel Project	Past project, construction completed	Sunol Valley, from the new Alameda West Portal on the west side of the Sunol Valley to the new Irvington Portal in the City of Fremont.	The project involved the construction of a 3.5 mile long tunnel, built using modern earthquake engineering designs, material and technology resulting in more resistance to damage during major seismic event. The new tunnel is located south and approximately parallel to the existing tunnel, separated by a distance of approximately 100 feet to 700 feet from the existing tunnel. The final internal diameter of the tunnel is between 8.5 feet and 10.5 feet.
22	Alameda County Resource Conservation District/Natural Resources Conservation Service/Stonybrook Creek Fish Passage Improvement Project	Future project; environmental document was circulated for public review and comment in winter 2014. Anticipated construction date is unknown.	Stonybrook Creek, SR-84 near Palomares Road	This proposed project consists of two culvert improvements that cross Stonybrook Creek along the County of Alameda maintained Palomares Road at Mile Posts 8.60 and 8.75.

Number on Figure 44	Project Proponent/ Project Name	Project Status	Location	Project Description
23	Alameda County Resource Conservation District/Arroyo de la Laguna Stream Restoration Project	Past project; restoration completed in 2011.	Arroyo de la Laguna stream; directly underneath and immediately downstream of Verona Bridge, between Pleasanton and Sunol.	The project involved conducting bioengineered stream restoration practices on an incised, hydrologically altered system, affected by urban and agricultural development.
24	Alameda County Water District/Lago Los Osos Pipeline Project	Past project; completed March 2014.	Fremont, CA	The project involved the removal and disposal of 64 linear feet of damaged 78-inch diameter reinforced concrete pipe; excavation of approximately 1,000 cubic yards of earthen material; installation of 80 linear feet of new 78-inch diameter reinforced concrete drainage piping; importation, placement, compaction and grading of approximately 2,500 cubic yards of backfill materials; and re-vegetation of all disturbed areas.
25	Caltrans Freeway Performance Initiative I-680	Future project; the Final Environmental Document was released in Fall 2016.	The project limits extend from Scott Creek Road Undercrossing in the City of Fremont to Alcosta Boulevard Overcrossing in the City of Dublin.	The project proposes the installation of a ramp metering system for sixteen on-ramps/connectors along I-680.



Number on Figure 44	Project Proponent/ Project Name	Project Status	Location	Project Description
26	Alameda County Water District/Rubber Dam No. 2 Decommissioning & Foundation Modification Project	Past project: completed in January 2010	In the City of Fremont, along the Alameda Creek between the BART Bridge and Isherwood Bridge.	This project consisted of the removal of the fabric portion of the District's Rubber Dam No. 2 and the removal of a section of the dam's foundation to allow for fish passage in the lower portion of the Alameda Creek Flood Control Channel under low flow conditions.
27	Alameda County Water District/Bunting Pond Fish Screen	Past project: completed in January 2010	In the City of Fremont, along the south side of the ACFCD Channel and upstream of ACWD Rubber Dam No. 3.	This project included modification of the water diversion intake and installation of a fish screen, fencing, control panel, and trail modification. The fish screen system consists of one self-cleaning cylindrical screen with a track system on a concrete pad along the bank of the Alameda Creek Flood Control Channel (ACFCC). The screen system and diversion intake is used to divert water from the ACFCC to Bunting Pond. The screen will prevent juvenile steelhead trout from

Number on Figure 44	Project Proponent/ Project Name	Project Status	Location	Project Description
				being trapped in Bunting Pond.
28	San Francisco Public Utility Commission/Sunol Long Term Improvements Project	Current project: construction anticipated to be completed Fall 2018	In Alameda County, south of the Town of Sunol and west of SR-84/I-680 junction.	The project is comprised of two main elements: improvements to the existing Sunol Corporate Yard (Sunol Yard) and development of a new interpretive center, to be named “the Alameda Creek Watershed Center” (Watershed Center), in the vicinity of the Sunol Water Temple.
29	San Francisco Public Utility Commission/Fish Passage Facilities within the Alameda Creek Watershed (Alameda Creek Diversion Dam Fish Passage)	Current project: construction anticipated to be completed December 2018	In the Town of Sunol in Alameda County on SFPUC lands adjacent to the Sunol Regional Wilderness Park.	The project will entail partial demolition of the existing Alameda Creek Diversion Tunnel’s intake structure, construction of a fish ladder and modified screens for steelhead migration into and out of the Alameda Creek Watershed. To facilitate fish passage around the existing Alameda Creek Diversion Dam, a new diversion structure comprised of four tee-shaped fish screens, an intake manifold and wet well, and three adjoining,

Number on Figure 44	Project Proponent/ Project Name	Project Status	Location	Project Description
				concrete-box culverts in the bed of Alameda Creek. Work also includes improvements to the access road, retaining and landslide stabilization walls, improvements to Geary and Camp Ohlone Roads.
30	San Francisco Public Utility Commission/Calaveras Dam Replacement Project	Current project: construction anticipated to be completed April 2019	Calaveras Dam is located on Calaveras Creek in the Diablo Mountain Range in Alameda County, California, approximately 12 miles south of the City of Pleasanton and 7.5 miles east of the City of Fremont.	The Calaveras Dam Replacement Project consists of building a new zoned earth and rock fill dam immediately downstream of the existing dam. The replacement dam will restore the original reservoir capacity of 96,850 acre-feet, or 31 billion gallons of water.
31	Alameda County Transportation Commission/I-880 to Mission Boulevard East-West Connector Project	Current project	In the City of Fremont and City of Union City in Alameda County between Interstate 880 (I-880) and Mission Boulevard.	The East-West Connector Project (proposed project) is a 3.0-mile roadway project that would provide improved east-west access between I-880 on the west and Mission Boulevard on the east in south Alameda County. The proposed project would achieve this objective by

Number on Figure 44	Project Proponent/ Project Name	Project Status	Location	Project Description
				widening existing roadways (1.7 miles along Decoto Road and Paseo Padre Parkway) and constructing a new roadway (1.3 miles from Paseo Padre Parkway to Mission Boulevard).

### 2.4.3 Resource Areas with No Contribution to Cumulative Impacts

Table 8 in Chapter 2 identified that the Alameda Creek Bridge Replacement Project would have no adverse impacts to the following resource areas: agriculture/ forestry/ farmlands/ timberlands, air quality, coastal zone and wild and scenic rivers, community character and cohesion and relocations, growth/population/housing, mineral resources, and noise. Because the Alameda Creek Bridge Replacement project would result in no adverse impacts to these resource areas, there would also be no incremental effects that would be cumulatively considerable to these resources.

The resources considered in the cumulative impact analysis follow Caltrans' Eight Step Guidance for identifying and assessing cumulative impacts (Caltrans, 2005). No cumulative impacts are anticipated for the following resource areas:

#### SELECTED BIOLOGICAL RESOURCES

- Plant species
- River Lamprey and Pacific Lamprey
- Western Pond Turtle
- San Francisco Dusky-Footed Woodrat
- Migratory Birds (Cooper's hawk, White-tailed kite, yellow warbler, heron and egret rookeries including great blue heron, great egret, snowy egret, and black-crowned night heron)

The amount and quality of these species' habitat impacted by the proposed project would not affect local populations. The Alameda Creek Bridge Replacement Project would not result in any permanent fragmentation of habitat nor would it impede any wildlife corridors. Furthermore, impacts to the habitat of many of these species' from the Alameda Creek Bridge Replacement Project would be off-set through on-site restoration and enhancement activities. Impacts to these species as a result of the proposed project is anticipated to be minimal and would not result in incremental effects that would be cumulatively considerable to these species.

#### CULTURAL RESOURCES (ARCHEOLOGY)

The project vicinity does not contain any known archeological resources. While it is not anticipated that the proposed project would directly or indirectly impact archeological resources, avoidance and minimization measures are in place to protect archeological resources in the event of an inadvertent discovery. Cultural resource studies indicate the project would not impact archeological resources and therefore, the project would not result in incremental effects that would be cumulatively considerable to cultural resources (archeology).

#### GEOLOGY/SOILS/SEISMIC/TOPOGRAPHY

Although the project would be constructed in a seismically active region, Caltrans' structures are designed using the Caltrans' Seismic Design Criteria (SDC). The SDC provides the minimum seismic requirements for highway bridges designed in California. The Alameda Creek Bridge Replacement design incorporates features to reduce impacts as a result of geologic and seismic conditions. These design features include, but are not

limited to, designing the new Alameda Creek Bridge to withstand a defined level of bedrock acceleration and driving piles below liquefiable layers. In consideration of building to SDC criteria, the Alameda Creek Bridge Replacement Project would not result in incremental effects that would result in cumulatively considerable seismic impacts.

The soils located in the project vicinity are subject to severe erosion; project construction activities, such as grading and excavation, could impact the stability of existing soils and increase the overall potential for soil erosion. However, based on the review of reasonably foreseeable projects, no other projects are proposed in the immediate project area. No further impacts to the slope located in the project vicinity are anticipated, and there would be no incremental effects that would be cumulatively considerable to the geology/soils/topography of the area.

#### HAZARDOUS WASTE/MATERIALS

The project would produce hazardous waste during the project demolition activities. The disposal of materials containing ACM and LBP would be done in accordance with all federal and state rules and regulations. No incremental effects that would be cumulatively considerable to hazardous waste/material impacts are anticipated as a result of the Alameda Creek Bridge Replacement Project.

#### HYDROLOGY/FLOODPLAINS

The project would encroach on floodplains, however, all Alternatives would not result in a significant encroachment on a floodplain. The increase in Base Flood Elevation (BFE) for all Alternatives would be a nominal increase, in that there is minimal potential for increased interruption or termination of the roadway's usefulness for emergency vehicles, and minimal risk to life or property due to flooding. All Alternatives would ultimately maintain or enhance beneficial floodplain values of Alameda Creek by removing the existing Alameda Creek Bridge footings. The proposed project does not pose a significant risk to life or property nor does the project pose a significant adverse impact on natural and beneficial floodplain values. There would be no incremental effects that would be cumulatively considerable to floodplains or to the hydrology of Alameda Creek.

#### LAND USE

Although the proposed project involves the acquisition of minor parcels from Alameda County, the ACWD, and the SFPUC, land use in the Niles Canyon corridor is protected by Alameda County's Save Agriculture and Open Space Lands Initiative and the City of Fremont's Measure T, the Hill Area Initiative. Niles Canyon is further protected from development by the fact that public agencies own the majority of the undeveloped lands in Niles Canyon. There are no immediate plans or trends for development in the Niles Canyon Corridor; approximately 131,700 square feet would be converted from open space to transportation use in order to construct the new alignment of the Alameda Creek Bridge. Based on the negligible change in land use for transportation purposes, and the fact that Niles Canyon is protected from development, no incremental effects that would be cumulatively considerable to land use are anticipated.



## **PALEONTOLOGY**

The specific locations of the paleontological resources are unknown; impacts are not predetermined and cannot be quantified until after construction begins. In this case, it is possible that potentially sensitive geological units in the project area could be exposed during ground-disturbing construction activities. If no protective measures were employed, then paleontological resources may be destroyed by construction activities and/or left unrecorded for their scientific value. However, even if discoveries occur in the project area, sensitive geologic units cannot be quantified as a cumulative impact. A paleontological impact could be quantified as cumulative only if it occurred in the exact same project area and the exact same geologic units were to be affected by a past, future, or foreseeable project. Neither of these statements is true when applied to the proposed project. Therefore, direct or indirect cumulative impacts related to paleontological resources are not anticipated to result. In addition, the Alameda Creek Bridge Replacement Project proposes implementation of a Paleontological Mitigation Plan that would effectively recover the scientific value of any fossils discovered during construction. Paleontological monitors would be present during ground disturbing activities and would temporary halt or divert construction activities in areas where fossils are discovered. Fossils exposed as a result of ground disturbing activities would be prepared, sorted, and cataloged. Curation of fossils, along with copies of all pertinent field notes, photos, and maps, would occur at a curation facility acceptable to Caltrans. No incremental effects that would be cumulatively considerable to paleontological remains are anticipated as a result of the Alameda Creek Bridge Replacement Project.

## **PARKS/RECREATIONAL FACILITIES**

The Niles Canyon Railway is the only existing park and recreational facility identified within 0.5 miles of the project. During construction activities, noise levels would temporarily increase and passengers would experience temporary aesthetics/visual impacts while passing the project vicinity. No direct or long-term impacts to the Niles Canyon Railway are expected. Therefore, the proposed project does not have incremental effects that would be cumulatively considerable to parks/recreational facilities in the area.

## **TRAFFIC AND TRANSPORTATION/PEDESTRIAN AND BICYCLE FACILITIES**

The project would maintain the posted 35 mph speed advisory sign on the westbound approach to the Alameda Creek Bridge and replace the existing 30 mph eastbound speed advisory sign with a 35 mph speed advisory sign. Features identified in Section 1.4.1, such as enhanced thermoplastic striping with high-visibility glass beads, shadow striping on the concrete deck, standard bridge railing and delineators on railing, and sharrow (refer to Figure 2) pavement markings on the bridge roadway and approaches would be installed. All of these features would improve safety for motorists, bicyclists, and pedestrians on the bridge.

There are no immediate plans or trends for development within the Niles Canyon Corridor that would impact traffic and transportation. In addition to the Alameda Creek Bridge Replacement Project, there are two other Caltrans projects planned for the Niles Canyon corridor: the Niles Canyon Safety Improvements Project (Medium-Term Improvements) and the Arroyo de La Laguna Bridge Scour Project. The Niles Canyon Safety

Improvements Project involves the installation of vehicle speed feedback signs throughout various locations in the Niles Canyon corridor, and the installation of two dynamic active warning systems at the Silver Springs Undercrossing and the Palomares Intersection. At the Silver Springs Undercrossing, the dynamic warning system would signal when traffic, not visible to the approaching motorists, has backed up within the undercrossing. At the Palomares intersection, the dynamic warning system would signal to motorists on SR-84 that vehicles on Palomares are waiting to make a left turn. The Niles Canyon Safety Improvements Project also involves a segment of curve correction at the curve located east of the Alameda Creek Bridge and the addition of curve warning signs. The number of motorists driving in excess of posted speeds is anticipated to be reduced by the application of these measures.

Caltrans is also proposing the Arroyo de La Laguna Bridge Scour Project. The project is proposed to mitigate bridge scour and protect the bridge's structural integrity. The project would also replace the existing bridge rail and would widen the bridge by three feet. Widening would be done to the extent feasible without adding any additional substructures.

Out of all three Caltrans' proposed projects for the Niles Canyon corridor, the Alameda Creek Bridge Replacement Project is the only location in the Niles Canyon corridor where Caltrans proposes to replace an existing speed advisory signs. The features of the Alameda Creek Bridge Replacement Project, in combination with the other planned improvements for Niles Canyon, would improve safety. The Alameda Creek Bridge Replacement Project would not have incremental effects that would be cumulatively considerable to traffic and transportation/pedestrian and bicycle facilities.

#### **UTILITIES/EMERGENCY SERVICES**

The project involves the relocation of two utility power poles. No other direct or indirect impacts to utilities/emergency services are expected as a result of the Alameda Creek Bridge Replacement Project. The Niles Canyon corridor is mostly undeveloped land, owned by public agencies. A review of projects in the area indicate few actions affecting utilities/emergency services have occurred or would occur as a result of past, present, and future actions. No incremental effects that would be cumulatively considerable to utilities/emergency services are anticipated.

### **2.4.4 Resources Considered for Cumulative Impact Analysis**

#### **2.4.4.1 Visual/Aesthetics**

The project would have visual/aesthetic impacts to 0.6 miles of an Officially Designated State Scenic Highway corridor. Therefore, visual/aesthetics is a resource considered for cumulative impact analysis. The Resource Study Area (RSA) for visual/aesthetics cumulative impact analysis is established from the SR-84/SR-238 intersection up to the SR-84/I-680 Interchange. This area was chosen as the RSA because it encompasses the Scenic Highway portion of SR-84, is consistently rural in nature, with rolling/steep hills and vegetation, and has little urban or commercial development visible from the highway.

In the 1800's and early 1900s, several large scale infrastructure projects altered the visual/aesthetic quality of Niles Canyon. These projects included the construction of the

Niles Canyon Railway and the Niles Canyon Road (SR-84), the modification of the Alameda Creek watershed by the Spring Valley Water Company (SVWC), and the mining and manufacturing activities at the Mission Clay quarry site.

Following the construction of these large infrastructure projects, the visual/aesthetic quality of Niles Canyon has remained largely intact for the past century as the land surrounding Niles Canyon is primarily designated watershed lands and owned by public resource agencies. The historical context of the Niles Canyon Corridor and its frequent use in the past as a recreational destination indicates a high value of its scenic beauty. The Essanay Film Manufacturing Company set up a studio in the town of Niles from 1912-1916 and produced many films using the canyon's scenic backdrop. In the 1920s and 1930s, auto clubs promoted Niles Canyon as a day trip destination. The scenic beauty of Niles Canyon, and its accessibility from the urban areas of San Francisco and Oakland led to the development of recreational picnic-grounds in the canyon (these recreational picnic grounds no longer exist) and hotels in Sunol. These factors demonstrate a historic stability in the health of visual/aesthetic resources in Niles Canyon.

Further contributing to the stability health of visual/aesthetic resources in Niles Canyon was the passage of Measure D and Measure T and the adoption of a State Scenic Highway Corridor Plan. The passage of Measure D, Save Agriculture and Open Space Lands Initiative in November 2000 has been critical in the preservation of agricultural land and open space in Alameda County. Approval of this citizen sponsored ballot measure amended the Alameda County General Plan and the regionally specific East County Area Plan (of which the Niles Canyon corridor is a part) to further restrict development. The initiative provides detailed land and site planning requirements that discourages contemporary sprawl development. Alameda County also has a number of site, building, and landscape design criteria that are part of the policy framework of the East County Area Plan and provide an added layer of protection to the scenic quality of the Niles Canyon Corridor. Similar to Alameda County's Save Agriculture and Open Space Lands Initiative, the City of Fremont electorate passed Measure T, also known as the Hill Area Initiative, in 2002. The Hill Area Initiative was incorporated into the City of Fremont's Municipal Code and protects open space and discourages over-development in the Fremont Hills. Development within the designated Hillside Area must conform to numerous special restrictions. Both Measures D and T protect the scenic quality of the Niles Canyon Corridor and preserve open space.

Another critical contribution to the stability of the visual/aesthetic quality of this portion of SR-84 was the development of a Scenic Corridor Protection Plan for the Niles Canyon Road and Paloma Way. The development of the plan began in 2003 with the Caltrans Advisory Committee unanimously approving the application submitted by Alameda County, the City of Fremont, and Union City. This application began the process of obtaining State Scenic Highway designation for the Niles Canyon and Paloma Way portion of SR-84. In 2007, Alameda County, the City of Fremont, the City of Union City, and other jurisdictional agencies submitted a Corridor Protection Plan for Niles Canyon Road and Paloma Way Portion of California SR-84 to Caltrans. The Niles Canyon Corridor Protection Program protects a 7.2 mile stretch of SR-84 from the encroachment of

incompatible land uses, prohibits billboards and regulates on-site signs, regulates grading to prevent erosion and cause minimal alteration of existing contours, and preserves important vegetative features along the highway (Alameda County, 2007).

In 2011, Caltrans' Niles 1 Project impacted approximately 150 trees on SR-84 between post miles 12.1 and 13.3. Caltrans ended up terminating the project. In March 2015, staff from Caltrans' Office of Water Quality Management and Mitigation visited the site and observed tree regrowth in the Niles 1 project area. Photos taken in March 2015 from Niles 1 key viewpoints were compared to photos taken right after the impacts associated with Niles 1 (July 2011)<sup>39</sup>. Side by side comparisons of the keypoints from July 2011 and March 2015 indicate the visual quality has gradually been restored since the impacts associated with Niles 1. Based on research and historical data and recent trends, the overall health of the visual/aesthetic resources in the RSA is assumed to be stable even with the change to the landscape that occurred as a result of Caltrans' Niles 1 Project. In spite of Caltrans' Niles 1 project, the overall health of the landscape in the RSA remains stable. Caltrans is aware of the impacts to the RSA associated with the Niles 1 Project. However, the natural recovery of the trees within the RSA post the Niles 1 Project has diminished the perception of the original impact. As a result, the natural regrowth of the stumped Niles 1 trees was also taken into consideration when evaluating visual/aesthetic cumulative impact analysis for the RSA.

Alameda County Planning Department indicated that Caltrans projects are the only reasonably foreseeable projects planned in the Niles Canyon corridor (Piñon-Robinson, 2014). Future projects within the RSA include Niles Canyon Safety Improvements Project and the Arroyo de la Laguna Bridge Scour Project. Caltrans released the Niles Canyon Safety Improvements Project Draft Environmental Document in October 2016 and is anticipating releasing a Final Environmental Document in Spring 2017. The Niles Canyon Safety Improvements Project would result in varying visual/aesthetic impacts at spot locations along SR-84. The Niles Canyon Safety Improvements Project proposes various safety improvements including, but not limited to, the installation of two rock drapery systems, one location of curve correction, spot shoulder widening, and the signalization of the Pleasanton-Sunol intersection. The project also requires tree removal at several spot locations in the Niles Canyon corridor. As of October 2016, preliminary estimates indicate that approximately 70 trees are located in permanently impacted areas and 240 trees are located in temporarily impacted areas. Trees located in permanent impact areas are likely to be removed during project activities. Some trees located in temporary impact areas may be preserved, depending on the specific activity occurring near them. Caltrans' Arroyo de la Laguna Bridge Scour Project is currently in the early planning phase and tree impacts associated with the project have not yet been fully determined. Preliminary estimates indicate some tree and shrub removal would occur within the project limits. Per Caltrans' Office of Landscape Architecture, visual impacts from the Arroyo de la Laguna Bridge Scour Project are anticipated to be minimal.

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<sup>39</sup> Source: Niles Canyon Stakeholder Meeting Powerpoint Presentation, September 2015. Available at [http://www.dot.ca.gov/d4/nilescanyon/docs/101915/final-niles-canyon-stakeholder-meeting-2015-0903-with-notes\\_lw\\_js\(revised\)\(3sept2015\)-cd-js-cvd.pdf](http://www.dot.ca.gov/d4/nilescanyon/docs/101915/final-niles-canyon-stakeholder-meeting-2015-0903-with-notes_lw_js(revised)(3sept2015)-cd-js-cvd.pdf)

The results of the analysis indicate while visual/aesthetic quality of Niles Canyon is healthy, the Alameda Creek Bridge Replacement Project, in combination with the future Niles Canyon Safety Improvements Project, the Arroyo de la Laguna Bridge Scour Project, and the past Caltrans Niles 1 Project, could contribute to incremental effects on the health of visual/aesthetic resources in the RSA that would be cumulatively considerable.

Alternative 1 would result in a larger contribution to cumulative impacts on visual/aesthetics than Alternatives 2, 3A, and 3B. Under Alternative 1, motorists south of the replacement bridge would experience a decline in the visual character and quality of the Niles Canyon area due to the prominence of the proposed 1,090 linear foot uphill soil-nail retaining wall. Alternative 1 would result in an increased visual/aesthetic impact as a result of the construction of the 1,090 linear feet long concrete soil-nail wall adjacent to the roadway and moving the roadway closer to the Niles Canyon Railroad. Realignment SR-84 northward reduces the visual buffer of trees between the Niles Canyon Railway and the realigned SR-84, which could constitute a moderately high, adverse impact for Niles Canyon Railway passengers. Additionally, there would be increased impact of constructing the Type 1 downslope retaining wall from the Alameda Creek area in comparison to the construction of the sidehill viaduct and piles from the roadway as proposed in Alternatives 3A and 3B.

Alternatives 2, 3A, and 3B would result in a smaller contribution to the cumulative impact on visual/aesthetics due to their limited visibility and scope. Alternative 2 involves the construction of a Type 1 downslope retaining wall and 470 linear feet of rock cut. Alternative 2 has a smaller impact area on the eastern side in comparison to Alternative 3A since it only has an upslope rock cut instead of Alternative 3A's higher rock cut (which sits on top of a soil nail wall). Alternative 2 would result in a smaller impact than Alternatives 1 and 3A, but would have a greater visual/aesthetic impact than Alternative 3B. Alternative 3B has the least amount of impact to visual/aesthetics out of the four Alternatives. Alternative 3B has the least amount of visual impacts since the roadway is constructed as a sidehill viaduct on columns and only an upslope rock cut is required. Following construction, the erosion control netting and hydroseeding of all alternatives would contrast with the natural setting. However, after a few months, growth of erosion control grasses would restore a more natural appearance, which would continue to improve over time. For Alternatives 2, 3A and 3B, changes to visual character would remain subordinate in scale and dominance to the surrounding natural setting.

All Alternatives would impact trees. Trees located in permanent impact areas are likely to be removed during project activities. Some trees located in temporary impact areas may be preserved depending on the specific activity occurring near them. Caltrans will make an effort to reduce impacts to trees in temporary impact areas to the greatest extent possible during construction by designating trees on plan sheets and marking trees with Environmentally Sensitive Area fencing. For the purpose of cumulative impact analysis, Caltrans used the summation of both temporary and permanent impacts for calculating the project's impact to trees. This created a conservative baseline to determine if the project's contribution to cumulative impacts would be considerable or not. The impacts to trees in the project study limits vary by Alternative as demonstrated in the Tables 19-24. The

removal of trees would expose other, existing mature native trees behind them, thereby retaining similar visual character as before, as seen from the highway.

Although the magnitude of visual/aesthetic impact varies per Alternative for the Alameda Creek Bridge Replacement Project, only Alternative 1 would have incremental effects that would result in a cumulatively considerable contribution on visual/aesthetics in the RSA. Measure VISUAL-1, (identified in Section 2.1.4) as well as measure UPLAND TREES-1 AND RIPARIAN TREES-1 (identified in Section 2.3.1) serve as avoidance, minimization, and/or mitigation measures for cumulative impacts to visual/aesthetic resources in the RSA. With the implementation of avoidance and minimization measures VISUAL-1, UPLAND TREES-1, and RIPARIAN TREES-1, the incremental effects of Alternative 1 on visual/aesthetics would not be cumulatively considerable.

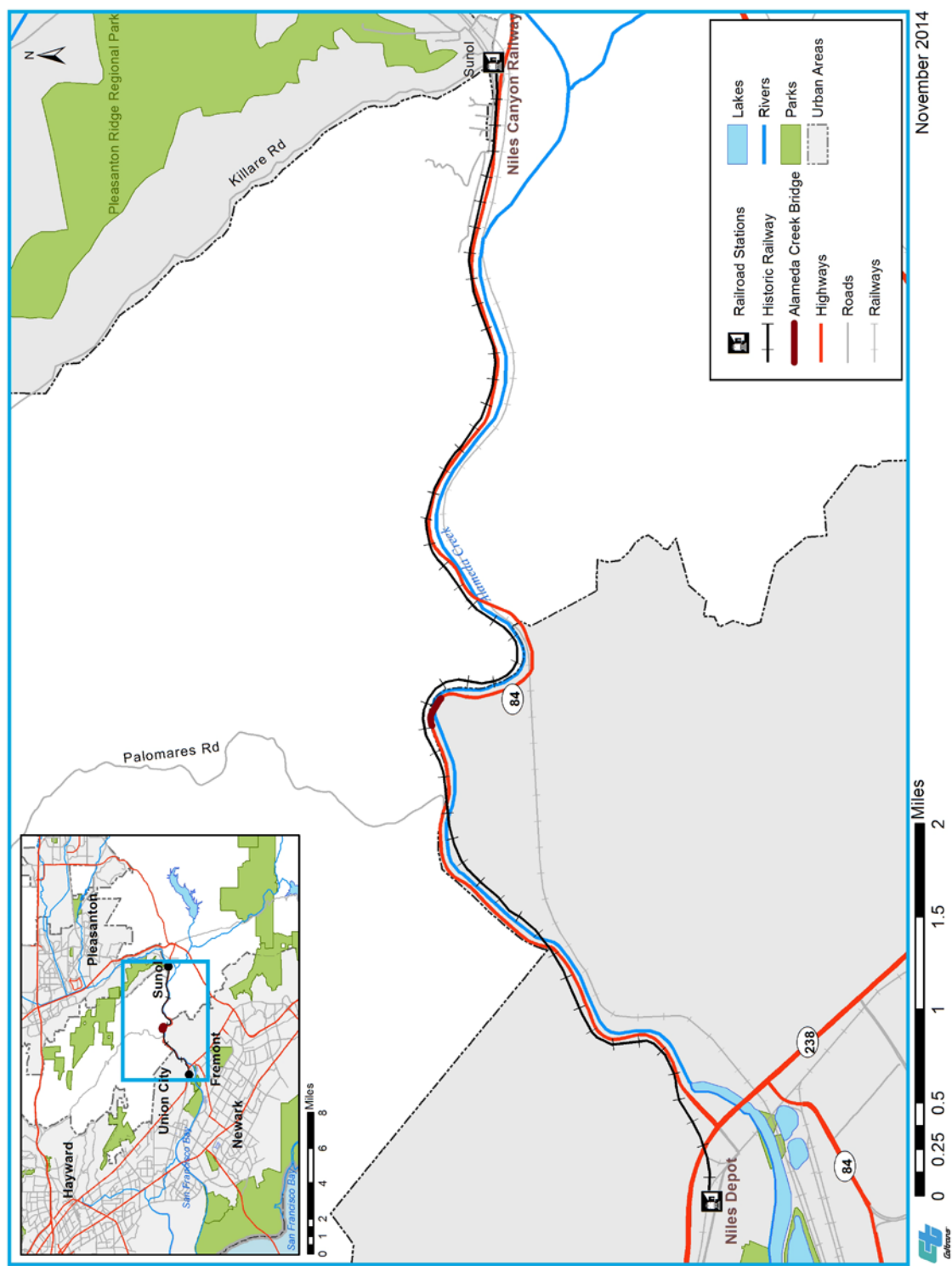
Alternatives 2, 3A, and 3B would not have incremental effects that would result in a cumulatively considerable contribution on visual/aesthetics in the RSA.

#### **2.4.4.2 Cultural Resources (Built/Architectural Resources)**

Cultural resources (Built/Architectural Resources) are included in the resources to consider for cumulative impact assessment because all Alternatives would result in the demolition of the Alameda Creek Bridge, a local resource that is eligible for inclusion on the Alameda County Register. The RSA for cultural resources (architectural history) was established from the Sunol Train depot to the Niles Train depot (refer to Figure 45). This area was selected as the RSA because all the built resources of the NCTR Historic District, as well as all the built cultural resources within Niles Canyon proper, are located within these limits. The majority of this area is consistently rural in nature, with rolling/steep hills and vegetation, and has little urban or commercial development visible from the highway. The major cultural resources within this RSA include: the Niles Canyon Railroad, the Sunol Aqueduct and the Sunol Water Temple of SVWC's Alameda Creek System, Vallejo's Aqueduct, the Niles Canyon section of the Union Pacific Railroad, Alameda Creek Bridge and Overhead (Bridge 33-0039), and the Niles Dam turnout structure.



**Figure 45. Cultural Resources (Architectural History) Resource Study Area**



The Alameda Creek Bridge has been determined not eligible for the NRHP (federal) and does not meet the criteria for inclusion in the CRHR (state). However, the Alameda Creek Bridge was identified as a local historic resource. Due to the bridge's local designation as a historic resource, Caltrans is considering the bridge to be a historical resource under CEQA and the demolition of the Alameda Creek Bridge is considered to be a significant environmental impact under CEQA.

Based on research and historical data and recent trends, the overall health of cultural resources (architectural history) in the RSA is assumed to be stable. Alameda County's Measure D, Save Agriculture and Open Space Lands Initiative, and the City of Fremont's Measure T, also known as the Hill Area Initiative, indirectly protect cultural resources. While both measures protect the scenic quality of the Niles Canyon Corridor and preserve open space, these measures also indirectly protect cultural resources by preventing extensive development in Niles Canyon.

Similar to Measures D and T, the stability of the health of cultural resources within this portion of SR-84 has been indirectly protected by the Scenic Corridor Protection Plan for the Niles Canyon Road and Paloma Way. The Niles Canyon Corridor Protection Program protects the scenic corridor from the encroachment of incompatible land uses, prohibits billboards and regulates on-site signs as to not detract from scenic views, makes development more compatible with the environment, regulates grading to prevent erosion and cause minimal alteration of existing contours, and preserves important vegetative features along the highway. The implementation of the Niles Canyon Corridor Protection Program protects and enhances the scenic resources, and indirectly shields cultural resources in the RSA.

The PLA's decision to preserve, restore, and revive the Niles Canyon Railway strengthened the protection of cultural resources within Niles Canyon. The PLA entered into an agreement with Alameda County and began rebuilding the historic rail line in 1987 (Niles Canyon Railroad, 2014). A year later, the PLA brought railroad passenger operations back to life in Niles Canyon. The Niles Canyon Railway currently provides train rides to the public year-round between Sunol and the Niles community of Fremont (Niles Canyon Railroad, 2014). The successful revival of the Niles Canyon Railroad culminated in the listing of the NCTR Historic District on the NRHP in October 2010. The NCTR Historic District qualifies for protection under Section 106 and indirectly protects other cultural resources in its vicinity.

In the past thirty years, few proposals or projects have resulted in adverse impacts to built resources within Niles Canyon. The Mission Clay Factory and Sunol/Niles Dam Removal were the only projects identified within the RSA in the past twenty years with adverse impacts to built resources. In June of 2000, the City of Fremont issued a permit to demolish the remaining manufacturing facilities of the Mission Clay Factory and a non-operational segment of the Sunol Aqueduct. During the spring and fall of 2006, SFPUC removed the Sunol and Niles dams, both of which were eligible for inclusion in the NRHP and the CRHP, to remove fish passage barriers within the Alameda Creek watershed. However, the review of past projects indicate that most projects have not adversely impacted cultural

resources in the RSA (these cultural resources include the Niles Canyon Railroad, the Sunol Aqueduct and the Sunol Water Temple of Spring Valley Water Company's Alameda Creek System, Vallejo's Aqueduct, the Niles Canyon section of the Union Pacific Railroad, and the Niles Dam turnout structure).

All Alternatives would result in a substantial adverse change to the Alameda Creek Bridge. All Alternatives propose to demolish and replace a bridge considered eligible for the Alameda County Register. Other reasonably foreseeable actions that would affect cultural resources (architectural history) include Caltrans' Niles Canyon Safety Improvements Project. The Niles Canyon Safety Improvements Project proposes to replace the bridge railing on the Alameda Creek Bridge and Overhead (Bridge 33-0039, built in 1947). Another Caltrans project includes addressing the scour mitigation at Arroyo de la Laguna Bridge on SR-84, however, this bridge is not eligible for the NRHP or for the CRHR. Within the cultural resource RSA, the Niles Canyon Safety Improvements Project is the only identified reasonably foreseeable project with the potential to affect cultural resources (architectural history).

This cumulative impact analysis examined the potential for cumulative impacts to historic bridges within the RSA. Five historic bridges are located within the RSA; three are railroad bridges (Dresser Bridge, Silver Springs truss bridge, and Farwell Bridge) and the other two are vehicular bridges (Alameda Creek Bridge and Overhead (Bridge 33-0039) and the Alameda Creek Bridge (Bridge 33-0036)<sup>40</sup>. The Alameda Creek Bridge and Overhead (Bridge 33-0039) is eligible for the NRHP.

The Alameda Creek Bridge (Bridge 33-0036) is not eligible for the NRHP or for the CRHR, but is eligible for the Alameda County Register, and is treated as a historical resource under CEQA. As discussed throughout this document, the Alameda Creek Bridge Replacement Project (Bridge 33-0036) would result in a substantial adverse change to the resource. In addition to the demolition of the Alameda Creek Bridge (Bridge 33-0036), Caltrans is proposing to replace the bridge railing of the Alameda Creek Bridge and Overhead (Bridge 33-0039) in a separate project. Preliminary consultation with the SHPO indicates concurrence with Caltrans' determination that the replacement of the bridge railing will result in "no adverse effect" to the Alameda Creek Bridge and Overhead (Bridge 33-0039). The impacts to two historic vehicular bridges in the RSA indicate a potentially cumulatively considerable impact to vehicular bridges of Niles Canyon. The Alameda Creek Bridge Replacement Project (Bridge 33-0036) would have incremental effects that would be cumulatively considerable to historic vehicular bridges given the project would result in a substantial adverse change. This is a cumulatively considerable contribution because there are only two historic vehicular bridges located in the RSA and the proposed project would result in a substantial adverse change to one of these two historic bridges. Design considerations such as the use of a see-through bridge railing are proposed, but ultimately, the Alameda Creek Bridge Replacement Project (Bridge 33-0036) would result in the demolition of a bridge eligible for the local Alameda County historic register.

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<sup>40</sup> For the purpose of clarification throughout this analysis, the Alameda Creek Bridge and Overhead is identified as Bridge 33-0039 while the Alameda Creek Bridge, the bridge that this project proposes to replace, is identified as Bridge 33-0036.

Measures CULTURAL-3 and CULTURAL-4, identified in Section 2.1.5, Cultural Resources, also serve as avoidance, minimization, and mitigation measures for cumulatively considerable contributions to built resources within the RSA. These measures are listed below:

CULTURAL-3. Per preliminary consultation with the City of Fremont, Caltrans would place an interpretive panel that discusses the history of transportation in Niles Canyon and the Alameda Creek Bridge's role in it at the Vallejo Mill Park. The panel would be developed during the PS&E phase of the project and would be installed at Vallejo Mill Park within one year following construction completion.

CULTURAL-4. Recordation efforts documenting the Alameda Creek Bridge structure will occur prior to demolition activities.

#### **2.4.4.3 Water Quality and Stormwater Runoff**

Water quality is included in the resources to consider for cumulative impact analysis because the proposed project will require a 401 Water Quality Certification and involves impacts to a 303(d) impaired water. The RSA established for this cumulative impact analysis is defined as the Alameda Creek watershed, an area of roughly 633 square miles stretching from Mount Diablo in the north to Mount Hamilton in the south, and east to Altamont Pass (refer to Figure 38 in Section 2.2.2). While the discussion of the health and historical context of the resource focuses on the entire Alameda Creek watershed, the identification and review of reasonably foreseeable projects in the area focuses on Alameda Creek, upstream to its confluence with Calaveras Reservoir and downstream to the San Francisco Bay and its tributaries.

Alameda Creek was listed as a 303(d) impaired water in 1998 for diazinon, a pollutant found in urban runoff and storm sewers (RWQCB, 2014). Although Alameda Creek is listed as an impaired waterbody, the health of water quality is assumed to be stable based on research, historical data, and recent trends. The ACWD continuously samples, analyzes, and monitors the quality of water in Alameda Creek at a special monitoring facility located at the mouth of Niles Canyon near Mission Boulevard and at other key locations throughout the watershed (ACWD, 2014b). The ACWD works with property owners and other agencies to encourage proper use of watershed lands to ensure water quality in Alameda Creek is protected and maintained. The Alameda Creek watershed lands include 30,000 acres of primary watershed lands for SFPUC that provide water for 2.4 million customers in the Bay Area (San Francisco Planning Department, 2000). An EIR for the Alameda Watershed Management Plan was certified in August 2000 by the San Francisco Planning Department. This planning document provides a policy framework for SFPUC to make consistent decisions about the activities, practices, and procedures that are appropriate on watershed lands. The protection of the watershed by Alameda County and the SFPUC indicates stability in the health of the Alameda County watershed.

A review of past projects in the RSA within the last ten years include the Caltrans Niles 1 Project, Sunol and Niles Dam Removal Project, the Geary Road Bridge Removal Project,

the Arroyo de la Laguna Stream Restoration, the Alameda Creek Pipeline No. 1 Fish Screen Pipeline Project, and the New Irvington Tunnel Project. Of these projects, the Arroyo de la Laguna Stream Restoration and the Alameda Creek Pipeline No. 1 Fish Screen Project are stream restoration or fish passage improvement projects with no anticipated adverse impacts to water quality. In 2011, Caltrans Niles 1 Project impacted approximately 150 trees on SR-84 between post miles 12.1 and 13.3. Caltrans ended up terminating the project. Standard water quality BMPs, implemented as a part of all Caltrans projects, were utilized to prevent and minimize soil erosion and sediment discharge during the preliminary Niles 1 construction activities. The Geary Bridge Replacement Project had a minimal impact on water quality (San Francisco Planning Department, 2012) and the Sunol and Niles Dam Removal Project removed a barrier to fish passage. Approximately 40,000 cubic yards of impounded sediment was left in place to move downstream naturally over a period of several decades as a result of the dam removal; impacts to water quality were determined to be less-than-significant (San Francisco Planning Department, 2005). SFPUC's New Irvington Tunnel Project was determined to have a negligible impact to water quality (San Francisco Planning Department, 2009).

While the current health of Alameda Creek watershed is stable, the watershed has been severely modified from its natural flow regime by occurrences like the construction of the BART weir in Fremont, the Calaveras Dam, the San Antonio, and Del Valle reservoirs (Stanford, et. al., 2013). The operation of these reservoirs and other water conveyance facilities has altered natural flow regimes in streams below the dams and has impaired water quality. A critical event transforming the Alameda Creek watershed land use was the construction of the Transcontinental Railroad. The construction of a railroad through Niles Canyon in 1869 made it an important regional transportation corridor (Stanford, et. al., 2013). The construction of the railroad through Niles Canyon began attracting new settlers. These new settlers in Alameda County began modifying the Alameda Creek watershed by developing wells in artesian zones to access the groundwater and direct the path of overflow from Alameda Creek so that sediment would fill low points and deposit over the tidal marsh, converting it to farmland (Stanford, et. al., 2013).

In addition to the Transcontinental Railroad, the water system developed by the Spring Valley Water Company (SVWC) severely altered the Alameda Creek watershed lands. The SVWC provided water from Alameda Creek to the City of San Francisco through canyon channels that transported the water. The SVWC also directed water across gravels so that it would percolate into groundwater aquifers (Stanford, et. al., 2013). In 1888, SVWC began piping Alameda Creek water from Niles to San Francisco (Stanford, et. al., 2013). While severe modifications to the Alameda County watershed occurred as early as the late 1800's, the post-World War II era also contributed to large scale changes to the water quality in the area. Population explosions in the cities of Livermore, Dublin, Pleasanton, Fremont, Union City, and Newark in the 1950s resulted in large scale housing and community developments that further damaged parts of the Alameda Creek watershed and impaired water quality (Stanford, et. al., 2013).

Impacts to water quality as a result of the Alameda Creek Bridge Replacement Project are broken up into two categories: construction (temporary) impacts and long-term effects.

Construction (Temporary) Impacts

All Alternatives involve grading and earth moving activities, stockpiling of soils, and the loading, unloading, and transport of excavated and fill material, which would result in increased sedimentation and adverse effects to receiving waters. The Alameda Creek Bridge Replacement project proposes to install a temporary creek diversion system in Alameda Creek from June 1 to October 15 for the necessary construction seasons. The installation and removal of stream diversion elements would result in the temporary discharge of sediment and a temporary increase in-stream turbidity. Additionally, Caltrans proposes to remove the remnant bridge footings and concrete wall (weir) located upstream of the existing Alameda Creek bridge. These old footings act as a weir on Alameda Creek and create a barrier to fish passage. Caltrans proposes to remove the bridge footings (weir) as a mitigation strategy for CDFW's 1602 streambed impacts, CWA 404 and 401 impacts, and federally endangered steelhead – California Central Coast DPS. The proposed removal of the weir would have temporary impacts associated with sediment dispersal through Alameda Creek. Implementation of measures (discussed in Section 2.2.2.4) WATER-1 through WATER-10 would avoid and minimize construction (temporary) impacts to receiving waters, resulting in no adverse effect.

Long-Term Effects

Approximately 1.285 acres to 1.738 acres of impervious area would be added within the project limits, depending on the Alternative selected. This could result in changes to the stream's hydrologic regime, called hydromodification. Hydromodification refers to the changes in natural watershed hydrological processes and runoff characteristics caused by urbanization or other land use changes. These changes often result in increased stream flows and sediment transport, and can result in stream bank erosion, leading to steep banks and the depositing of sediment downstream of the project. Furthermore, the increase in impervious surface area would result in increased storm water runoff and less percolation to groundwater aquifers. However, Best Available Technology (BAT) would be used to increase infiltration rate from runoff and also minimize the discharge of pollutants resulting from increased and reworked areas as described in Section 1.4.1 Common Features of all Build Alternatives. Long term impacts of the weir's removal would promote beneficial uses of Alameda Creek by ensuring full fish passage through the project site, restoring the Alameda Creek to a more natural condition, and eliminating the backwater effect created by the weir.

Future projects identified in the RSA include the Arroyo de la Laguna Bridge Scour Project, I-680 HOV Lanes Project, ACWD-ACFCD Joint Lower Alameda Creek Fish Passage Improvements, the Kaiser Fish Screen Project, Old Canyon Road Bridge Foundation Protection Repair Project, Ward Creek Flood Control Project (Floodwall Improvements Along Zone 3A Line D: Phase 2, Between Huntwood Avenue and BART, Hayward, California), Appian Tank Seismic Upgrade Project, Vallecitos Channel Repair, and



Stonybrook Creek Fish Passage Improvement Project. Many of these projects involve fish passage improvements or improving Alameda County Flood Control facilities. Some of these projects would temporarily impact water quality, however, no adverse long-term impacts to water quality are expected with the implementation of specific project avoidance and minimization measures.

All Alternatives involve grading and earth moving activities, stockpiling of soils, and the loading, unloading, and transport of excavated and fill material, which would result in increased sedimentation that may adversely affect receiving waters. Implementation of measures (discussed in Section 2.2.2.4) WATER-1 through WATER-10 would avoid and minimize construction (temporary) impacts to receiving waters, resulting in no adverse effect. All Alternatives would result in an increase in paved surface in the project area. Best Available Technology (BAT) will be used to minimize the discharge of pollutants by fully treating runoff from increased and reworked areas as described in WATER-2.

Several future projects in the RSA would temporarily impact Alameda Creek watershed water quality, but would not degrade or result in a decline in the health of Alameda Creek watershed. Although the proposed Alameda Creek Bridge Replacement Project would result in sedimentation dispersal and increased turbidity, these impacts are relatively minor in comparison to the annual sediment load of Alameda Creek and would not affect the stability of the health of the resource.

The results of this analysis indicate the proposed project, in combination with past, present, and future actions, would not affect the health of the resource and ultimately, the Alameda Creek Bridge Replacement Project would not have incremental effects that would be cumulatively considerable to water quality. The Alameda Creek Bridge Replacement Project, including the proposed weir removal, would result in sediment dispersal and increased turbidity, however, these impacts are Short-term and would not result in incremental effects that would be cumulatively considerable to the health of water quality in combination with reasonably foreseeable actions.

The Alameda Creek Bridge Replacement Project would not result in a cumulatively considerable contribution to cumulative impacts to water quality. No additional avoidance and minimization measures are proposed besides those listed in Section 2.2.1 Hydrology/Floodplains and Section 2.2.2 Water Quality and Stormwater Runoff.

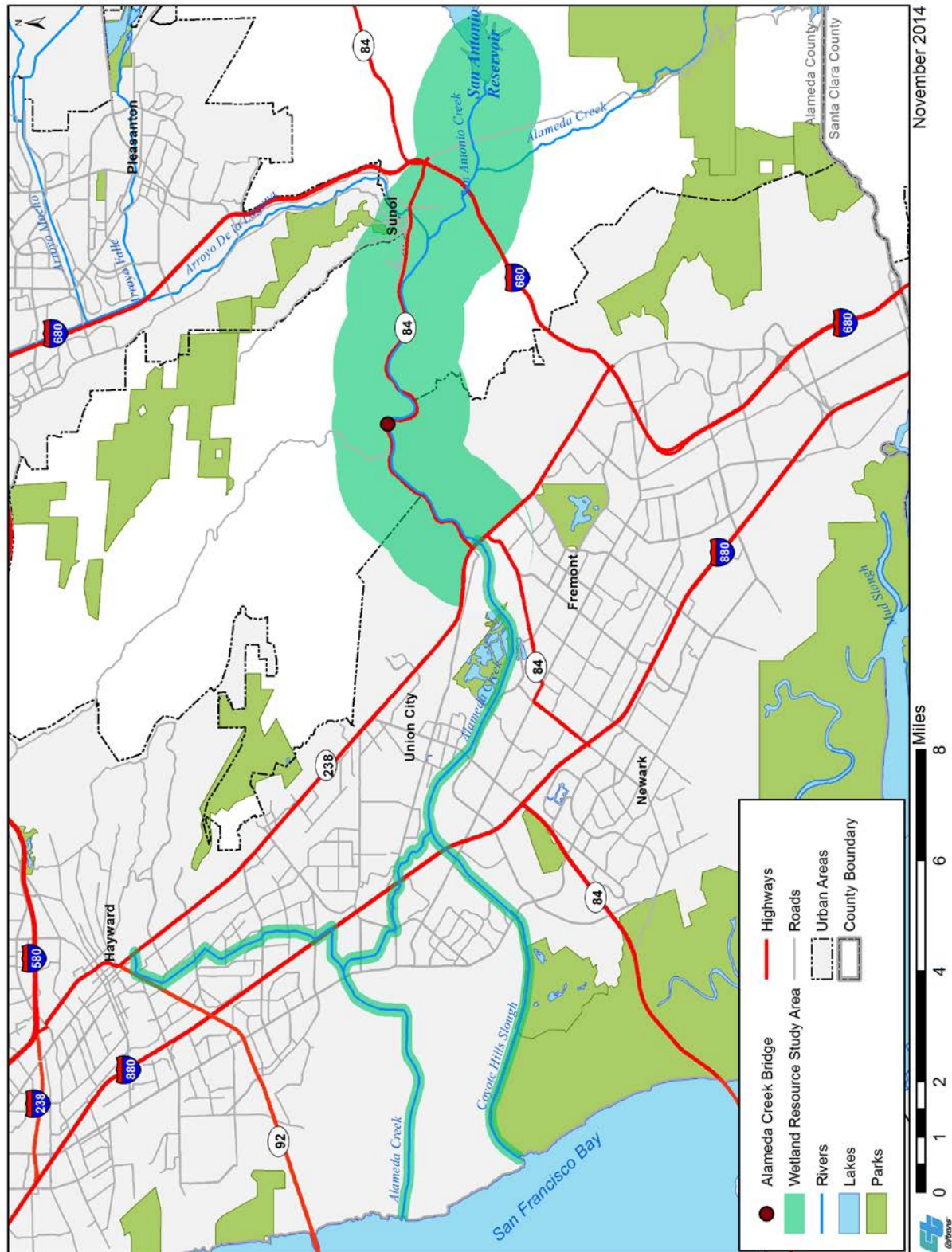
#### **2.4.4.4 Biological Environment: Wetlands and Other Waters**

The Alameda Creek Bridge Replacement Project would impact a 303(d) listed water body and require CWA 404 and 401 permits. As a result, impacts to wetlands and other waters will be considered as part of this project's cumulative impact analysis. The RSA of jurisdictional wetlands and other waters analysis includes Alameda Creek upstream to its confluence with Calaveras Reservoir and downstream to the San Francisco Bay and its tributaries (refer to Figure 46).

Based on research, historical data, and recent trends, the overall health of the resource is assumed to be stable. The ownership of watershed lands by Alameda County and the

SFPUC directly protects the land from development and indirectly protects wetlands and other waters located within their jurisdiction. In addition to the ownership by public agencies, the passage of Alameda County's Measure D, Save Agriculture and Open Space Lands Initiative, and the City of Fremont's Measure T also indirectly protects and contributes to the stability of wetlands and other waters health within the RSA. While aiming to protect the scenic quality of the Niles Canyon Corridor and preserve open space, these measures indirectly protect wetlands by preventing development in Niles Canyon.

Figure 46. Wetlands and Other Waters Resource Study Area<sup>41</sup>



<sup>41</sup> Figure 46 does not show Calaveras Reservoir.

Past projects in the RSA with identified wetlands and other waters impacts (from the past ten years) include the Caltrans Niles 1, Sunol and Niles Dam Removal Project, the Geary Road Bridge Removal Project, the Arroyo de la Laguna Stream Restoration, the New Irvington Tunnel Project, and ACWD's Alameda Creek Pipeline No. 1 Fish Screen Project. Of these projects, the Arroyo de la Laguna Stream Restoration and the Alameda Creek Pipeline No. 1 Fish Screen Project are stream restoration or fish passage improvement projects with no anticipated adverse or permanent impacts to wetlands and other waters through the implementation of avoidance and minimization measures. In 2011, Caltrans Niles 1 Project impacted approximately 150 trees on SR-84 between post miles 12.1 and 13.3. Caltrans ended up terminating the project and is currently proposing to replace the existing culvert at Stonybrook Creek with a clear span bridge as an out of kind mitigation for Niles 1 impacts. The Geary Bridge Replacement Project resulted in 0.01 acres of permanent impacts to wetlands and 0.5 acres of temporary impacts to permanent features (San Francisco Planning Department, 2012). The Sunol and Niles Dam Removal projects removed a barrier to fish passage in which approximately 40,000 cubic yards of impounded sediment was left in place to move downstream naturally over a period of several decades (San Francisco Planning Department, 2005). This Sunol and Niles Dam Removal resulted in 0.5 acres of permanent impacts to wetlands and other waters. SFPUC's New Irvington Tunnel Project involved 0.02 acres of permanent impacts to wetlands and 0.33 temporary impacts to wetlands (San Francisco Planning Department, 2009).

SFPUC's Geary Bridge Replacement Project, the Sunol and Niles Dam Removal, and the New Irvington Tunnel Project provided on-site mitigation for impacts to wetlands and other waters. Although the Geary Bridge Replacement Project impacted 0.01 acres on a perennial stream, the project removed the trestles and associated concrete foundations of the existing bridge, resulting in a reduction of permanent fill of 0.007 acre, thus project implementation resulted in a net reduction of permanent fill in Alameda Creek of 0.005 acre (San Francisco Planning Department, 2012). The Sunol/Niles Dam Removal EIR identified that SFPUC would restore all jurisdictional features temporarily disturbed during dam removal activities to pre-project conditions, as described in the Corps-verified wetland delineation map and report and that monitoring of restored areas would be required for a minimum of five years. The 2013 Riparian and Wetland Habitat Annual Monitoring Report identified that while the development in the riparian zone was not occurring as quickly as expected, favorable conditions are in place and development in the riparian strip was increasing and vegetation monitoring data did not indicate a permanent loss of riparian habitat (San Francisco Public Utilities Commission, 2013).

The New Irvington Tunnel Project EIR identified measures for post-construction compensation. Specifically, if the SFPUC determines through direct monitoring or data interpretation that substantial disruption to habitat supporting special-status species has likely occurred during or after construction and the habitat cannot be restored, the SFPUC shall enhance or compensate for this loss of habitat. The SFPUC shall ensure the compensation of suitable riparian and/or wetland habitat and/or upland trees, as applicable, on the affected land (if approved by the landowner) or on SFPUC lands within the Sunol watershed. Single locations may be used for multiple species compensation provided a suitable location for multiple species is present. The compensation ratio shall be at least

1:1, but the specific ratio and location would be determined in consultation with USFWS, CDFW, and RWQCB.

The Alameda Creek Bridge Replacement Project would result in permanent and temporary impacts to wetlands and other waters. Permanent and temporary impacts to wetlands and other waters of the United States vary per Alternative and are displayed in Table 29 in Section 2.3.2.3. Implementation of the project would result in the removal of the existing bridge footings from the creek channel, the removal of the upstream concrete weir, and the removal of invasive giant reed and pampas grass populations. This would beneficially impact Alameda Creek by allowing the stream to take on a more natural morphology and facilitating the development of linear in-stream wetlands along the banks.

Future projects identified in the RSA include the Arroyo de la Laguna Bridge Scour Project, I-680 HOV Lanes Project, the Kaiser Fish Screen Project, the ACWD-ACFCD Joint Lower Alameda Creek Fish passage improvements, Old Canyon Road Bridge Foundation Protection Repair Project, Ward Creek Flood Control Project (Floodwall Improvements Along Zone 3A Line D: Phase 2, Between Huntwood Avenue and Bart, Hayward, California), Appian Tank Seismic Upgrade Project, Vallecitos Channel Repair, and Stonybrook Creek Fish Passage Improvement Project. Of these future projects, only Caltrans I-680 HOV Lane Project and Vallecitos Channel Repair would have permanent impacts to wetlands and other waters. The other listed projects involve fish passage improvements or improving Alameda County Flood Control facilities; avoidance and minimization measures to avoid impacts to jurisdictional wetlands or waters are included in the environmental documents for these projects.

Table 39 summarizes past, present, and future projects with permanent impacts to wetlands and other waters in the RSA.

**Table 39. Project with Permanent impacts to wetlands and other waters in the RSA**

Project Proponent	Project	Project status	Temporary Impacts to wetlands and other waters**	Permanent Impacts to wetlands and other waters	Total Impacts to wetlands and other waters
Caltrans	Alameda Creek Bridge Replacement Project	In design phase	Between 1.146-1.338*.	Between 0.002-0.171 acres*.	Between 1.148-1.509 acres*.
Caltrans	Niles Canyon Safety Improvements Project	In environmental phase; draft environmental document released in October 2016; final environmental document expected in Fall 2017	0.2137	0.0025	0.2162
Caltrans	Arroyo de la Laguna Bridge Scour Project	In environmental phase; draft environmental document expected in Spring 2018	Unknown	Unknown	Unknown
City of Fremont	Vallecitos Channel Repair Project	Completed	Unknown	0.03 acres	0.03 acres
Caltrans	Interstate 680 HOV Lanes Project	In environmental phase	0.2 acres	0.1 acres	0.3 acres
SFPUC	Geary Bridge Replacement Project	Completed	0.5 acre	0.01 acre	0.51 acres
SFPUC	Sunol and Niles Dam Removal	Construction completed.	Unknown	0.5 acres	0.5 acres and temporary impacts
SFPUC	New Irvington Tunnel Project	Completed	0.3 acres	0.02 acre	0.4 acres
Total Impacts			Between 2.2 acres and 2.3 acres.	Between 0.5 acres and 0.8 acres	Between 2.8 acres and 3.1 acres

\* Varies by Alternative

\*\*Temporary impacts may occur from more projects that are not included in Table 39



Based on the review of past and present projects in the RSA, projects in the RSA have or will compensate for impacts on-site or within the Alameda Creek watershed, thereby maintaining the health of the wetlands and other waters. The results of this analysis indicate that there is no trend in the decline of the health of the resource as a result of past and present projects and that there would be no future decline in the health of the wetlands in the RSA as a result of reasonably foreseeable projects. Based on this information, the Alameda Creek Bridge Replacement Project would not have incremental effects that would be cumulatively considerable to wetlands and other waters within the RSA.

The Alameda Creek Bridge Replacement Project would continue the trend of compensating for impacts to wetlands and other waters on-site and within the Alameda Creek watershed. Alternatives 1 and 3B would result in .002 acres of permanent impacts to wetlands and other waters, Alternative 2 would result in 0.171 acres of permanent impacts to wetlands and other waters, and Alternative 3A will result in 0.121 acres of impacts to wetlands and other waters. Although all Alameda Creek Bridge Replacement Project alternatives would have permanent and temporary impacts to wetlands and other waters, elements of the project would also beneficially impact Alameda Creek. Beneficial elements include the removal of the existing bridge footings from the creek channel, the removal of the upstream concrete weir, and the removal of invasive giant reed populations. This would allow the stream to take on a more natural morphology and facilitate the development of linear in-stream wetlands along the banks.

The Alameda Creek Bridge Replacement Project would not result in incremental effects that would be cumulatively considerable to wetlands and other waters. No additional avoidance and minimization measures are proposed besides those listed in Section 2.3.2.

#### **2.4.4.5 Biological Environment: Natural Communities**

The project would impact California annual grasslands, coastal oak woodlands, valley foothill riparian, coastal scrub, riverine and fresh water emergent communities on an approximately 0.6 mile stretch of SR-84 from postmile 13.0 to postmile 13.6. Cumulative impacts to fresh water emergent communities are discussed in Section 2.4.4.4 Wetlands and Other Waters, but cumulative impacts to the other natural communities identified above will be discussed in this section. The natural communities RSA for cumulative impact analysis includes the Niles Canyon corridor, SR-84 from Mission Boulevard (SR-238) to just west of the town of Sunol. The RSA was chosen because these limits define one continuous habitat corridor.

In the 1800's and early 1900s, four main large scale disturbances altered natural communities in Niles Canyon. These disturbances included the construction of the Niles Canyon Railway and the Niles Canyon Road (SR-84), the modification of the Alameda Creek watershed by the Spring Valley Water Company, and the mining and manufacturing activities at the Mission Clay quarry site. For the majority of the past century, natural communities within Niles Canyon have not endured large scale developments or disturbances as the land surrounding Niles Canyon is primarily designated watershed lands and owned by public resource agencies. Additionally, the passage of Alameda County's Measure D and the City of Fremont's Measure T protects the scenic quality of the Niles

Canyon Corridor and preserves open space. These measures indirectly protect natural communities by preventing development in Niles Canyon.

In the past ten years, several projects have resulted in minor disturbances to natural communities in the RSA. These projects include the SFPUC's Sunol/Niles Dam Removal and Alameda Siphon No. 4 Project, City of Fremont's Mission Clay Quarry Amended Reclamation Plan, Caltrans' Niles 1 Project, and Alameda County Resource Conservation District's Arroyo de la Laguna Stream Restoration Project. Out of these five projects, SFPUC's Sunol/Niles Dam Removal, City of Fremont's Mission Clay Quarry Amended Reclamation Plan, and the Alameda Resource Conservation District's Arroyo de la Laguna Stream Restoration Project have had a beneficial impact to natural communities.

The Sunol/Niles Dam removal involved the partial removal of Sunol and Niles Dams to remove barriers to fish passage. The project involved temporary impacts to vegetation communities including annual grassland habitat and the removal of mature trees within the project work area at both the Sunol and Niles Dam sites (San Francisco Public Utilities Commission, 2006). The Mitigation Monitoring Plan for the Sunol and Niles Dam Removal Project provided monitoring methods to assess indirect post-removal conditions on jurisdictional and non-jurisdictional habitats to ensure no permanent impacts occurred as a result of the project (San Francisco Public Utilities Commission, 2006).

The 2015 Sunol and Niles Dam Removal Project Revegetation and Restoration Monitoring Report identified that three of the four success criteria (percent survival, invasive species cover, and streambank stability) for revegetation and restoration are being met at the Sunol Dam site while two of the four success criteria (invasive species cover and streambank stability) for revegetation and restoration are being met at the Niles site (San Francisco Public Utilities Commission, 2015). The report identified additional recommendations that should be implemented to ensure the site meets its final success criteria (San Francisco Public Utilities Commission, 2015). The 2013 Riparian and Wetland Habitat Annual Monitoring Report identified several trends including the colonization of the floodplain by woody vegetation as well as the increasing development of woody riparian vegetation (both trees and shrubs) (San Francisco Public Utilities Commission, 2013). The report further identified that while the development in the riparian zone was not occurring as quickly as expected, favorable conditions are in place and development in the riparian strip was increasing and vegetation monitoring data did not indicate a permanent loss of riparian habitat (San Francisco Public Utilities Commission, 2013). Avoidance, minimization, and mitigation measures for the project included replacement of all trees at a minimum of 1.1:1.

The Mission Clay Quarry Amended Reclamation plan proposed to dismantle all remaining structures, break up and remove all impervious surfaces, clean up and dispose of all debris off site, re-grade disturbed areas to a topography that blends with the surrounding geography and is geologically stable, and revegetate all disturbed soils to prevent erosion and allow for the establishment of native plant communities consistent with the surrounding area (City of Fremont, 2010). The area proposed for reclamation was devoid of vegetation and large trees and as a result, minor impacts to natural communities were anticipated as a result of the proposed project (City of Fremont, 2010). The absence of

certain types of vegetation and large trees in the disturbed areas reduced the likelihood that species are present in the areas to be reclaimed (City of Fremont, 2010). The reclamation plan calls for the preservation of existing trees on the property and would restore naturally occurring plant communities in the region (City of Fremont, 2010). Much of the disturbed land has since grown over with non-native grasses and weeds, as well as some native plants including coyote brush, poison oak, and soap root (City of Fremont, 2010). No mature trees are located in the areas to be reclaimed (City of Fremont, 2010).

The Arroyo de la Laguna Stream Restoration Project consisted of the installation of various bio-technical structures to achieve stream restoration along the Arroyo de la Laguna. The property was improved through riparian habitat restoration for approximately 700 feet.

SFPUC's Alameda Siphon No. 4 Project had impacts to riparian and upland habitat as the project extended a 96 inch pipe, approximately 3,000 feet, from the Alameda East Portal across near the Calaveras Fault and Alameda Creek to the Alameda West Portal.

In 2011, Caltrans' Niles 1 Project impacted approximately 150 trees in riparian habitat natural communities. Caltrans biologists visited the site in November and December of 2015 and observed that some re-sprouting trees have established or are establishing dominant leaders. In some cases, the re-sprouts have attained 25 feet to 40 feet in height. Caltrans biologists again returned to the site in December 2016 to start regular quantitative surveys of the Niles 1 area. The purpose of these quantitative surveys is to identify the amount of regrowth in the area that has occurred in the years following Caltrans' Niles 1 Project to document any net recovery from the Niles 1 Project. The surveys of the Niles 1 area recorded a total of 261 trees. Twelve different tree species were identified, nine of which are native to California. The areas immediately surrounding Alameda Creek and Stonybrook Creek were dominated by valley foothill riparian species, including willow species (*Salix* sp.), white alder (*Alnus rhombifolia*), and western sycamore (*Platanus racemosa*). Upland habitat was dominated by coastal oak woodland species, including big leaf maple (*Acer macrophyllum*), California bay laurel (*Umbellularia californica*), and coast live oak (*Quercus agrifolia*). The remaining three non-native tree species included tree of heaven (*Ailanthus altissima*), eucalyptus (*Eucalyptus globulus*), and rose (*Malus* sp.). Data obtained for the survey showed that the majority of the recorded trees (205 trees, 78.54%) were showing positive signs of regrowth and considered in "good"<sup>42</sup> condition. 17 trees (6.51%) were observed to be in "fair"<sup>43</sup> condition, 2 trees (0.77%) were observed to be in "poor"<sup>44</sup> condition, 31 trees (11.88%) were determined to be "dead,"<sup>45</sup> and 6 trees (2.30%) were documented as unknown. The baseline natural community environment before the Niles 1 Project was high in quality. The impacts to natural communities associated with Niles 1 have continued to diminish through natural regrowth.

<sup>42</sup> Tree categorized as "good" showed signs of vigor, with no major dieback or discoloration of foliage, and no signs of insects, disease, decay, or significant structural defects.

<sup>43</sup> Trees categorized as "fair" displayed only 10-30% foliar dieback, poor foliage coloration, dead wood, or showed some signs of disease and decay and minor structural defects.

<sup>44</sup> Trees categorized as "poor" displayed more 30% foliar dieback, dead wood, severe decay, or insect activity or structural problems.

<sup>45</sup> Trees categorized as "dead" were observed as dead tree stumps that did not exhibit any signs of new regrowth. Dead tree stumps were often characterized by signs of desiccation or decay.

In the analysis for this project's direct impacts, the baseline for natural communities has continued to be high in quality. In general, natural communities in Niles Canyon have remained intact and free from disturbance over the past century. The lack of large scale disturbances and development in the RSA in the past century as well as the indirect protection of natural communities by Measure D and Measure T demonstrates that the health of natural communities within Niles Canyon is relatively stable.

Given the trend of projects in the RSA that have either compensated for impacts to natural communities or proposed the restoration of natural communities, there is no decline in the health of the resource. Therefore, there is no overall cumulative effect occurring to natural communities within Niles Canyon.

All Alternatives would involve permanent and temporary disturbances to natural communities within the project limits as identified in Tables 15-18. All Alternatives would impact trees located within the project limits: Alternative 1 would result in temporary and permanent impacts to 415 trees, Alternative 2 would result in temporary and permanent impacts to 408 trees, Alternative 3A would result in temporary and permanent impacts to 444 trees, and Alternative 3B would result in temporary and permanent impacts to 296 trees. Trees located in permanent impact areas are likely to be removed during project activities. Some trees located in temporary impact areas may be preserved depending on the specific activity occurring near them. To be conservative, Caltrans is accounting for removal of trees in temporary impact areas. During construction, Caltrans would make an effort to reduce impacts to trees in temporary impact areas to the greatest extent possible by designating trees on plan sheets and marking trees with Environmentally Sensitive Area fencing. For the purpose of cumulative impact analysis, Caltrans used the summation of both temporary and permanent impacts for calculating the project's impact to trees. The impacts to native trees in the project study area vary by Alternative, as identified in Tables 20 and 23 in Section 2.3.1.

Two reasonable and foreseeable projects within the RSA have been identified as projects with the potential to impact natural communities. These two projects are Caltrans' Niles Canyon Safety Improvements Project and Caltrans' Arroyo de la Laguna Bridge Scour Project. The Arroyo de la Laguna Bridge Scour Project is currently in the early planning phase and impacts to natural communities associated with the project have not yet been determined. Preliminary estimates indicate some tree and shrub removal would occur within the Arroyo de la Laguna Bridge Scour Project limits. Caltrans released the Niles Canyon Safety Improvements Project Draft Environmental Document in October 2016 and is anticipating releasing the Final Environmental Document in Fall 2017. Preliminary estimates indicate that the Niles Canyon Safety Improvements Project would result in a combination of temporary and permanent impacts to 0.8 acres of California Annual Grassland, 1.05 acres of California Bay/Coast Live Oak, 3.23 acres of coastal scrub, and 1.79 acres of valley foothill riparian. The Niles Canyon Safety Improvements Project anticipated to impact approximately 310 trees (70 trees are located in permanent impact areas and 240 trees are located in temporary impact areas).

As with the Alameda Creek Bridge Replacement Project, during the design phase of the Niles Canyon Safety Improvements Project and the Arroyo de la Laguna Bridge Scour Project, Caltrans' Office of Biological Science and Permitting would work with the Caltrans Design team to avoid and minimize project impacts to natural communities and trees. Efforts to preserve trees in place (by designating trees on plan sheets and marking trees with Environmentally Sensitive Area fencing) would be made to avoid or minimize project impacts to trees located in temporarily impacted areas. For both the Niles Canyon Safety Improvements Project as well as the Arroyo de la Laguna Bridge Scour Project, Caltrans would provide upland tree replacement on-site at a minimum 1:1 ratio within the Niles Canyon corridor, to the maximum extent possible given the available space. Trees removed from the riparian zone would be replaced at a minimum 3:1 ratio on-site, to the maximum extent possible given space available. Both projects would consist of the restoration of temporarily disturbed areas to pre-existing or better quality.

Table 40 summarizes potential impacts to trees in the RSA as a result of future projects:

**Table 40. Impacts to trees in the RSA as a result of future projects**

Proponent	Project	Project status	Impacts to trees
Caltrans	Alameda Creek Bridge Replacement Project	In design phase	Between 296-444 trees* *Varies by Alternative
Caltrans	Niles Safety Improvements Project	In environmental phase; draft environmental document released in October 2016; final environmental document expected in Fall 2017.	310 trees (70 trees are located in permanent impact areas and 240 trees are located in temporarily impact areas)
Caltrans	Arroyo de la Laguna Bridge Scour Project	In environmental phase; draft environmental documented expected in Spring 2018.	Unknown
<b>TOTAL</b>			606 – 754 trees

As previously stated, natural communities in Niles Canyon have remained relatively intact and free from disturbance over the past century. In general, there is no historical trend in the loss of natural communities within the Niles Canyon corridor. Reasonably foreseeable projects in the RSA indicate that natural communities in Niles Canyon will likely experience few disturbances in the future. The scale and intensity of the two reasonably foreseeable projects in the RSA would not degrade Niles Canyon's current environment condition as a robust ecosystem because both projects would be constructed adjacent to the existing SR-84 roadway in areas considered marginal habitat. Both the Niles Safety Improvements Project (Medium-Term Improvements) and the Arroyo de La Laguna Bridge Scour Project involve the selected removal of isolated trees and spot location

impacts to various land cover types, which would not fragment the continuous Niles Canyon habitat corridor nor would it degrade the function of these natural communities.

The results of this analysis indicate that although the Alameda Creek Bridge Replacement Project would result in permanent and temporary impacts to natural communities, the project would not have an incremental effect that would be cumulatively considerable, because based on the past, present and future projects within the RSA, there is no CEQA significant cumulative impact occurring to natural communities. The direct project related impacts are specific to the context and intensity of the bridge location as it crosses Alameda Creek. In contrast the RSA for natural communities consists of over a 7 mile length of large healthy corridor of natural communities. The determination of no CEQA significant cumulative impact is based on the following:

- The Niles Canyon riparian corridor is considered high quality wildlife habitat, facilitating species movement. The Alameda Creek Bridge Replacement Project would not permanently fragment this habitat nor would this individual project reduce Niles Canyon's current condition as a robust riparian ecosystem.
- Although other reasonably foreseeable projects in the RSA (Niles Canyon Safety Improvements Project and the Arroyo de la Laguna Bridge scour Project) would also have effects to the Niles Canyon riparian corridor, the Caltrans Niles Canyon Safety Improvements Project and the Arroyo de la Laguna Bridge Scour Project would result in spot location impacts to riparian areas. These projects, when analyzed in combination with the Alameda Creek Bridge Replacement Project, would not degrade the function and value of the riparian area within the RSA. Furthermore, the majority of the riparian impacts associated with the Niles Canyon Safety Improvements Project is due to the replacement of the existing Stonybrook Creek culvert with a clear span bridge. This element of the project is proposed as out-of-kind mitigation for project impacts associated with Caltrans' Niles 1 Project (terminated in 2011). The removal of the Stonybrook culvert and replacement with a clear span bridge would allow water from Stonybrook Creek to more naturally irrigate the remaining riparian habitat, which is expected to have an overall net benefit to the creek.

Although the results of this analysis indicate that the proposed project would not result in an incremental effect that would be cumulatively considerable, Caltrans will provide for on-site habitat restoration and improvement as well as tree replacement following the completion of the project as identified in the avoidance, minimization, and/or mitigation measures in Section 2.3 Biological Environment.

#### **2.4.4.6 Biological Environment: California Red-legged frog**

The CRLF is identified as a resource to consider for cumulative impact analysis because the Alameda Creek Bridge Replacement Project would require a Biological Opinion from USFWS for project impacts to this federally threatened species. The RSA for CRLF is defined by the maximum dispersal distance of an individual (two miles) from the project limits (USFWS, 2002). Refer to Figure 47 for a map of the RSA.



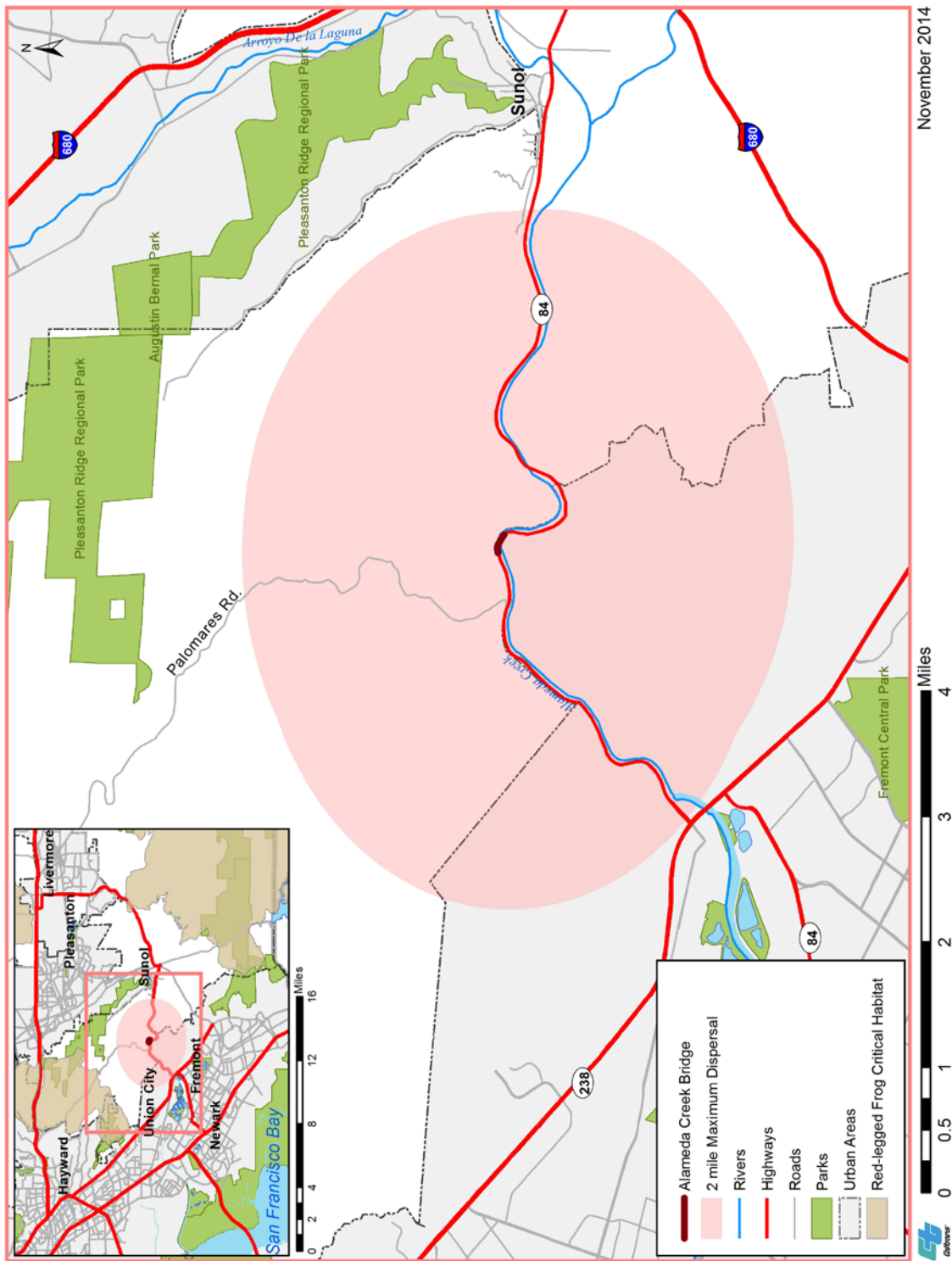
Based on research, historical data, and recent trends, the health of the species within the RSA is assumed to be stable since the listing of the CRLF in 1996. Although historic urban development, particularly road and highway construction, has fragmented CRLF and made them more vulnerable to decline, habitat within the RSA has remained mostly intact and undeveloped. The land use in Niles Canyon is predominately owned by public resource agencies and delineated as watershed lands. The passage of Alameda County's Measure D and the City of Fremont's Measure T indirectly helps to protect CRLF habitat within the RSA. Both measures aim to protect agricultural and open space and protect overdevelopment in the surrounding Fremont Hills and Niles Canyon Corridor. With land use planning designations insulating the majority of the RSA from development, the health of California red-legged frog was determined to be stable.

A review of past projects occurring in the last ten years within the RSA indicated the Sunol and Niles Dam Removal Project and Niles 1 were the only projects with impacts to CRLF. For the Sunol and Niles Dam Removal Project, impacts to CRLF were mitigated through restoration of all temporarily disturbed areas (San Francisco Planning Department, 2005). In 2011, Caltrans' Niles 1 Project impacted approximately 150 trees in riparian habitat natural communities. Caltrans biologists visited the site in November and December of 2015 and observed that many re-sprouting trees have established or are establishing dominant leaders. In some cases, the re-sprouts have attained 25 feet to 40 feet in height. In a longer-range historical context, while much of Alameda County was rapidly developing and urbanizing during the 1950s and 1960s, the land use in the RSA remained mostly intact and undeveloped due to the ownership of surrounding lands by public resource agencies and the area's delineation as watershed lands.

The proposed Alameda Creek Bridge Replacement Project would impact CRLF habitat within the project limits. Indirect impacts may result from temporary habitat exclusion and degradation during periods of construction activities. Impacts to habitat from the proposed project will be off-set through on-site restoration and enhancement, as well as providing compensatory mitigation by purchasing off-site credits at a conservation bank. The impacts to CRLF by each Alternative are identified in Table 32 in Section 2.3.5.

Although the project would have impacts to CRLF habitat, the potential long-term impacts to CRLF habitat are expected to be beneficial. Implementing the project would result in the removal of the existing Alameda Creek Bridge footings from the creek channel, the removal of the upstream concrete weir, and the removal of invasive giant reed populations. This would allow the stream to take on a more natural morphology and facilitate the development of linear in-stream wetlands along the banks. The Alameda Creek Bridge Replacement Project would have temporary construction impacts on wildlife corridors as the project would impact riverine and valley foothill riparian habitat. The riverine and riparian habitats within the project limits serve as wildlife corridors for wildlife to move from one side of SR-84 to the other. The Alameda Creek Bridge Replacement Project would not result in the construction of any permanent barriers that would sever or negatively impact wildlife corridors in the project limits.

Figure 47. California Red-Legged Frog Resource Study Area



Several reasonably foreseeable actions would occur within the RSA. These include the Niles Canyon Safety Improvements Project, the Stonybrook Fish Passage Improvement Project, and the Old Canyon Bridge Replacement Project. The Stonybrook Fish passage Improvement Project and the Old Canyon Bridge Replacement Project both identify measures that avoid and minimize impacts to CRLF habitat. The Niles Canyon Safety Improvements Project is the only reasonably foreseeable project in the RSA that would provide compensatory mitigation through permitting requirements for impacts to CRLF; other projects would avoid impacts to CRLF through the implementation of project avoidance and minimization measures. The Niles Canyon Safety Improvements Project DED, released in October 2016, identified that the project would have 5.10 acres of temporary impacts and 1.51 acres of permanent impacts to the CRLF habitat.

The results of this analysis indicate there is no cumulative impact to the health of CRLF in the RSA as a result of past, present, and future actions and that the Alameda Creek Bridge Replacement Project would not contribute to the degradation or decline in the health of the species. The Sunol and Niles Dam Removal Project and the Niles 1 Project were the only past projects identified within the RSA that resulted in impacts to CRLF habitat. Impacts for the Sunol and Niles Dam Removal project were mitigated by restoring temporarily disturbed areas in the project area. For the Niles 1 Project, Caltrans acknowledges the impacts to the RSA associated with the Niles 1 project and used that information in this cumulative impact analysis. Additionally, the only reasonably foreseeable project within the RSA is the Niles Canyon Safety Improvements Project indicating that the health of CRLF habitat would not be degraded by future actions and projects. The amount and quality of habitat being impacted by the Alameda Creek Bridge Replacement Project would be mitigated through a combination of on-site enhancements and restoration, and off-site compensation. Impacts from the Alameda Creek Bridge Replacement Project would not affect the persistence of local populations of CRLF in the Alameda Creek watershed. Ultimately, the project is expected to have a beneficial effect on the Alameda Creek and riparian habitat with the removal of the existing bridge footings from the creek channel, the removal of the upstream concrete weir, and the removal of invasive giant reed populations. These project features would allow the stream to take on a more natural morphology and facilitate the development of linear in-stream wetlands along the banks, which would enhance CRLF habitat. Caltrans does not anticipate any incremental effects that would result in a cumulatively considerable contribution to CRLF as a result of the proposed project.

The results of the analysis indicate that there is no cumulative impact occurring to CRLF within the RSA, given the lack of past and future projects that have occurred or would occur in the RSA that may result in a decline in the health of the resource. Additionally, the proposed Alameda Creek Bridge Replacement project is anticipated to have a beneficial impact on Alameda Creek contributing to the stability of the health of the CRLF within the RSA.

The Alameda Creek Bridge Replacement Project would not result in any incremental effects that would be cumulatively considerable to CRLF or its habitat. No additional measures are proposed besides those listed in Section 2.3.5.4.

#### **2.4.4.7 Biological Environment: Alameda Whipsnake**

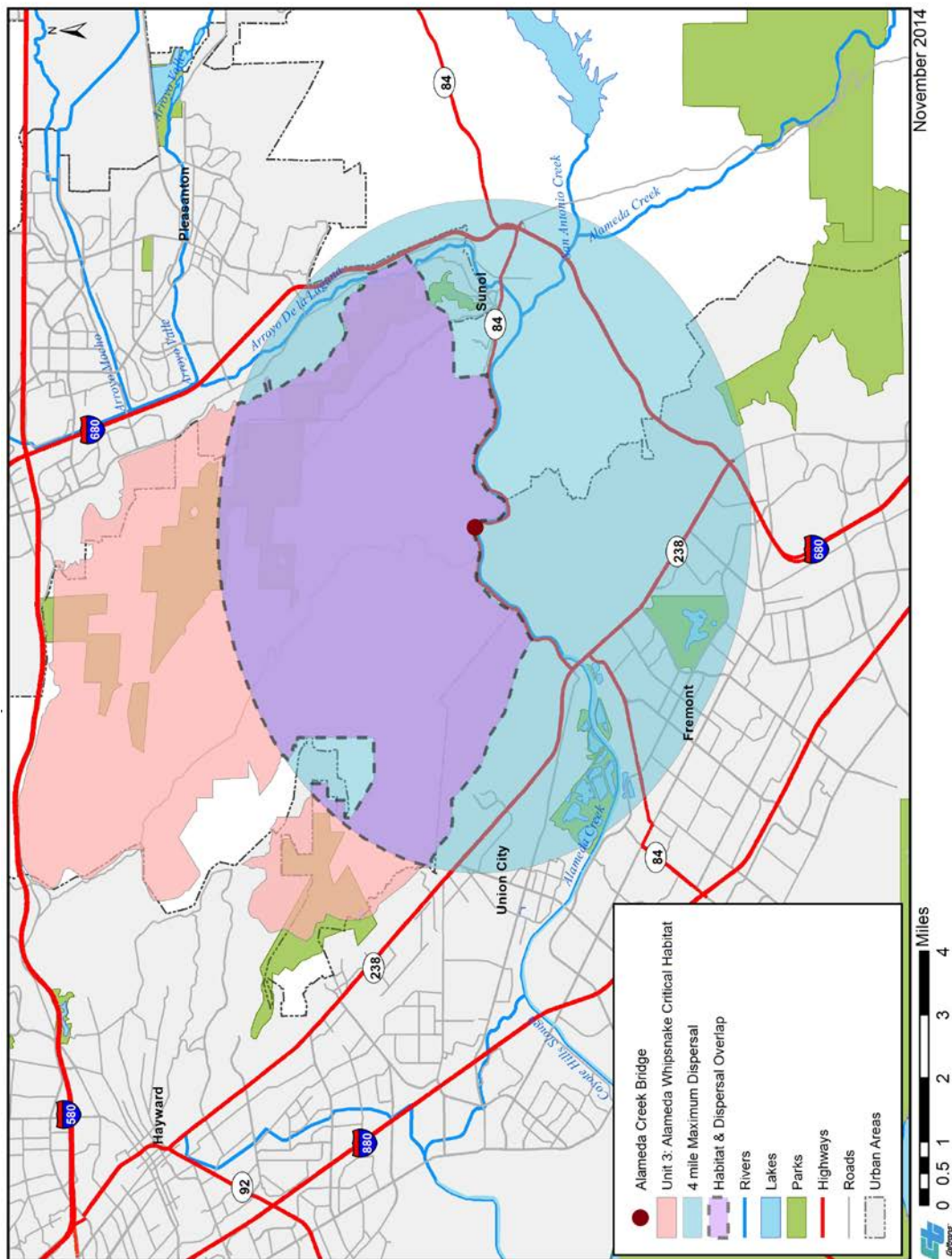
AWS is identified as a resource to consider in cumulative impact analysis because the Alameda Creek Bridge Replacement Project would impact AWS Critical Habitat Unit 3 and would require an ITP from the CDFW. Additionally, impacts to AWS are considered in cumulative impact analysis because prior to their listing in 1997, AWS populations within the region declined from the loss of habitat as a result of urban expansion and development (USFWS, 2011). The RSA for AWS extends four miles in all directions from the limits of the project limits. A four-mile buffer from all limits of the project limits was selected as the RSA because four miles is defined as the maximum dispersal distance of AWS individuals from scrub habitat per USFWS (USFWS, 2011). Refer to Figure 48 for a map of the RSA.

Based on research, historical data, and recent trends, the health of the species within the RSA is assumed to be stable since the AWS listing in 1997. The passage of Alameda County's citizen sponsored ballot initiative Measure D, Save Agriculture and Open Space Lands Initiative, in November 2000, and the city of Fremont's Measure T, also known as the Hill Area Initiative (passed in 2002) helps protect AWS habitat within the RSA. Both Alameda County's Save Agriculture and Open Space Lands Initiative and the City of Fremont's Hill Area Initiative aim to protect agricultural and open space and protect from overdevelopment in the surrounding Fremont Hills and Niles Canyon Corridor. Although historic urban development, particularly road and highway construction, has fragmented AWS populations and made them more vulnerable to decline, habitat within the RSA has remained mostly intact and undeveloped given the ownership of the surrounding lands by public resource agencies and the area's delineation as watershed land. With land use planning designations insulating the majority of the RSA from development, the health of AWS was determined to be stable.

In a longer range historical context, while much of Alameda County was rapidly developing and urbanizing during the 1950s and 1960s, the land use in the RSA remained mostly intact and undeveloped due to the ownership of surrounding lands by public resource agencies and the area's delineation as watershed lands.

Various projects including the Caltrans' Niles 1 Project (terminated in 2011), Alameda County Resource Conservation District's Arroyo de la Laguna Stream restoration, Alameda County Water District's Alameda Creek Pipeline No. 1 Fish Screen Project, SFPUC's Sunol Valley Water Treatment Plant Expansion, SFPUC's San Antonio Backup Pipeline, Alameda Siphon No. 4 Project, and SFPUC's Sunol and Niles Dam Removal have all occurred within the RSA established for AWS. Caltrans acknowledges the impacts to the RSA associated with the Niles 1 Project and used that information in this analysis. Impacts associated with Niles 1 occurred adjacent to SR-84 in an area that is considered marginal habitat for AWS. The Geary Road Bridge Project is not located within the established RSA for Alameda whipsnake. Avoidance and minimization measures were implemented as part of each project to avoid impacts to AWS habitat or no impacts to AWS habitat occurred as a result of each project.

**Figure 48. Alameda Whipsnake Resource Study Area**



Another project recently constructed within the RSA includes SFPUC's New Irvington Tunnel project, which involved the construction of an eight-foot-in-diameter tunnel to transmit water between the Sunol Valley and Fremont. Construction of the 3.5-mile-long project involved approximately 73.9 acres of impacts to whipsnake habitat; of these 73.9 acres, 71.1 acres are temporary impacts and 2.8 acres are permanent impacts (San Francisco Planning Department, 2009). Permanent impacts are areas where new facilities are constructed that result in a permanent loss of sensitive biological resources.

The proposed Alameda Creek Bridge Replacement Project would impact AWS habitat within the project limits. Indirect impacts may result from temporary habitat exclusion and degradation during periods of construction activities.

Several reasonably foreseeable actions would occur within the RSA. Caltrans is the project proponent for the following reasonably foreseeable actions: the Arroyo de la Laguna Bridge Scour Project, Niles Canyon Safety Improvements Project, I-680 HOV/Express Lane Project, and the 680 Freeway Performance Initiative in Alameda County.

- The Arroyo de la Laguna Bridge Scour Project is currently in the environmental phase and impacts to AWS habitat and mitigation associated with the project have not yet been determined. The project would involve impacts to Alameda whipsnake habitat.
- Impacts to AWS habitat from the Niles Canyon Safety Improvements Project is preliminarily estimated at 6.16 acres with temporary impacts accounting for 4.85 acres and permanent impacts accounting for 1.31 acres.
- Impacts to AWS habitat from the I-680 HOV Lanes Project is estimated at 19.0 acres with 11.7 acres were identified as permanent impacts and 7.3 acres were identified as temporary impacts.
- Impacts to AWS habitat from the Freeway Performance Initiative on I-680 is estimated at 9.9 acres with 3.1 acres were identified as permanent impacts and 6.8 acres were identified as temporary impacts.

The results of the analysis indicate there is a cumulative impact to Alameda whipsnake as a result of past, present and future actions and the incremental effects of the Alameda Creek Bridge Replacement Project would result in a cumulatively considerable contribution to cumulative impacts on AWS. Impacts to Alameda whipsnake vary by Alternative: all Alternatives would result in approximately 4.621 to 6.081 acres of temporary, prolonged temporary, and permanent impacts to Alameda whipsnake habitat while all Build Alternatives would result in approximately 1.152 to 2.010 acres of temporary and permanent impact to Alameda Whipsnake critical habitat. Measure AWS-1, identified in Section 2.3.5, serves as an avoidance, minimization, and/or mitigation measure for cumulative impacts to AWS habitat within the RSA. Impacts to habitat from the proposed project would be off-set through on-site restoration and enhancement, as well as providing compensatory mitigation by purchasing off-site credits at a mitigation bank as identified in AWS-1.



#### 2.4.4.8 Biological Environment: Steelhead Central California Coast DPS

The proposed project involves work in habitat that could potentially be used by steelhead - Central California DPS Steelhead<sup>46</sup>. Over the past several decades, steelhead species in Alameda Creek have been in decline, however, recent fish passage improvement projects indicate an effort to restore the species in their historic Alameda Creek habitat. Impacts to steelhead habitat will be considered as part of the Alameda Creek Bridge Replacement Project's cumulative impact analysis because of the project's impacts to the species habitat as well as the history of steelhead decline in Alameda Creek. The RSA selected for steelhead cumulative impact analysis includes CDFW's steelhead distribution layer within Alameda Creek and its tributaries, along with a one mile buffer (for upper Alameda Creek) and a 1/10 mile buffer (for urbanized areas in lower Alameda Creek) (CDFW, 2012) Refer to Figure 49 for a map of the RSA.

Until the 1950s, native fish species accounted for over 90% of total fish species within freshwater environments of the Alameda Creek watershed. By 1953-1969, the percentage of total species represented by native species had dropped to 61%, and by 1972-1987, the percentage of native species had further dropped to 46% of total species (Stanford, et. al., 2013). Native fish species currently comprise about 46% of the total fish species found in the watershed (19 of 41 total fish species) (Stanford, et. al., 2013). Construction of the BART weir in Fremont, the Calaveras Dam, and San Antonio and Del Valle reservoirs have severely modified Alameda Creek's quality of habitat. The operation of these three reservoirs and other water conveyance facilities altered natural flow regimes in streams below the dams, further degrading suitable steelhead spawning and rearing habitat in lower Alameda Creek in Niles Canyon. Specifically, the City of Fremont's BART weir blocks fish passage between Alameda Creek and San Francisco Bay. The BART weir is an inoperable, concrete grade control structure operated by the ACFCF and is located approximately 3.75 miles downstream from the Alameda Creek Bridge. Built in 1972, the BART weir imposes a major barrier to fish passage by preventing fish from entering the Alameda Creek watershed. As a result, they are considered to be landlocked rainbow trout and do not receive protection under the FESA as anadromous Central California Coast DPS steelhead.

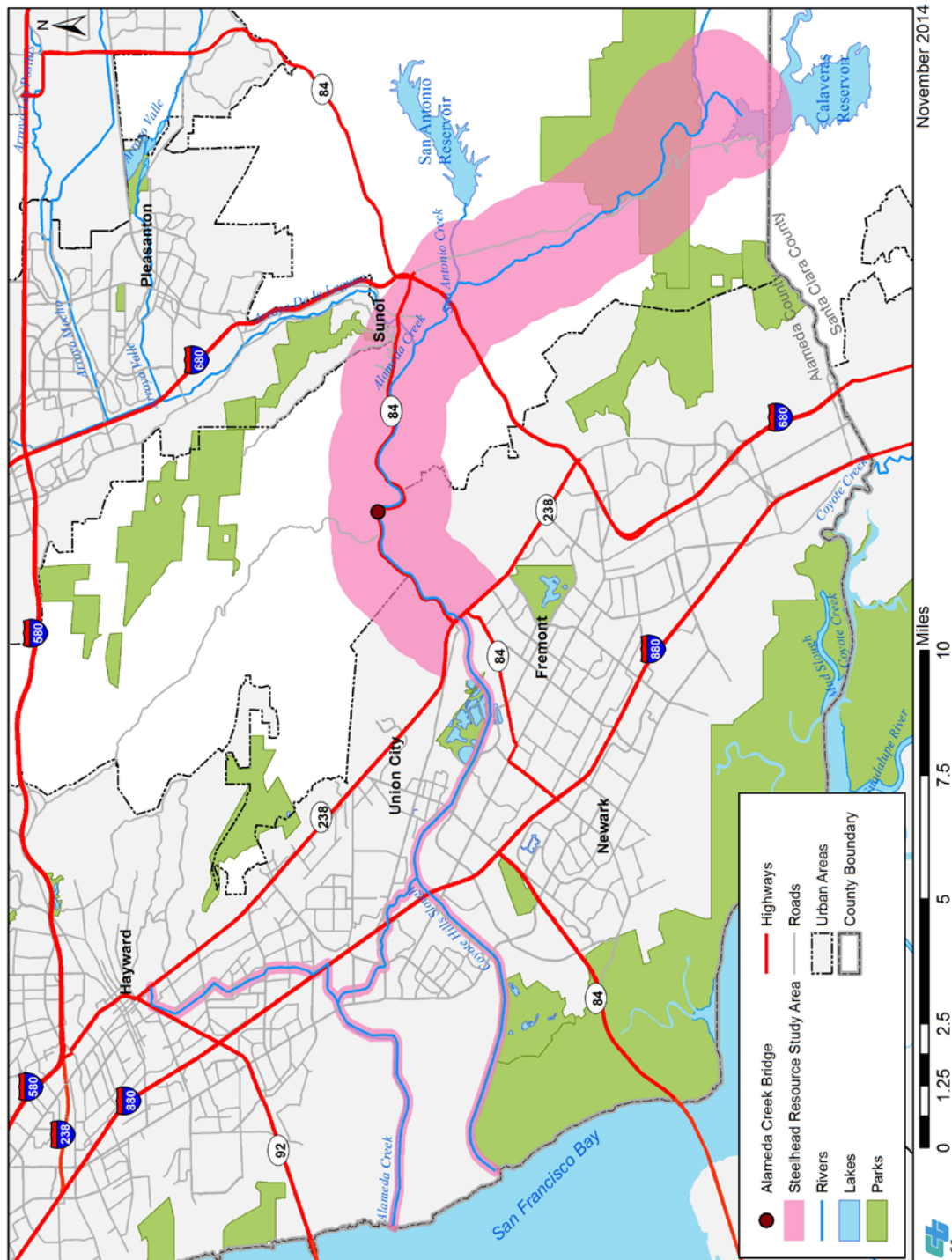
The health of the steelhead Central California DPS is assumed to be stable given that the percentage of native fish species within the Alameda Creek watershed has remained at 46% of total species since 1972-1987, and furthermore, that the health of the resource will improve in future years with the implementation of multiple fish passage improvement

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<sup>46</sup> Fish passage between Alameda Creek and San Francisco Bay is blocked within the City of Fremont as of July 2017, by a concrete grade control structure. As a result, these fish are not currently considered to be anadromous Central California Coast DPS steelhead and do not receive protection under the FESA. ACWD is scheduled to install a fish ladder that will circumvent this structure in 2019 (ACWD 2014). As a result, fish passage between San Francisco Bay and the Alameda Creek watershed would be restored, and steelhead within Alameda Creek will be included by NMFS as part of the federally threatened Central California Coast steelhead DPS. Caltrans has concluded that a "No Effect" determination applies under the Federal Endangered Species Act based on the fact that no steelhead are currently present; however, Caltrans acknowledges the planned removal of various obstructions and installation of fish ladders in Alameda Creek (including, but not limited to, the BART weir) and will be implementing avoidance and minimization measures in anticipation of improved fish passage through the corridor.

projects within the watershed. Within the last 10 years, several projects have been implemented to restore fish passage through Alameda Creek to the San Francisco Bay. These past and present projects include the SFPUC's Sunol and Niles Dam Removal Project and ACWD's Alameda Creek Pipeline Number 1 Fish Screen Project. Additionally, Alameda Creek Alliance's involvement and advocacy work to remove barriers to fish passage have drawn attention to restoring salmon and steelhead trout to Alameda Creek. The multitude of fish passage improvement projects in the RSA and the advocacy work of the Alameda Creek Alliance indicate an ongoing effort to improve the health of steelhead habitat.

**Figure 49. Steelhead – Central California Coast DPS Resource Study Area**



Alterations to the quality of the Alameda Creek habitat in the past sixty years indicate a severe decline in health of the species within the RSA. However, recent project trends to improve fish passage through Alameda Creek, and interest from conservation groups indicate the health of the resource is gradually improving. A future project by the ACWD and ACFCD plans to install a fish ladder at the existing BART weir, which currently blocks fish passage between Alameda Creek and the San Francisco Bay. The removal of this barrier to fish passage would allow the landlocked rainbow trout to be considered Central California Coast DPS steelhead and receive protection under FESA.

No take of steelhead is anticipated from the proposed Alameda Creek Bridge Replacement Project through the use of avoidance and minimization measures and the diversion of Alameda Creek. Indirect impacts may result from habitat exclusion and degradation of water quality from erosion or sediment loading as a result of construction activities. Water quality impacts are unlikely, given the implementation of standard Caltrans project avoidance and minimization measures and water quality BMPs. All Alternatives would permanently impact steelhead habitat. Permanent effects to the riverine habitat are anticipated through the installation of new bridge columns. The new pier footprint would be smaller than the existing pier walls in the stream channel resulting in a reduction of hard structure in the Alameda Creek stream channel. Part of the Alameda Creek Bridge Replacement Project proposes the removal of the upstream weir, which currently serves as a barrier to fish passage. The removal of the weir would also reduce the amount of concrete structure in Alameda Creek. There are potential shade changes that could occur within the project area at Alameda Creek due to vegetation removal and changes to the bridge deck. Implementing the project would result in the removal of the existing bridge footings from the creek channel, removal of the upstream concrete weir, and removal of invasive giant reed populations. This would allow the stream to take on a more natural morphology and remove a low-flow passage barrier to steelhead. Permanent and temporary effects to steelhead habitat are identified in Table 35 in Section 2.3.5.3.

The following projects within the RSA were identified as reasonably foreseeable and could involve potential effects to steelhead:

- Caltrans' Arroyo de La Laguna Bridge Scour Project is currently in the environmental phase; impacts to steelhead and mitigation associated with the project have not yet been determined.
- Caltrans' I-680 HOV Lane Project would have no effect on steelhead as steelhead are prevented from leaving the Alameda Creek watershed by the BART weir. As such, they are not currently considered to be fully anadromous in this region and do not receive protection under FESA.
- ACWD-ACFCD Joint Lower Alameda Creek Fish Passage Improvement. This project involves various improvements to fish passage in lower Alameda Creek including, but not limited, to the installation of a new fish ladder at the BART weir and a fish screening facility.
- City of Fremont's Old Canyon Bridge Replacement Project. This project has no effect on steelhead because it would be completed prior to the downstream fish passage project. Only temporary impacts will occur within Alameda Creek and the site will be restored to original conditions post-construction.

- ACFCD's Floodwall Improvements along Zone 3A (Ward Creek Flood Control Project). There would be no effects to steelhead due to downstream barriers preventing steelhead access to the project area.
- Alameda County Conservation District/Natural Resources Conservation Service's Stony Creek Fish Passage Improvement Project. This is a fish passage improvement project that would allow movement of steelhead past previous fish barriers.

All Alternatives would contribute a positive cumulative effect to the resource and continue the general trend of improving the health of the species habitat within the RSA. Although the proposed project would have short-term, temporary impacts to steelhead habitat, these temporarily impacted areas would be restored after the project's construction.

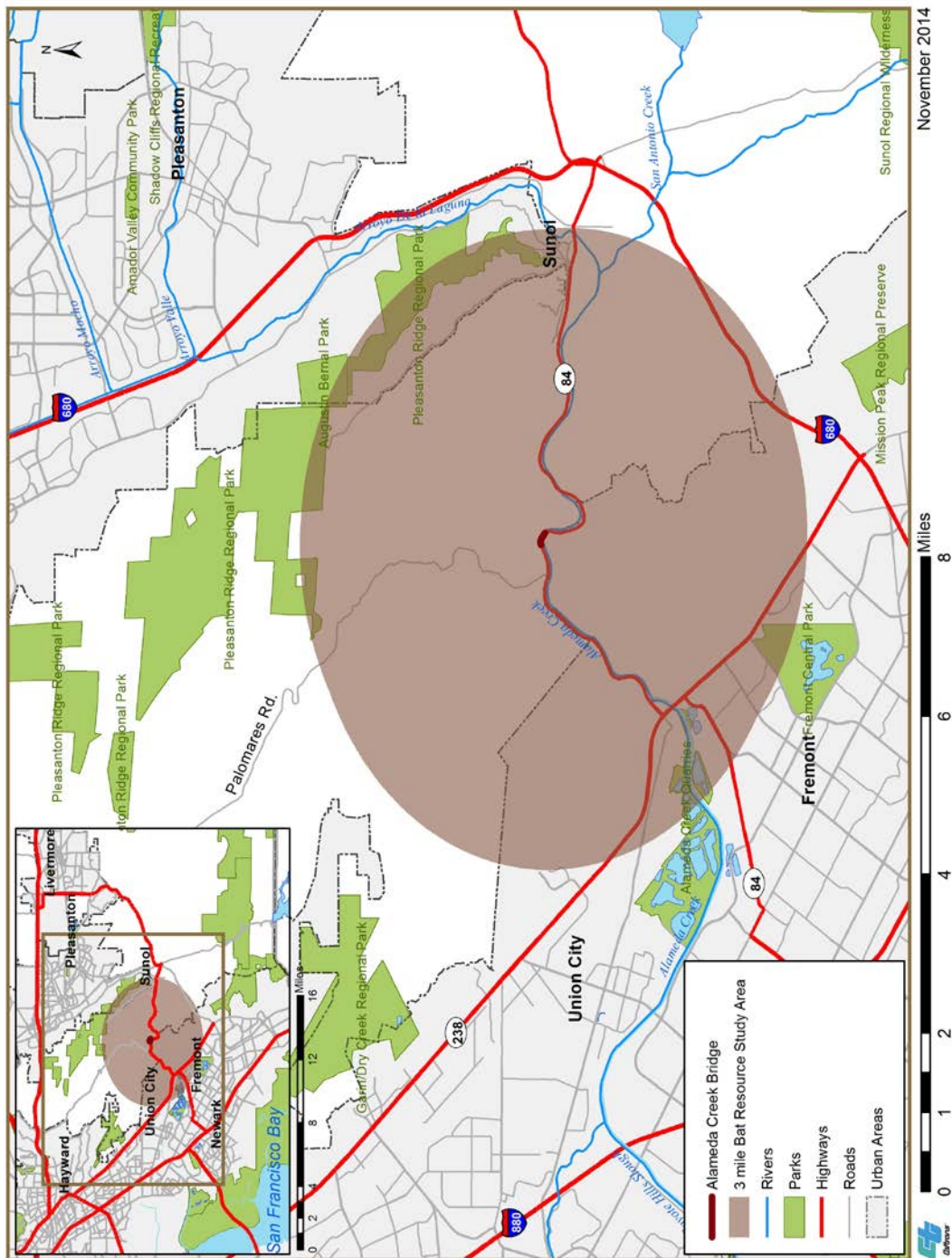
The incremental effects of the Alameda Creek Bridge Replacement Project would not result in a cumulatively considerable contribution to the Central Coast DPS steelhead or its habitat. No additional avoidance and minimization measures are proposed besides those listed in Section 2.3.5.

#### **2.4.4.9 Biological Environment: Roosting Bats**

Roosting bats are identified as a resource to consider in this cumulative impact analysis because the demolition of the Alameda Creek Bridge would permanently remove a known day-and-night roost site for several species of bats, including the Yuma myotis (a species on CDFW's Special Animal List). The bats currently occurring at the project location do not have federal or state threatened or endangered species status, meaning that compensatory mitigation is not required for roosting bats. Eight special-status bat species have the potential to occur within the project's study limits based on range, habitat, and recorded occurrences in the region. Of these eight special-status bat species, the pallid bat has the largest known foraging range (three miles from a roost site) so the RSA for roosting bats was set at three miles from the roost site. Refer to Figure 50 for a map of the RSA.

As described previously in this document's biological-environment cumulative-impact analysis sections, multiple county, state, and local programs, plans, and policies protect the Niles Canyon corridor from development. In consequence, the health of bat populations within the RSA is assumed to be stable. However, general current population trends for the majority of bat species are unknown, as quantitative information on the population status of bats is scarce. Declines of bat populations are increasingly documented and roost and habitat loss is a major threat to the continued survival of many species of bats (Fenton, 1998). Bats in general may be under-reported to the CNDDB relative to their actual abundance in the environment because they are nocturnal, difficult to detect, and difficult to positively identify and count when detected. In addition to the lack of overall knowledge about bats, roosting bats do not have federal or state threatened or endangered species status. Although the population is assumed to be stable, due to the lack of information, this analysis assumes a potential for cumulative impacts to roosting bats.

Figure 50. Roosting Bats Resource Study Area





Past projects identified in the RSA with potential impacts to roosting bats include the Niles Canyon 1 Project, the Sunol/Niles Dam Removal Project, Alameda Creek Pipeline Number 1 Fish Screen Project, and the Mission Valley Rock Expansion. The Niles 1 Project was terminated before the start of construction. However, approximately 150 trees within the project limits were impacted in preparation for project construction. Caltrans acknowledges the impacts to the RSA associated with the Niles 1 Project and used that information in this analysis. Given the extent of habitat provided by trees in the RSA, the habitat provided adjacent to the Niles 1 tree cutting area, and the re-sprouting of some trees in the Niles 1 impact area, the impacts of the Niles 1 tree cutting on roosting bats are not considered to have resulted in an incremental effect on roosting bat habitat that is cumulatively considerable. The Sunol/Niles Dam Removal Project and the Alameda Creek Pipeline Project included BMPs to avoid and minimize impacts to bats. The Mission Valley Rock Expansion mitigated for loss of bat roosting habitat as a result of project impacts through a Reclamation Plan to restore and increase the quality of habitat available to bats.

Additionally, three projects in the RSA are considered reasonably foreseeable and would impact bat species; these projects include the Old Canyon Road Bridge Foundation Protection Repair Project, the Niles Canyon Safety Improvements Project, and the Stonybrook Creek Fish Passage Improvement Project. Impacts to bats as a result of the Niles Canyon Safety Improvements Project have not yet been determined, but the project may temporarily disrupt potential day and night roost habitat during tree removal. The Old Canyon Bridge Foundation Protection Repair Project includes pre-construction surveys for bats and will avoid roosts if they are found. The Stonybrook Fish Passage Improvement Project proposes to implement avoidance and minimization measures to avoid impacts to bats.

The demolition of the Alameda Creek Bridge would permanently remove a known day-and-night roost site for several species of bats. The Alameda Creek Bridge Replacement Project's impacts on roosting bats could be considered cumulatively considerable if there were other reasonably foreseeable projects in the RSA with impacts to roosting bats. However, the reasonably foreseeable projects in the RSA do not directly impact roosting bats through the implementation of project avoidance and minimization measures. Given the multiple county, state, and local programs, plans, and policies that protect the Niles Canyon corridor from development, it is assumed that the health of the resource is stable and that there is no cumulative impact occurring to roosting bats in the RSA. Furthermore, a continuity of bat habitat within the project limits would be provided as the new Alameda Creek Bridge Replacement Project incorporates roosts specifically designed and built as habitat for bats. Caltrans would install the same amount of bat roosting habitat on the new Alameda Creek Bridge that is currently present on the existing bridge. As identified in Section 2.3.4, the construction of new daytime crevice roosts and recessed night roosts out of concrete into the underside of the new bridge structure would minimize the loss of day and night roosting habitat from the demolition of the existing bridge.

During the first two construction seasons of the new Alameda Creek Bridge Replacement Project, bat roosting habitat in the existing Alameda Creek Bridge would not be directly

disturbed. However, the operation of equipment near known roost sites under the existing Alameda Creek Bridge has the potential to harass individual bats. Harassment of these individuals may result in the temporary avoidance of roost sites during project activities. Removal of the existing Alameda Creek Bridge during the third construction season would permanently remove a known day and night roost site for several species of bats, including the Yuma myotis maternity roost. However, as stated above, bat habitat would be provided on the new Alameda Creek Bridge ensuring a continuity of habitat within the project limits at all times during construction activities.

While the new Alameda Creek Bridge would incorporate bat roosting habitat into the new Alameda Creek Bridge design, there is a possibility that bat populations roosting on the existing Alameda Creek Bridge may choose not to roost on the new Alameda Creek Bridge. Caltrans has had previous success with bats utilizing roosting structures installed on new bridges (Caltrans, 2004b). The roosting structures that would be installed on the new Alameda Creek Bridge would be similar to the current roosts available to bats on the existing bridge and similar to the roost structures that have proven successful on other Caltrans bridges. This increases the likelihood that bats would successfully migrate over to utilize the new Alameda Creek Bridge for roosting. It is assumed that the Alameda Creek Bridge Replacement Project's incremental effect on roosting bats is not cumulatively considerable given the continuity of bat habitat provided within the project limits, the small number of projects in the Niles Canyon corridor that would impact bats, and the existing land use protections in Niles Canyon preventing extensive development. Furthermore, with the creation of suitable day and night roosting habitat on the new bridge, the restoration and enhancement of foraging habitat along the creek's riparian corridor, and the implementation of avoidance and minimization measures during construction, it is assumed that the Alameda Creek Bridge Replacement's incremental effect on roosting bats is not cumulatively considerable.

No additional avoidance and minimization measures are proposed for roosting bats besides those listed in Section 2.3.4 Animal Species.

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## **CHAPTER 3. CALIFORNIA ENVIRONMENTAL QUALITY ACT EVALUATION**

### **3.1 Determining Significance under CEQA**

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

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

CEQA, on the other hand, does require Caltrans to identify each "significant effect on the environment" resulting from the project and ways to mitigate each significant effect. If the project may have a significant effect on any environmental resource, then an EIR must be prepared. Each and every significant effect on the environment must be disclosed in the EIR and mitigated if feasible. In addition, the CEQA Guidelines list a number of mandatory findings of significance, which also require the preparation of an EIR. There are no types of actions under NEPA that parallel the findings of mandatory significance of CEQA. This chapter discusses the effects of this project and CEQA significance.

### **3.2 Effects of the Proposed Project**

The CEQA Environmental Checklist (Appendix A) identifies the physical, environmental effects that might result from the implementation of a proposed Alternative. The determinations for the CEQA checklist were determined in consultation with the technical studies prepared for this project, as listed in Chapter 7, References. The CEQA impact levels include: potentially significant impact, less-than-significant impact with mitigation, less-than-significant impact, and no impact. In many cases, background studies performed in connection with the Alternatives indicate no significant impact.

### 3.2.1 No Effects

As part of the project’s scoping and environmental analysis conducted for the proposed Alternatives, agriculture and forest resources, air quality, cultural (archaeology), energy, mineral resources, population and housing, recreation, plants, tribal resources, and invasive species were considered but found to have no adverse impact. Refer to Chapter 2, Table 8, and Sections 2.1.1.3 (Parks and Recreational Facilities), 2.2.6 (Energy), and 2.3.6 (Invasive Species) for a more detailed description of these resource areas.

### 3.2.2 Less-than-Significant Effects of the Proposed Project

The Build Alternatives would have “Less-than-significant” impacts on the following resources:

#### Visual/Aesthetics (Alternatives 2, 3A, and 3B)

For Alternatives 2, 3A and 3B, changes to visual character would remain subordinate in scale and dominance to the surrounding natural setting. Alternative 3A involves the construction of approximately 1,100 foot long rock cuts and soil nail walls on the eastern approach while Alternative 2 involves the construction of a Type 1 downslope retaining wall and 470 linear feet of rock. Alternative 2 has a smaller impact area on the eastern side in comparison to Alternative 3A, but the rock cuts of both alternatives would be very similar. Alternative 3B has the least amount of impact to visual/aesthetics out of the four Alternatives. Alternative 3B has the least amount of visual impacts since the roadway is constructed as a sidehill viaduct on columns and only an upslope rock cut is required. Following construction, the erosion control netting and hydroseeding of all alternatives would contrast with the natural setting. However, after a few months, growth of erosion control grasses would restore a more natural appearance, which would continue to improve over time. No long-term sources of light or glare would be introduced by Alternatives 2, 3A, and 3B. Temporary light and glare impacts during construction would be negligible with the implementation of standard project measures. Alternatives 2, 3A, and 3B would have a less-than-significant visual/aesthetic impact. Stain and texture of Type 1 retaining walls proposed as part of Alternative 2 would further reduce glare impacts on viewers. Refer to Section 2.3.1 for more detailed analysis.

CEQA significance for Alternative 1 is discussed in Section 3.2.3 Significant Effects of the Proposed Project. Refer to Section 2.1.4 for a detailed analysis.

#### Biological Resources

Section 2.3, Biological Resources, evaluates the project’s effect on biological resources within the project limits for each Alternative. As described in this section, construction, staging, and earthmoving activities may result in potential impacts to natural communities, special status-species, and special status-species’ habitats. The Alameda Creek Bridge Replacement Project has the potential to impact San Francisco dusky footed woodrat and migratory birds.

#### San Francisco Dusky Footed Woodrat

Although the proposed project would result in the removal and/or relocation of several San Francisco dusky-footed woodrat houses, there would a negligible impact on the local woodrat population. Project design of the impact area would avoid sensitive habitat areas

and woodrat nests to the maximum extent practicable. Impacts to San Francisco dusky-footed woodrat are less-than-significant. To further reduce impacts to woodrats, Caltrans would implement a relocation plan for the woodrat houses affected by the Alameda Creek Bridge Replacement Project. Refer to Section 2.3.4 for a more detailed analysis.

### Migratory Birds

The proposed project could result in temporary loss or disturbance of habitats that are used by nesting migratory birds. During project-related construction, common migratory birds may be temporarily displaced by habitat alteration or noise from construction equipment. However, implementation of the proposed avoidance and minimization measures would prevent direct mortality of migratory birds. The proposed project would remove or disturb a small amount of unoccupied habitat used by nesting or foraging migratory birds. This impact would be temporary in nature and limited to a relatively small area in relationship to the extensive nesting and foraging habitat adjacent to the project area. Because the new bridge would be constructed first, the loss of nesting habitat for cliff swallows on the current bridge would be minimized through the creation of potential new nesting substrate on the new Alameda Creek Bridge. As a result, impacts to migratory birds are less-than-significant. Refer to Section 2.3.4 for a more detailed analysis.

### **Geology and Soils**

All Alternatives would not result in a significant impact to the geology and soils of the site. The Alameda Creek Bridge Replacement Project would be designed using Caltrans' Seismic Design Criteria (SDC). The SDC provides the minimum seismic requirements for highway bridges designed in California. The Alameda Creek Bridge Replacement Project design incorporates features to reduce impacts as a result of geologic and seismic conditions. These design features include, but are not limited to, designing the new Alameda Creek Bridge to withstand a defined level of bedrock acceleration and driving piles below liquefiable layers. In the event of an earthquake, construction workers would be exposed to shaking, lurching, and cracking during the construction of the Alameda Creek Bridge. Following the completion of the project, all Alternatives would not expose the traveling public to any new geologic hazards using existing baseline conditions. People and structures would not be exposed to substantial adverse effects involving fault rupture or other seismic-related issues. The proposed improvements would not result in substantial soil erosion or the loss of top soils. Avoidance and minimization measures described in Section 2.2.3 would be implemented across all Alternatives to minimize soil erosion and avoid impacting the stability of existing soils. The impacts of all Alternatives on geology and soils would be less-than-significant. Refer to Section 2.2.3, for a more detailed analysis.

### **Hazards and Hazardous Materials**

The proposed project would not create any significant hazards to the public or environment through the routine transport use or disposal of hazardous materials or through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. The existing Alameda Creek Bridge structure likely contains ACM and LBP and surface soils under the existing bridge's steel elements may have high levels of lead due to deposition of LBP-flakes generated during routine bridge repainting and maintenance over the past nine decades. All Alternatives propose the reuse of excavated



materials for bridge embankment construction without generating surplus excavated materials. If the project design shows that construction would result in a surplus of excavated materials, a site investigation would be conducted to characterize the soil. Avoidance and minimizations measures identified in Section 2.2.5 would be implemented to avoid exposure to hazardous materials and aerially deposited lead (ADL). The project would not emit hazardous emissions and would not expose people or structures to a significant risk of loss. Additionally, the proposed Alameda Creek Bridge Replacement Project would not impair implementation or interfere with any emergency plans. The impacts of all Alternatives on hazards and hazardous materials would be less-than-significant. Refer to Section 2.2.5 for a more detailed analysis.

### **Land Use and Planning**

All Alternatives would not have a significant impact on land use and planning. All Alternatives would not divide an established community, would not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project, and would not conflict with any applicable habitat conservation plan or natural community conservation plan.

Overall, all Alternatives are consistent with relevant State, Regional, and Local Plans and Programs with minimal inconsistencies with the East Alameda County Conservation Strategy. The Alameda Creek Bridge Replacement Project is a transportation project and as such, Alternatives 1, 2 and 3A are not consistent with Goal 16 of the EACCS, “Increase the Alameda whipsnake population in the designated recovery units in the study area to a level that allows for long-term viability without human intervention.” However, Caltrans’ Preferred Alternative, Alternative 3B, achieves Objective 16.1 of Goal 16 which is to “Avoid and minimize direct impacts on Alameda whipsnake (mortality of individuals and loss of habitat) during project construction and indirect impacts that result from post project activities by implementing avoidance measures.” As identified in Table 34 in Section 2.3.5.3, Alternative 3B has similar impacts to Alameda whipsnake Critical Habitat Unit 3 as Alternatives 1, 2, and 3A. However, Alternative 3B has an overall smaller footprint and therefore, less of an impact to Alameda whipsnake habitat as identified in Table 33. Therefore, Alternative 3B achieves Objective 16.1 of Goal 16. The impacts of all Alternatives on land use and planning would be less-than-significant. Refer to Section 2.1.1 for a more detailed analysis.

### **Noise**

Noise levels would increase during the construction of the new Alameda Creek Bridge. The construction noise levels would vary, depending on the specific task and types of equipment being used. The activities anticipated to generate higher noise levels include earthwork, demolition, pile installation, and concrete mixing. The noise levels would be kept under 86 dBA (Lmax) at 50 feet from the noise source for the majority of the activities involved with the construction of this project. The one exception would be when impact tools are used in the demolition of the existing bridge, which may reach 90 dBA in some incidents. Depending on the positions of the noise source and receptor, sound waves reflecting off canyon cliffs would slightly prolong the noise event as reverberation or, if time delays long enough, would produce faint distinguishable sounds as echoes.

Comparing with the original noise source, the reflections are always weaker in energy due to losses in sound propagation, refraction, and diffraction. When reflections are combined with the noise source as in the case of reverberation, they would not cause noise levels to increase more than one to two dBA, which are not perceptible to normal human hearing. Although the project would generate noise during construction, the project is located in a remote area of Niles Canyon with no noise sensitive users in the project vicinity. Noise impacts related to biological resources are addressed in Section 2.3 Biological Environment. Noise impacts for all Alternatives would be less-than-significant.

**Public Services**

All Alternatives would not result in substantial adverse physical impacts associated with the construction of the Alameda Creek Bridge which could permanently affect public services, such as access to schools, parks, and other public facilities as well as fire or police protection. The project would temporarily impact emergency access through SR-84 as short-term lane closures would be necessary to facilitate construction. These short-term lane closures would occur on the weekends and during off-peak hours as to not affect peak-hour traffic (peak hour traffic is defined as 6-10 AM and 3-7 PM). Impacts to public services would be less-than-significant. Refer to Section 2.1.2 for a more detailed analysis.

**Transportation/Traffic**

The Alameda Creek Bridge Replacement Project would not result in a significant impact to transportation/traffic. All Alternatives would not conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system. Additionally, all Alternatives would not conflict with an applicable congestion management program, would not substantially increase hazards due to a design feature or incompatible use, and would not conflict with adopted policies, plans, or programs regarding public transit, bicycle or pedestrian facilities. The project would temporarily impact emergency access through SR-84 as short-term lane closures would be necessary to facilitate construction. These short-term lane closures would occur on the weekends and during off-peak hours as to not affect peak-hour traffic (peak hour traffic is defined as 6-10 AM and 3-7 PM). Impacts to transportation/traffic would be less-than-significant. Refer to Section 2.1.3 for a more detailed analysis.

**Utilities and Service Systems**

All Alternatives would maintain the existing two-lane capacity of this section of SR-84. All Alternatives would not result in an increase in demand for public utilities (i.e. potable water and solid waste disposal needs). No relocations or direct impacts to sewer and water utilities are anticipated, however, two PG&E utility poles located within the project vicinity would be relocated to accommodate the realignment of SR-84 and the construction of a new Alameda Creek Bridge. AT&T also uses these two utility poles to provide telecommunication services through the area. There would be no temporary or long-term impacts to electricity or telecommunication services from the relocation of the power poles. The impacts of all Alternatives on utilities and service systems would be less-than-significant. Refer to Section 2.1.2 for a more detailed analysis.

### **Cumulative Impacts**

The cumulative impacts of the proposed Alternatives are discussed in detail in Section 2.4, Cumulative Impacts.

The Alameda Creek Bridge Replacement Project would result in a less-than-significant contribution to cumulative impacts on the following resource areas:

- Aesthetics (Alternatives 2, 3A, and 3B)
- Agriculture and Forest Resources
- Air Quality
- Selected Biological Resources including
  - Natural Communities
  - Wetlands and other waters
  - California red-legged frog
  - Steelhead
  - Roosting bats
  - Plant species
  - River Lamprey and Pacific Lamprey
  - Western Pond Turtle
  - San Francisco Dusky-Footed Woodrat
  - Migratory Bird (Cooper's hawk, White-tailed kite, yellow warbler, heron and egret rookeries including great blue heron, great egret, snowy egret, and black-crowned night heron)
- Cultural Resources (Archeology)
- Geology and Soils
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Mineral Resources
- Noise
- Paleontology
- Parks and Recreation
- Population and Housing
- Public Services
- Transportation/Traffic
- Tribal Resources
- Utilities and Service Systems

The Alameda Creek Bridge Replacement Project would result in a significant contribution to cumulative impacts on the following resource areas and are discussed in Section 3.2.3:

- Cultural Resources (Architectural History)
- Alameda Whipsnake
- Aesthetics (Alternative 1)

### 3.2.3 Significant Environmental Effects of the Proposed Project

This section identifies significant impacts as a result of the implementation of the Build Alternatives. Environmental impacts under CEQA are avoided and minimized through implementation of standard conditions (implemented as part of all Caltrans projects), minimization measures, and mitigation measures.

#### **Aesthetics (Alternative 1)**

*Impact: Implementation of Alternative 1 would substantially degrade the existing visual character or quality of the site and its surroundings.*

The high visual/aesthetics impact of Alternative 1 is due to the construction of the 1,090-foot long uphill soil-nail retaining wall on the eastern approach to the Alameda Creek Bridge. Additionally, there would be an increased impact from construction of the Type 1 downslope retaining wall from the Alameda Creek area in comparison to the construction of the sidehill viaduct and piles from the roadway as proposed in Alternatives 3A and 3B. By its realignment northward, the new western approach would move closer to the Niles Canyon Railway. Under Alternative 1, the side slope adjacent to the eastbound lane would include a 4:1 side-slope. This would require tree removal and re-grading close to the Niles Canyon Railway, reducing the width of the visual buffer of trees between the rail line and realigned roadway. Alternative 1 would decrease the amount of screening canopy between the Niles Canyon Railway and the roadway and it is likely that visibility of the highway from the Niles Canyon Railway could increase in this section. If visibility of the highway from the Niles Canyon Railway does increase due to project tree removal, visual quality and character would both be adversely affected. As seen from the Niles Canyon Railway, vividness, intactness, and unity could all decline to a moderate degree, and visual character would be moderately affected by the change to a less natural setting although these effects would be brief and fleeting at normal operating speeds. Nevertheless, overall this is considered a moderate adverse visual change. In the context of moderately high viewer response of Niles Canyon Railway passengers, this could be a moderately high, adverse impact.

Measures were developed to minimize the height and scale of the walls and to use context-sensitive textures and colors to reduce contrast of color and character of the retaining wall, to reduce Alternative 1's impacts on visual/aesthetics. Alternative 1 would substantially degrade the existing visual character or quality of the site and its surroundings, however, with the implementation of Mitigation Measure VISUAL-1, Alternative 1's impacts on visual/aesthetics would be lessened.

Reducing the width of the visual buffer of trees between the rail line and realigned roadway would result in a significant visual/aesthetic impact to Niles Canyon Railway passengers. However, with the implementation of mitigation measures UPLAND TREES-1 AND RIPARIAN TREES-1, visibility of the road could be blocked in the long term, reducing viewer exposure and visual change to a minimal level. Guard rail would be required on the north (westbound) side of the highway to apply this measure. Alternatively, or in addition to that measure, implementation of a 2:1 side-slope to the north (westbound) of the embankment could reduce tree removal, avoiding impacts described above.

No long-term sources of light or glare would be introduced by Alternative 1. With the implementation of avoidance and minimization measures identified in VISUAL-5, temporary construction lights impacts would be negligible. Stain and texture of Type 1 and soil nail walls associated with Alternatives 1 would reduce glare impacts on viewers.

With the implementation of Mitigation Measure VISUAL-1, Alternative 1 would have a less-than-significant impact to the existing visual character and quality of the project surroundings and would have a less-than-significant impact to scenic resources within a State Scenic Highway.

Alternatives 2, 3A, and 3B are discussed in Section 3.2.2 Less-than-Significant Effects of the Proposed Project. Refer to Section 2.1.4 for a more detailed analysis.

## **Biological Resources**

### Natural Communities

*Impact: Implementation of the Alternatives would have a significant impact on oak woodland natural communities.*

The Alameda Creek Bridge Replacement Project would have temporary and permanent impacts to annual grassland, barren, coastal oak woodland, coastal scrub, riverine, and valley foothill riparian. Impacts to riparian natural communities are discussed in Section 2.3.1. Disturbances to annual grassland, coastal scrub, and riverine would not impact the continuous Niles Canyon habitat corridor and would not significantly degrade the function of these natural communities. The proposed project would not create barriers to existing wildlife corridors in the project limits.

The removal of trees as a result of the Alameda Creek Bridge Replacement Project could have a potentially significant impact to oak woodland natural communities. To mitigate for this potentially significant impact, measures were developed to provide replacement for trees within the project area, to the maximum extent possible. Caltrans would provide tree replacement on-site for upland trees at a 1:1 ratio in the existing SR-84 alignment after the construction of the Alameda Creek Bridge Replacement Project. As of July 2017, Caltrans anticipates that no off-site mitigation would be needed as all mitigation for upland trees can be accomplished on-site. Although the project would result in temporary disturbances and loss of oak woodland natural communities, the project would restore habitat loss through on-site replanting activities. The old SR-84 alignment would be remediated and replanted with appropriate native vegetation and trees to account for community habitat impacts that may result from the Alameda Creek Bridge Replacement Project. The Alameda Creek Bridge Replacement Project could have a potentially significant impact to natural communities. However, the Alameda Creek Bridge Replacement Project would have a less-than-significant impact to oak woodland with the implementation of Mitigation Measures UPLAND TREES-1. Refer to Section 2.3.1 for a more detailed analysis.

### Wetlands and Other Waters

*Impact: Project impacts to wetlands and other waters would be less than significant, however, the removal of the concrete weir would have a significant impact on wetlands and other waters in the project vicinity.*

As identified in Table 29 in Section 2.3.2, all Alternatives would result in minor permanent loss of wetlands and other waters (between 0.002 to 0.171 acres, depending on the Alternative) and temporary impacts to wetlands and other waters (between 1.146 to 1.338 acres, depending on the Alternative). All Alternatives would result in permanent and temporary impacts, however, the overall long-term impact to wetlands and other waters within the project limits would be positive. Project features with a positive impact to wetlands and other waters include the removal of the existing Alameda Creek Bridge (including in-stream columns), the removal of the weir located upstream of the existing bridge, and removal of the invasive giant reed populations within the project area. The removal of hard structure will beneficially impact Alameda Creek by allowing the stream to take on a more natural morphology, in addition to facilitating the development of linear in-stream wetlands along the banks.

Approximately 1,500 cubic yards of sediment deposition is currently impounded by the concrete weir (Caltrans, 2014g). The removal of the weir would leave the impounded sediment in place to transport naturally downstream. The removal of the weir could have a potentially significant impact on wetlands and other waters. However, with the implementation of one or more of measures WATER-1 through WATER-4, impacts would be reduced to a less-than-significant level. Additionally, all temporarily impacted wetlands and other waters would be restored and revegetated when the project is complete. Refer to Section 2.3.2 for a more detailed analysis.

### River Lamprey and Pacific Lamprey

*Impact: The removal of the concrete weir would have a significant impact on River Lamprey and Pacific Lamprey.*

Direct impacts to lamprey may result from construction work within riverine or wetland portions of the project area. Indirect impacts may result from habitat exclusion, and construction activities may include water quality degradation from erosion or sediment loading. The water quality impacts are unlikely, given the proposed avoidance and minimization measures and implementation of Caltrans water quality BMPs (Caltrans 2010b). Implementing the project would result in the removal of the existing bridge footings from the creek channel and the removal of invasive giant reed populations. This would beneficially impact Alameda Creek by allowing the stream to take on a more natural morphology and facilitating the development of linear in-stream wetlands along the banks. Approximately 1,500 cubic yards of sediment deposition is currently impounded by the concrete weir (Caltrans, 2014g). The removal of the weir would leave the impounded sediment in place to transport naturally downstream. The removal of the weir could have a potentially significant impact on river lamprey and pacific lamprey. However, with the implementation of one or more of measures WATER-1 through WATER-4 and LAMPREY-1, impacts would be reduced to a less-than-significant level. Refer to Section 2.3.4 for a more detailed analysis.



### Western Pond Turtle

*Impact: The removal of the concrete weir would have a significant impact on western pond turtle.*

Direct impacts to western pond turtle may result from relocation efforts and earth-moving activities in potential habitat. Indirect impacts may result from habitat exclusion, water quality degradation from erosion or sediment loading due to construction activities, and removal of potential basking habitat with the removal of the concrete weir. The water quality impacts are unlikely, given the proposed avoidance and minimization measures and implementation of Caltrans water quality BMPs (Caltrans, 2010b). The removal of potential basking habitat is minimal due to a substantial amount of alternative basking habitat available in the surrounding area. Implementing the project would result in the removal of the existing bridge footings from the creek channel and removal of invasive giant reed populations. This would benefit Alameda Creek by allowing the stream to take on a more natural morphology and facilitating the development of linear in-stream wetlands along the banks. Approximately 1,500 cubic yards of sediment deposition is currently impounded by the concrete weir (Caltrans, 2014g). The removal of the weir would leave the impounded sediment in place to transport naturally downstream. The removal of the weir could have a potentially significant impact on river lamprey and pacific lamprey. However, with the implementation of one or more of the following measures WATER-1 through WATER-4 and WESTERN POND TURTLE-1, impacts would be reduced to a less-than-significant level. Impacts to western pond turtle are less-than-significant. Refer to Section 2.3.4 for a more detailed analysis.

### Alameda Whipsnake

*Impact: Implementation of the Alternatives would have significant impact on the Alameda Whipsnake and its habitat.*

Impacts to AWS could be potentially significant given the proposed Alameda Creek Bridge Replacement Project may directly affect individual AWS in the project area as a result of construction activities. Activities during construction, including site preparation, use of heavy equipment, placement of new permanent structures and the placement of temporary and permanent fills within dispersal and foraging habitat, could result in injury or death in the construction area. Avoidance and minimization measures listed in Section 2.3.5.4 would lessen project impacts to AWS. In addition to avoidance and minimization measures, Caltrans developed measures to mitigate for the degradation of AWS habitat. Caltrans proposes mitigation for AWS through on-site restoration of temporarily impacted areas (at a 1:1 ratio), on-site restoration and enhancement of the existing SR-84 roadway and through compensation for prolonged temporarily (at 1.5:1 ratio) and permanently impacted areas (at a 3:1 ratio) through a combination of off-site habitat preservation and on-site restoration and enhancement activities. Proposed mitigation by Alternative is shown in Table 37 in Section 2.3.5.4. A portion of this proposed mitigation would be covered by the on-site restoration of the existing Alameda Creek Bridge columns and roadway approaches. In addition to serving as mitigation for CEQA, this mitigation may be used to satisfy the conditions of multiple agencies and jurisdictions including FESA and CESA. The final mitigation requirements under FESA and CESA would be established during the consultation and permitting processes. These estimates are subject to change. All Alternatives would impact AWS habitat and Critical Habitat Unit 3 to varying degrees, but

project avoidance and minimization measures, in conjunction with the proposed mitigation, would reduce effects of all Alternatives on AWS to a less-than- significant level. While impacts to AWS could be potentially significant, the Alameda Creek Bridge Replacement Project would have a less-than-significant impact with mitigation to AWS with the implementation of Mitigation Measure AWS-1. Refer to Section 2.3.5 for a more detailed analysis.

#### Roosting Bats

*Impact: Implementation of the Alternatives would have a significant impact on roosting bats.*

Permanently removing a known day and night roost site for several species of bats, including the Yuma myotis maternity roost, could be a potentially significant impact to roosting bats. Measures were developed to provide on-site habitat for bats in the new bridge structure by the construction of new daytime crevice roosts and recessed night roosts out of concrete into the underside of the new bridge structure. Implementation of these mitigation measures would lessen the loss of day and night roosting habitat from the demolition of the existing bridge. Impacts to roosting bats would be less-than-significant with the implementation of mitigation measures that provide new bat habitat within the project limits. There is a possibility that bat populations roosting on the existing Alameda Creek Bridge may choose not to roost on the new Alameda Creek Bridge, however, Caltrans has had previous success with bats utilizing roosting structures installed on new bridges (Caltrans, 2004b). To increase the chances of the roosts being utilized, the roosting structures that would be installed on the new Alameda Creek Bridge would be similar to the current roosts available to bats on the existing bridge and similar to the roost structures that have proven successful on other Caltrans bridges. Impacts to roosting bats would be significant, however impacts would be less-than-significant with the implementation of Mitigation Measures BATS-1 through BATS-3. Refer to Section 2.3.4 for a more detailed analysis.

#### California Red-legged frog

*Impact: The removal of the concrete weir would have a significant impact on California Red-legged frog.*

The Niles Canyon corridor runs through a large tract of relatively undisturbed habitat within Alameda County. The hillsides surrounding this corridor include stock ponds, seasonal depressions, and tributaries to Alameda Creek that support populations of CRLF. There are known CNDDDB occurrences within the surrounding hillsides and CRLF are known to use localities within two miles of suitable breeding habitat. Given the proximity of the CNDDDB occurrences and the presence of vegetated habitat, the project area has the potential to be used by CRLF. The species may also disperse through ruderal and barren areas, although it is less likely due to the lack of cover and suitable habitat. Direct effects to individual CRLF may occur throughout the project area as a result of construction activities, including site preparation, use of heavy equipment, placement of new permanent structures and the placement of temporary and permanent fills within dispersal and foraging habitat. Activities during construction could result in injury or death to the species in the construction area during these activities. All efforts to minimize direct effects would be made with the implementation of avoidance and minimization measures. There is a low

potential for direct mortality of individuals due to excavation and grading activities with heavy equipment, due to the cryptic nature of the species.

Indirect impacts may result from habitat exclusion, and construction activities could include water quality degradation from erosion or sediment loading. The water quality impacts are unlikely, given the proposed avoidance and minimization measures and Caltrans BMPs. Work in Alameda Creek would be conducted during the dry season, when adult CRLF are not expected to be dispersing through the project area. Efforts to further minimize direct effects to individual CRLFs during construction activities would occur through the implementation of project avoidance and minimization measures. Long-term impacts on CRLF habitat are expected to be beneficial as the Alameda Creek Bridge Replacement Project would remove the existing bridge (including in-stream columns), remove the existing upstream concrete weir, and remove invasive giant reed populations within the project area. This would allow the stream to take on a more natural morphology and facilitate the development of linear in-stream wetlands along the banks. Caltrans does not anticipate the project will increase barriers to wildlife movement or cause increased roadside mortality.

Approximately 1,500 cubic yards of sediment deposition is currently impounded by the concrete weir (Caltrans, 2014g). The removal of the weir would leave the impounded sediment in place to transport naturally downstream. The removal of the weir could have a potentially significant impact on CRLF. However, with the implementation of one or more of measures WATER-1 through WATER-4 AND CRLF-1, impacts would be reduced to a less-than-significant level. Refer to Section 2.3.5 for a more detailed analysis.

### Steelhead

*Impact: The removal of the concrete weir would have a significant impact on steelhead<sup>47</sup>.* Direct effects to protected steelhead (*O. mykiss*) are not anticipated from the proposed project. Indirect impacts may result from habitat exclusion, and construction activities could include water quality degradation from erosion or sediment loading. The water quality impacts are unlikely, given the proposed avoidance and minimization measures and Caltrans BMPs. In addition to the main creek channel, riparian vegetation adjacent to the creek improves steelhead habitat by providing cover in the form of woody debris, bank stability, and input of food sources. Temporary impacts to habitat in the project area for protected steelhead may result from installation of water diversion structures, placement of

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<sup>47</sup> As of July 2017, fish passage between Alameda Creek and the San Francisco Bay is blocked in the City of Fremont by concrete grade control structure known as the BART weir. As a result, fish in Alameda Creek are considered to be rainbow trout, not anadromous Central California Coast DPS steelhead, and do not receive protection under FESA. Caltrans has concluded that a “no effect” determination applies under the Federal Endangered Species Act to steelhead (refer to Section 2.3.5.3) based on the fact that no steelhead are present in Alameda Creek. Caltrans acknowledges that ACWD’s proposed fish ladder could possibly circumvent the BART weir structure prior to the construction of the Alameda Creek Bridge, thereby restoring fish passage between San Francisco Bay and the Alameda Creek watershed. For the purposes of this project, the CEQA significance determination for this population of rainbow trout is made based on the likelihood that the fish ladder would be installed prior to the construction of the Alameda Creek Bridge and that Alameda Creek will be included by NMFS as part of the federally threatened Central California Coast steelhead DPS.

falsework, new bridge construction, and removal of the original bridge structure within the dry working environment.

Permanent effects to steelhead habitat as a result of the proposed project would be off-set through the restoration of areas currently occupied by the existing bridge piers and abutments and the proposed removal of the upstream concrete weir. As a result of the restoration and enhancement efforts the riparian corridor would be restored on-site under the existing bridge deck, in all temporarily impacted areas, and in areas where invasive giant reed populations are removed. Caltrans proposes restoration of these areas with riparian woodland and fresh emergent wetland vegetation to off-set permanent effects from construction of the new bridge.

Approximately 1,500 cubic yards of sediment deposition is currently impounded by the concrete weir (Caltrans, 2014g). The removal of the weir would leave the impounded sediment in place to transport naturally downstream. The removal of the weir could have a potentially significant impact on steelhead. However, with the implementation of one or more of measures WATER-1 through WATER-4, impacts would be reduced to a less-than-significant level. Refer to Section 2.3.5 for a more detailed analysis.

### **Hydrology and Water Quality**

*Impact: The removal of the weir has the potential to substantially degrade water quality.* As indicated in Sections 2.2.1.3 and 2.2.2.3, except for impacts related to the weir removal below, hydrology and water quality impacts (temporary and long term) are not anticipated to be adverse. Therefore, other than impacts related to the weir removal, significant impacts will not occur to Water Quality.

The removal of the concrete weir and the release of the impounded sediment into Alameda Creek could constitute a potentially significant impact on hydrology and water quality. However, with the implementation of mitigation measures WATER-1 through WATER-4, the influence of sediment release would not result in adverse impacts on channel morphology and aquatic habitat, and would most likely cause adjustments that are within the range of natural variability. Sediment released from the weir would be dispersed over a period of several decades to the downstream reaches. Sediment is also likely to deposit on the channel bed, and there may be some channel aggradation and filling of some pools. None of these sediment storage features are considered to be long-term sediment storage sites (more than 100 years), but they would all function to moderate the sediment wave as it moves downstream. Over the long-term, it is anticipated that nearly all of the sediment released from the project site would reach the flood control channel. Although the Alameda Creek Bridge Replacement Project could have a potentially significant impact on hydrology and water quality. Mitigation Measures WATER-1 THROUGH WATER-4 are proposed to reduce this impact to a less-than-significant level. Comments from resource agencies and members of the public will be considered before finalizing a decision on which measure(s) will be implemented.

Refer to Sections 2.2.1 and 2.2.2 for a more detailed analysis on hydrology and water quality impacts.

## Paleontology

*Impact: All Alternatives could have the potential to substantially impact paleontological resources.*

The Alameda Creek Bridge Replacement Project is located in an area with geologic units containing high sensitivity for producing paleontological resources. Specific locations of paleontological resources are unknown and impacts cannot be quantified or determined until construction begins. All Alternatives include a wide range of construction elements; however, activities involving excavation or ground disturbance have the greatest potential to adversely affect paleontological resources. All ground disturbing activities associated with the construction of the project's eastern approach would impact the Panoche Formation. Paleontological resources within the Panoche Formation could exist at any layer or depth of ground disturbing activities; as a result, impacts to paleontological resources are approximately the same for each Alternative as all Alternatives involve ground disturbing activities in this formation. As a result, the proposed project has the potential to significantly impact paleontological resources. However, project impacts to paleontological resources would be lessened through the implementation of a Paleontological Mitigation Plan (PMP). The PMP would define specific measures and methods in the event that paleontological resources are discovered. With the implementation of Mitigation Measure PALEONTOLOGY-1 to address the potentially significant impact to paleontological resources, all Alternatives would have a less-than-significant impact to this resource. Refer to Section 2.2.4 for a more detailed analysis.

## Cumulative

*Impact: Alternative 1 would result in a cumulatively considerable impact on visual/aesthetic resources.*

Under Alternative 1, motorists south of the replacement bridge would experience a decline in the visual character and quality of the Niles Canyon area due to the prominence of the proposed uphill soil-nail retaining wall. Alternative 1 would result in an increased visual/aesthetic impact as a result of the construction of the 1,090 linear feet long concrete soil-nail wall adjacent to the roadway. Without avoidance and minimization measures, Alternative 1 would result in a significant contribution to cumulative impacts on visual/aesthetic resources. However, with the implementation of mitigation measures VISUAL-1, UPLAND TREES-1, and RIPARIAN TREES-1, Alternative 1 would not result in a significant cumulative contribution. Refer to Section 2.1.4 for a more detailed analysis.

*Impact: When considering the effects of past, present, and future actions and projects in the Resource Study Area (refer to Section 2.4.4.7), all Alternatives would result in a significant cumulatively considerable impact to Alameda whipsnake and Alameda whipsnake habitat.*

The Alameda Creek Bridge Replacement Project would result in approximately 0.8 acres of temporary impacts and between 0.6 to 1.2 acres of permanent impacts to Alameda whipsnake critical habitat. Without avoidance, Minimization, and mitigation measures, all Build Alternatives would result in a significant cumulatively considerable contribution to Alameda Whipsnake and Alameda Whipsnake habitat. However, with the implementation of AWS-1, all Build Alternatives would not result in a significant cumulatively

considerable contribution to Alameda whipsnake or Alameda whipsnake habitat. Refer to Section 2.4.4.7 for a more detailed analysis.

### **3.2.4 Unavoidable Significant Environmental Effects**

This subsection identifies significant impacts that would remain significant even after mitigation measures are taken. The Project would result in the demolition of the Alameda Creek Bridge, a resource considered eligible for the Alameda County Register, as well as impacts to the Niles Canyon Riparian Corridor. The Project would result in a significant impact to cultural resources (architectural history) and to the Niles Canyon Riparian Corridor that cannot be mitigated below any level of significance.

#### **Cultural Resources (Architectural History)**

*Impact: The Project would demolish the Alameda Creek Bridge, a structure eligible to be listed on the Alameda County Register.*

The Project would have a substantial adverse change on the Alameda Creek Bridge. Although the Alameda Creek Bridge is not eligible for the NRHP nor does it meet the criteria for inclusion in the CRHR, the bridge is eligible to be listed on a local historic register. As a result, Caltrans is considering it to be a historical resource under CEQA. The proposed project would result in the loss of the Alameda Creek Bridge, a bridge recognized as a local historic resource.

As discussed in Section 1.4.8 Alternatives Considered but Eliminated from Further Discussion, Caltrans determined that the existing Alameda Creek Bridge cannot be widened in place because it would require staged removal, which would be necessary to keep SR-84 open during construction. Widening the existing bridge and bringing it up to current standards would require approximately two years of complete closure of this section of SR-84. Removal of the existing bridge in stages would result in the bridge not being structurally adequate to carry traffic loads. Complete closure of SR-84 at the project location would sever the main regional connection between I-880 and I-680. As a result, the project would demolish the Alameda Creek Bridge resulting in a substantial adverse change in the significance of a historical resource.

Several Mitigation Measures are proposed to reduce the impact to cultural resource (architectural history) including:

CULTURAL-3. Per preliminary consultation with the City of Fremont, Caltrans would place an interpretive panel that discusses the history of transportation in Niles Canyon and the Alameda Creek Bridge's role in it at the Vallejo Mill Park. The panel would be developed during the PS&E phase of the project and would be installed at Vallejo Mill Park within one year following construction completion.

CULTURAL-4. Recordation efforts documenting the Alameda Creek Bridge structure will occur prior to demolition activities.

#### **Biological Resources**

*Impact: Implementation of all Build Alternatives would have a significant impact on the Niles Canyon Riparian Corridor.*

The Alameda Creek Bridge Replacement Project would result in temporary and permanent impacts to riparian communities within the Niles Canyon Corridor from postmile 13.0 to 13.6. Mitigation for trees removed from the riparian zone would be mitigated at a 3:1 ratio and would be replanted within the Alameda Creek watershed, with as many riparian mitigation trees planted on-site as possible. As of July 2017, Caltrans anticipates a need for off-site riparian planting.

The lack of development and disturbance within the Niles Canyon Riparian Corridor over the past 100 years preserved Alameda Creek as an intact and contiguous riparian corridor. There are few hardscape areas that can be removed without impacts to other uses in Niles Canyon. Opportunities and areas to restore or mitigate onsite within the Niles Canyon Corridor are limited or not practicable. As a result, project impacts to riparian natural communities are considered a significant impact that cannot be mitigated below a level of significance. Refer to Section 2.3.1 for more detailed analysis.

Although impacts to riparian communities are considered significant and cannot be mitigated within the Niles Canyon Riparian Corridor, Caltrans would continue to discuss and coordinate with CDFW and RWQCB about riparian mitigation opportunities in Alameda Creek tributaries and the Alameda Creek watershed.

### **Cumulative**

*Impact: When considering the effects of past, present, and future actions and projects in the Resource Study Area (refer to Section 2.4.4.2), the project would result in a significant cumulatively considerable impact to cultural resources (architectural history).*

The demolition of the Alameda Creek Bridge Replacement Project would result in a significant cumulatively considerable contribution to built cultural resources within the Niles Canyon corridor. In spite of the proposed avoidance, minimization, and mitigation measures, the proposed Alameda Creek Bridge Replacement Project would still result in a potentially significant contribution to cultural resources (architectural history) that cannot be mitigated below a level of significance. Refer to Section 2.4.4.2 for a more detailed analysis.

Several Mitigation Measures are proposed to reduce the Alameda Creek Bridge Replacement Project's cumulatively considerable impact to cultural resource (architectural history) including:

CULTURAL-3. Per preliminary consultation with the City of Fremont, Caltrans would place an interpretive panel that discusses the history of transportation in Niles Canyon and the Alameda Creek Bridge's role in it at the Vallejo Mill Park. The panel would be developed during the PS&E phase of the project and would be installed at Vallejo Mill Park within one year following construction completion.

CULTURAL-4. Recordation efforts documenting the Alameda Creek Bridge structure will occur prior to demolition activities.



### 3.2.5 Growth-Inducing Impacts

The project is a highway improvement project that would not alter or increase the capacity or change the accessibility of SR-84. The proposed project would maintain the existing two-lane capacity and would have no growth-inducing impacts in the area.

Land use in the Niles Canyon corridor is protected by the City of Fremont's Area Hill Initiative and Alameda County's Save Agriculture and Open Space Lands Initiative. These initiatives aim to preserve and enhance open space in Alameda County. Land use is further protected by the fact that public agencies own and operate the area surrounding the project vicinity as watershed lands. No impacts to growth/population/housing are anticipated as there are no populations or proposed housing developments in the project vicinity nor are any anticipated in the near future. The Project would have no impact to growth-inducing impacts.

### 3.2.6 Climate Change

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

While climate change has been a concern for several decades, the establishment of the Intergovernmental Panel on Climate Change (IPCC) by the United Nations and World Meteorological Organization in 1988 has led to increased efforts devoted to GHG emissions reduction and climate change research and policy. These efforts are primarily concerned with the emissions of GHGs generated by human activity, including carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), tetrafluoromethane, hexafluoroethane, sulfur hexafluoride (SF<sub>6</sub>), HFC-23 (fluoroform), HFC-134a (s, s, s, 2-tetrafluoroethane), and HFC-152a (difluoroethane).

In the U.S., the main source of GHG emissions is electricity generation, followed by transportation.<sup>48</sup> In California, however, transportation sources (including passenger cars, light-duty trucks, other trucks, buses, and motorcycles) are the largest contributors of GHG emissions.<sup>49</sup> The dominant GHG emitted is CO<sub>2</sub>, mostly from fossil fuel combustion.

Two terms are typically used when discussing how we address the impacts of climate change: "greenhouse gas mitigation" and "adaptation." "Greenhouse gas mitigation" is a term for reducing GHG emissions to reduce or "mitigate" the impacts of climate change. "Adaptation" refers to planning for and responding to impacts resulting from climate change (such as adjusting transportation design standards to withstand more intense storms and higher sea levels).

#### 3.2.6.1 Regulatory Setting

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

<sup>48</sup> <https://www.epa.gov/ghgemissions/us-greenhouse-gas-inventory-report-1990-2014>

<sup>49</sup> <https://www.arb.ca.gov/cc/inventory/data/data.htm>

## State

With the passage of several pieces of legislation including State Senate and Assembly bills and Executive Orders, California launched an innovative and pro-active approach to dealing with GHG emissions and climate change.

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

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

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

Executive Order S-20-06 (October 18, 2006): This order establishes the responsibilities and roles of the Secretary of the California Environmental Protection Agency (Cal/EPA) and state agencies with regard to climate change.

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

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

Senate Bill 375 (SB 375), Chapter 728, 2008, Sustainable Communities and Climate Protection: This bill requires the California Air Resources Board (CARB) to set regional emissions reduction targets from passenger vehicles. The Metropolitan Planning Organization (MPO) for each region must then develop a "Sustainable Communities

Strategy" (SCS) that integrates transportation, land-use, and housing policies to plan how it will achieve the emissions target for its region.

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

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

Executive Order B-30-15 (April 2015) establishes an interim statewide GHG emission reduction target of 40 percent below 1990 levels by 2030 in order to ensure California meets its target of reducing GHG emissions to 80 percent below 1990 levels by 2050. It further orders all state agencies with jurisdiction over sources of GHG emissions to implement measures, pursuant to statutory authority, to achieve reductions of GHG emissions to meet the 2030 and 2050 GHG emissions reductions targets. It also directs ARB to update the Climate Change Scoping Plan to express the 2030 target in terms of million metric tons of carbon dioxide equivalent (MMTCO<sub>2e</sub>). Finally, it requires the Natural Resources Agency to update the state's climate adaptation strategy, *Safeguarding California*, every three years, and to ensure that its provisions are fully implemented.

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

### ***Federal***

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

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

The Federal Highway Administration (FHWA) recognizes the threats that extreme weather, sea-level change, and other changes in environmental conditions pose to valuable transportation infrastructure and those who depend on it. FHWA therefore supports a sustainability approach that assesses vulnerability to climate risks and incorporates resilience into planning, asset management, project development and design, and operations and maintenance practices.<sup>52</sup> This approach encourages planning for sustainable highways by addressing climate risks while balancing environmental, economic, and social values—"the triple bottom line of sustainability."<sup>53</sup> Program and

<sup>52</sup> <https://www.fhwa.dot.gov/environment/sustainability/resilience/>

<sup>53</sup> <https://www.sustainablehighways.dot.gov/overview.aspx>

project elements that foster sustainability and resilience also support economic vitality and global efficiency, increase safety and mobility, enhance the environment, promote energy conservation, and improve the quality of life. Addressing these factors up front in the planning process will assist in decision-making and improve efficiency at the program level, and will inform the analysis and stewardship needs of project-level decision-making.

Various efforts have been promulgated at the federal level to improve fuel economy and energy efficiency to address climate change and its associated effects.

The Energy Policy Act of 1992 (EPACT92, 102nd Congress H.R.776.ENR): With this act, Congress set goals, created mandates, and amended utility laws to increase clean energy use and improve overall energy efficiency in the United States. EPACT92 consists of 27 titles detailing various measures designed to lessen the nation's dependence on imported energy, provide incentives for clean and renewable energy, and promote energy conservation in buildings. Title III of EPACT92 addresses alternative fuels. It gave the U.S. Department of Energy administrative power to regulate the minimum number of light-duty alternative fuel vehicles required in certain federal fleets beginning in fiscal year 1993. The primary goal of the Program is to cut petroleum use in the United States by 2.5 billion gallons per year by 2020.

Energy Policy Act of 2005 (109th Congress H.R.6 (2005–2006): This act sets forth an energy research and development program covering: (1) energy efficiency; (2) renewable energy; (3) oil and gas; (4) coal; (5) Indian energy; (6) nuclear matters and security; (7) vehicles and motor fuels, including ethanol; (8) hydrogen; (9) electricity; (10) energy tax incentives; (11) hydropower and geothermal energy; and (12) climate change technology. Energy Policy and Conservation Act of 1975 (42 USC Section 6201) and Corporate Average Fuel Standards: This act establishes fuel economy standards for on-road motor vehicles sold in the United States. Compliance with federal fuel economy standards is determined through the Corporate Average Fuel Economy (CAFE) program on the basis of each manufacturer's average fuel economy for the portion of its vehicles produced for sale in the United States.

Executive Order 13514 *Federal Leadership in Environmental, Energy, and Economic Performance*, 74 Federal Register 52117 (October 8, 2009): This federal EO set sustainability goals for federal agencies and focuses on making improvements in their environmental, energy, and economic performance. It instituted as policy of the United States that federal agencies measure, report, and reduce their GHG emissions from direct and indirect activities.

Executive Order 13693, *Planning for Federal Sustainability in the Next Decade*, 80 Federal Register 15869 (March 2015): This EO reaffirms the policy of the United States that federal agencies measure, report, and reduce their GHG emissions from direct and indirect activities. It sets sustainability goals for all agencies to promote energy conservation, efficiency, and management by reducing energy consumption and GHG emissions. It builds on the adaptation and resiliency goals in previous executive orders to ensure agency

operations and facilities prepare for impacts of climate change. This order revokes Executive Order 13514.

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

U.S. EPA in conjunction with (National Highway Traffic Safety Administration (NHTSA)) issued the first of a series of GHG emission standards for new cars and light-duty vehicles in April 2010.<sup>55</sup> and significantly increased the fuel economy of all new passenger cars and light trucks sold in the United States. The standards required these vehicles to meet an average fuel economy of 34.1 miles per gallon by 2016. In August 2012, the federal government adopted the second rule that increases fuel economy for the fleet of passenger cars, light-duty trucks, and medium-duty passenger vehicles for model years 2017 and beyond to average fuel economy of 54.5 miles per gallon by 2025. Because NHTSA cannot set standards beyond model year 2021 due to statutory obligations and the rules’ long timeframe, a mid-term evaluation is included in the rule. The Mid-Term Evaluation is the overarching process by which NHTSA, EPA, and ARB will decide on CAFE and GHG emissions standard stringency for model years 2022–2025. NHTSA has not formally adopted standards for model years 2022 through 2025. However, the EPA finalized its mid-term review in January 2017, affirming that the target fleet average of at least 54.5 miles per gallon by 2025 was appropriate. In March 2017, President Trump ordered the EPA to reopen the review and reconsider the mileage target.<sup>56</sup>

NHTSA and EPA issued a Final Rule for “Phase 2” for medium- and heavy-duty vehicles to improve fuel efficiency and cut carbon pollution in October 2016. The agencies estimate that the standards will save up to 2 billion barrels of oil and reduce CO<sub>2</sub> emissions by up to 1.1 billion metric tons over the lifetimes of model year 2018–2027 vehicles.

Presidential Executive Order 13783, *Promoting Energy Independence and Economic Growth*, of March 28, 2017, orders all federal agencies to apply cost-benefit analyses to regulations of GHG emissions and evaluations of the social cost of carbon, nitrous oxide, and methane.

### **Environmental Setting**

In 2006, the Legislature passed the California Global Warming Solutions Act of 2006 (AB 32), which created a comprehensive, multi-year program to reduce GHG emissions in California. AB 32 required ARB to develop a Scoping Plan that describes the approach

<sup>55</sup> <http://www.c2es.org/federal/executive/epa/greenhouse-gas-regulation-faq>

<sup>56</sup> <http://www.nbcnews.com/business/autos/trump-rolls-back-obama-era-fuel-economy-standards-n734256> and <https://www.federalregister.gov/documents/2017/03/22/2017-05316/notice-of-intention-to-reconsider-the-final-determination-of-the-mid-term-evaluation-of-greenhouse>

California will take to achieve the goal of reducing GHG emissions to 1990 levels by 2020. The Scoping Plan was first approved by ARB in 2008 and must be updated every five years. ARB approved the First Update to the Climate Change Scoping Plan on May 22, 2014. ARB is moving forward with a discussion draft of an updated Scoping Plan that will reflect the 2030 target established in EO B-30-15 and SB 32.

The AB 32 Scoping Plan and the subsequent updates contain the main strategies California will use to reduce GHG emissions. As part of its supporting documentation for the Draft Scoping Plan, ARB released the GHG inventory for California.<sup>57</sup> ARB is responsible for maintaining and updating California's GHG Inventory per H&SC Section 39607.4. The associated forecast/projection is an estimate of the emissions anticipated to occur in the year 2020 if none of the foreseeable measures included in the Scoping Plan were implemented.

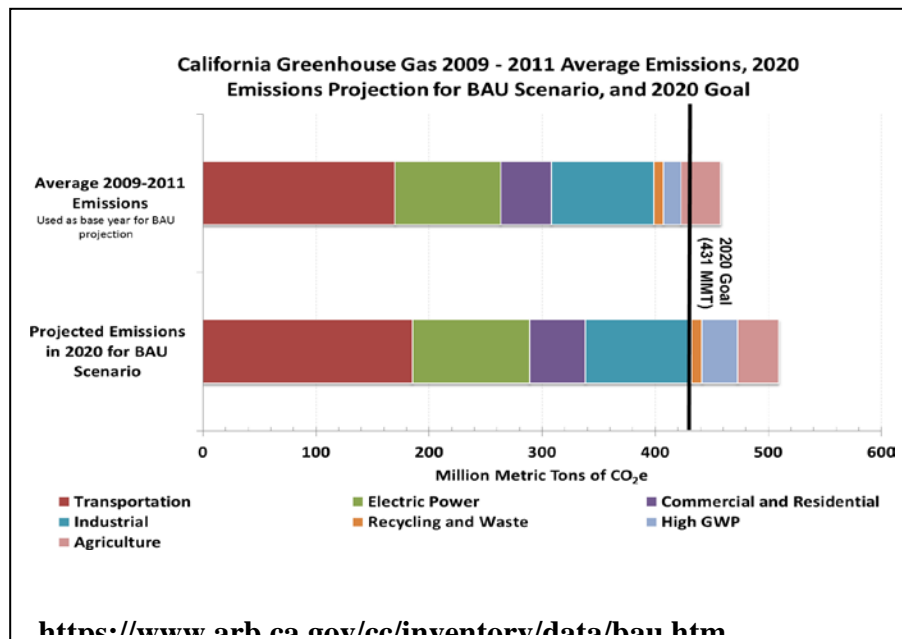
An emissions projection estimates future emissions based on current emissions, expected regulatory implementation, and other technological, social, economic, and behavioral patterns. The projected 2020 emissions provided in Figure 51 represent a business-as-usual (BAU) scenario assuming none of the Scoping Plan measures are implemented. The 2020 BAU emissions estimate assists ARB in demonstrating progress toward meeting the 2020 goal of 431 MMTCO<sub>2</sub>e.<sup>58</sup> The 2016 edition of the GHG emissions inventory (released June 2016) found total California emissions of 441.5 MMTCO<sub>2</sub>e, showing progress towards meeting the AB 32 goals.

The 2020 BAU emissions projection was revisited in support of the First Update to the Scoping Plan (2014). This projection accounts for updates to the economic forecasts of fuel and energy demand as well as other factors. It also accounts for the effects of the 2008 economic recession and the projected recovery. The total emissions expected in the 2020 BAU scenario include reductions anticipated from Pavley I and the Renewable Electricity Standard (30 MMTCO<sub>2</sub>e total). With these reductions in the baseline, estimated 2020 statewide BAU emissions are 509 MMTCO<sub>2</sub>e.

<sup>57</sup> 2016 Edition of the GHG Emission Inventory Released (June 2016):

<https://www.arb.ca.gov/cc/inventory/data/data.htm>

<sup>58</sup> The revised target using Global Warming Potentials (GWP) from the IPCC Fourth Assessment Report (AR4)

**Figure 51.2020 Business as Usual (BAU) Emissions Projection 2014 Edition**

### 3.2.6.2 Project Analysis

GHG emissions for transportation projects can be divided into those produced during construction and those produced during operations.

#### Operational Emissions

The purpose of the proposed Alameda Creek Bridge Replacement Project is to correct structural deficiencies of the Alameda Creek Bridge and its approaches while providing a facility that meets driver expectations of SR-84's operating speed, all of which improve safety. A definition of terms used in the Project's Purpose and Need statement are included in Appendix H.

The proposed project would not add vehicle capacity to the Alameda Creek Bridge and its approaches. The new facility would smooth out the alignment of the western approach to the Alameda Creek Bridge to achieve better sight distance. As mentioned in Section 2.1.3.3, none of the Alameda Creek Bridge Replacement Project Alternatives would negatively affect the operations of SR-84 within the project limits. No permanent traffic and transportation impacts on SR-84 are anticipated as a result of replacing the Alameda Creek Bridge and realigning the bridge approaches. While this project is not an operational improvement project, realigning the bridge approaches and widening shoulders, along with other safety improvements, could improve operations in general. The new alignment under all alternatives would reduce the need to slow vehicular speed to accommodate the changes in the current highway geometry. Providing a smoother alignment will reduce abrupt braking by vehicles (stop and go) and may result in a decrease in green-house gas emissions. Because the project would not increase capacity of the bridge or roadway, an increase in operational greenhouse gas emissions is not anticipated.

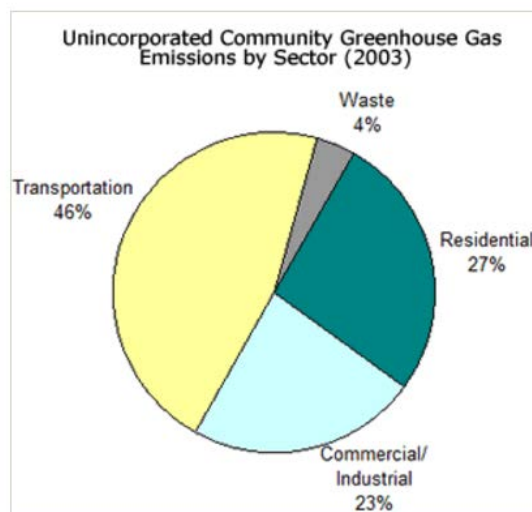


### Construction Emissions

Greenhouse gas emissions for transportation projects can be divided into those produced during construction and those produced during operations. Construction GHG emissions include emissions produced as a result of material processing, emissions produced by on-site construction equipment, and emissions arising from traffic delays due to construction. These emissions will be produced at different levels throughout the construction phase; their frequency and occurrence can be reduced through innovations in plans and specifications and by implementing better traffic management during construction phases.

According to the most recent Alameda County greenhouse gas inventory, 736,759 metric tons of CO<sub>2</sub> equivalent was released from unincorporated community buildings, waste disposal and vehicle travel along local roadways.<sup>61</sup> The majority of emissions were identified as coming from the transportation sector as identified by Figure 52.

**Figure 52. Alameda County’s Unincorporated Community Greenhouse Gas Emissions by Sector (2003)**



Source: <https://www.acgov.org/sustain/what/climate/footprint.htm>

The project would generate GHG emissions during construction as a result of the onsite construction equipment and workers commuting to and from the project site. The emissions would be produced at different rates throughout the project depending on the activities involved at various phases of construction. The project is expected to take two years to construct and estimated to result in 1,412 tons of CO<sub>2</sub> total, or 708 tons per year. Although the proposed project would result in a temporary increase in CO<sub>2</sub> emissions, all work is required to be performed in accordance with Caltrans Standard Specification 7-1.02C Emissions Reduction. In accordance with this Caltrans standard specification, the contractor, upon award of the construction contract, acknowledges awareness of the emissions reduction regulations mandated by the California Air Resource Board and is

<sup>61</sup> <https://www.acgov.org/sustain/what/climate/footprint.htm>

required to comply with such regulations before commencing the performance of the work and to maintain compliance throughout the duration of this Contract. Compliance with Caltrans Standard Specification 7-1.02C ensures that construction activities associated with the Alameda Creek Bridge Replacement Project adhere to the most recent emissions reduction regulations mandated by the California Air Resource Board. To the extent that such measures reduce CO<sub>2</sub> emissions, they help reduce greenhouse gases.

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

## **CEQA Conclusion**

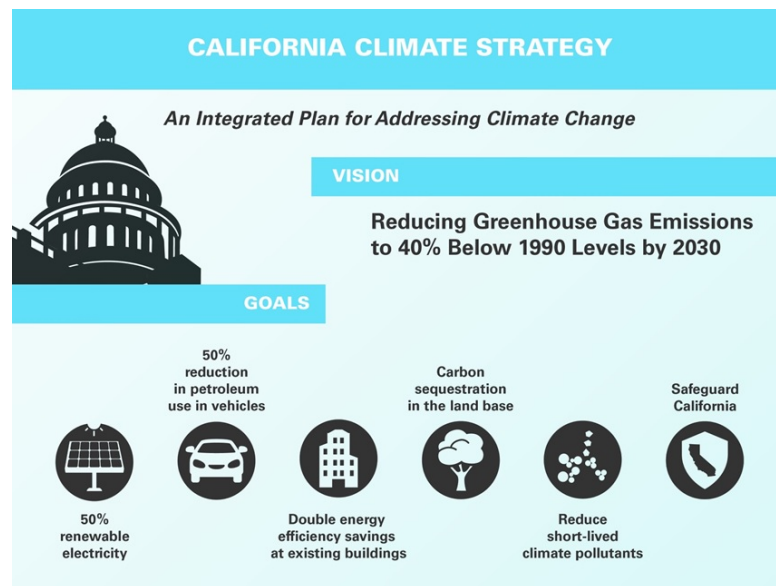
While the project would result in a slight increase in GHG emissions during construction, it is anticipated that the project would not result in any increase in operational GHG emissions. While it is Caltrans' determination that in the absence of further regulatory or scientific information related to GHG emissions and CEQA significance, it is too speculative to make a significance determination regarding the project's direct impact and its contribution on the cumulative scale to climate change, Caltrans is firmly committed to implementing measures to help reduce GHG emissions. These measures are outlined in the following section.

## **Greenhouse Gas Reduction Strategies**

### *Statewide Efforts*

In an effort to further the vision of California's GHG reduction targets outlined in AB 32 and SB 32, Governor Brown identified key climate change strategy pillars (concepts). These pillars highlight the idea that several major areas of the California economy will need to reduce emissions to meet the 2030 GHG emissions target. These pillars are (1) reducing today's petroleum use in cars and trucks by up to 50 percent; (2) increasing from one-third to 50 percent our electricity derived from renewable sources; (3) doubling the energy efficiency savings achieved at existing buildings and making heating fuels cleaner; (4) reducing the release of methane, black carbon, and other short-lived climate pollutants; (5) managing farm and rangelands, forests, and wetlands so they can store carbon; and (6) periodically updating the state's climate adaptation strategy, Safeguarding California.

**Figure 53. The Governor’s Climate Change Pillars: 2030 Greenhouse Gas Reduction Goals**



The transportation sector is integral to the people and economy of California. To achieve GHG emission reduction goals, it is vital that we build on our past successes in reducing criteria and toxic air pollutants from transportation and goods movement activities. GHG emission reductions will come from cleaner vehicle technologies, lower-carbon fuels, and reduction of vehicle miles traveled. One of Governor Brown's key pillars sets the ambitious goal of reducing today's petroleum use in cars and trucks by up to 50 percent by 2030.

Governor Brown called for support to manage natural and working lands, including forests, rangelands, farms, wetlands, and soils, so they can store carbon. These lands have the ability to remove carbon dioxide from the atmosphere through biological processes, and to then sequester carbon in above- and below-ground matter.

### ***Caltrans Activities***

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

### ***California Transportation Plan (CTP 2040)***

The California Transportation Plan (CTP) is a statewide, long-range transportation plan to meet our future mobility needs and reduce GHG emissions. The CTP defines performance-based goals, policies, and strategies to achieve our collective vision for California’s future statewide, integrated, multimodal transportation system. It serves as an umbrella document for all of the other statewide transportation planning documents.

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

#### *Caltrans Strategic Management Plan*

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

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

#### *Funding and Technical Assistance Programs*

In addition to developing plans and performance targets to reduce GHG emissions, Caltrans also administers several funding and technical assistance programs that have GHG reduction benefits. These include the Bicycle Transportation Program, Safe Routes to School, Transportation Enhancement Funds, and Transit Planning Grants. A more extensive description of these programs can be found in *Caltrans Activities to Address Climate Change* (2013).

Caltrans Director's Policy 30 (DP-30) Climate Change (June 22, 2012) is intended to establish a department policy that will ensure coordinated efforts to incorporate climate change into departmental decisions and activities.

*Caltrans Activities to Address Climate Change* (April 2013) provides a comprehensive overview of activities undertaken by Caltrans statewide to reduce GHG emissions resulting from agency operations.

### **Project-Level GHG Reduction Strategies**

CLIMATE CHANGE-1. According to Caltrans' Standard Specifications, the contractor must comply with all of the Bay Area Air Management District rules, ordinances, and regulations regarding air quality restrictions

CLIMATE CHANGE-2. Compliance with Title 13, California Code of Regulations – Adopted by the Air Resources Board on June 15, 2008, this regulation would restrict idling of construction vehicles to no longer than 5 consecutive minutes. The contractor must comply with this regulation in order to reduce harmful emissions from diesel-powered construction vehicles.

CLIMATE CHANGE-3. To the extent that it is feasible for the project, the use of reclaimed water may be used to reduce GHG emissions produced during construction. Currently 30

percent of the electricity used in California is used for the treatment and delivery of water. Use of reclaimed water helps conserve this energy, which reduces greenhouse gas emissions from electricity production.

**UPLAND TREES.** During the design phase of the project, Caltrans' Office of Biological Science and Permitting would work with the Caltrans Design team to avoid and minimize project impacts to upland trees. Efforts to preserve trees in place (by designating trees on plan sheets and marking trees with Environmentally Sensitive Area fencing) would be made to avoid or minimize project impacts to trees located in temporarily impacted areas. For trees that are removed, Caltrans would provide tree replacement on-site at a minimum 1:1 ratio in the existing SR-84 alignment, to the maximum extent possible given space available, for upland trees. Caltrans anticipates that no off-site planting would be needed for upland trees as of July 2017. However, in the event that off-site planting is determined necessary, potential planting locations would be identified working with local stakeholders, private and/or public landholders, and public agencies including, but not limited to, East Bay Regional Parks District, Alameda County, and San Francisco Public Utilities Commission. Upland trees would be planted within two years of completion of the Alameda Creek Bridge Replacement Project construction and would be monitored for three years following the planting to ensure that the mortality rate does not exceed 30% of all upland trees planted.

**RIPARIAN TREES.** During the design phase of the project, Caltrans' Office of Biological Science and Permitting would work with the Caltrans Design team to avoid and minimize project impacts to riparian trees. Efforts to preserve trees in place (by designating trees on plan sheets and marking trees with Environmentally Sensitive Area fencing) would be made to avoid or minimize project impacts to trees located in temporarily impacted areas. Trees removed from the riparian zone would be replaced at a minimum 3:1 ratio on-site, to the maximum extent possible given space available. Caltrans anticipates a need for off-site riparian planting as of July 2017. Potential planting locations would be identified working with local stakeholders, private and/or public landholders, and public agencies including, but not limited to, East Bay Regional Parks District, Alameda County, and San Francisco Public Utilities Commission. Riparian trees would be planted within two years of completion of the Alameda Creek Bridge Replacement Project construction and would be monitored for three years following the planting to ensure that the mortality rate does not exceed 30% of all riparian trees planted. Details for off-site planting and riparian tree planting success criteria would be determined during the design and permitting phase of the project with CDFW (1602 Streambed Alteration Agreement) and RWQCB (401 Certification).

Additionally, the current facility does not provide any shoulder or refuge for bicyclists. The Project would improve safety for cyclists by providing eight-foot shoulders on the Alameda Creek Bridge and newly realigned approaches leading up to the bridge. Eight-foot shoulders are an important safety feature that provide width for bicyclists to ride in if they do not wish to take the travel lane, and may encourage more people to use bicycles instead of vehicles.

### Adaptation Strategies

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

### Federal Efforts

At the federal level, the Climate Change Adaptation Task Force, co-chaired by the Council on Environmental Quality (CEQ), the Office of Science and Technology Policy (OSTP), and the National Oceanic and Atmospheric Administration (NOAA), released its interagency task force progress report on October 28, 2011.<sup>63</sup> outlining the federal government's progress in expanding and strengthening the Nation's capacity to better understand, prepare for, and respond to extreme events and other climate change impacts. The report provides an update on actions in key areas of federal adaptation, including: building resilience in local communities, safeguarding critical natural resources such as freshwater, and providing accessible climate information and tools to help decision-makers manage climate risks.

The federal Department of Transportation (DOT) issued *U.S. DOT Policy Statement on Climate Adaptation* in June 2011, committing to “integrate consideration of climate change impacts and adaptation into the planning, operations, policies, and programs of DOT in order to ensure that taxpayer resources are invested wisely and that transportation infrastructure, services and operations remain effective in current and future climate conditions.”<sup>64</sup>

To further the DOT Policy Statement, on December 15, 2014, FHWA issued order 5520 (*Transportation System Preparedness and Resilience to Climate Change and Extreme Weather Events*).<sup>65</sup> This directive established FHWA policy to strive to identify the risks of climate change and extreme weather events to current and planned transportation systems. The FHWA will work to integrate consideration of these risks into its planning, operations, policies, and programs in order to promote preparedness and resilience; safeguard federal investments; and ensure the safety, reliability, and sustainability of the nation’s transportation systems.

FHWA has developed guidance and tools for transportation planning that foster resilience to climate effects and sustainability at the federal, state, and local levels.<sup>66</sup>

<sup>63</sup> <http://www.whitehouse.gov/administration/eop/ceq/initiatives/adaptation>

<sup>64</sup> [https://www.fhwa.dot.gov/environment/sustainability/resilience/policy\\_and\\_guidance/usdot.cfm](https://www.fhwa.dot.gov/environment/sustainability/resilience/policy_and_guidance/usdot.cfm)

<sup>65</sup> <https://www.fhwa.dot.gov/legisregs/directives/orders/5520.cfm>

<sup>66</sup> <https://www.fhwa.dot.gov/environment/sustainability/resilience/>

### *State Efforts*

On November 14, 2008, then-Governor Arnold Schwarzenegger signed EO S-13-08 which directed a number of state agencies to address California's vulnerability to sea level rise caused by climate change. This EO set in motion several agencies and actions to address the concern of sea level rise and directed all state agencies planning to construct projects in areas vulnerable to future sea-level rise to consider a range of sea-level rise scenarios for the years 2050 and 2100, assess project vulnerability and, to the extent feasible, reduce expected risks and increase resiliency to sea-level rise. Sea-level rise estimates should also be used in conjunction with information on local uplift and subsidence, coastal erosion rates, predicted higher high water levels, and storm surge and storm wave data.

Governor Schwarzenegger also requested the National Academy of Sciences to prepare an assessment report to recommend how California should plan for future sea-level rise. The final report, *Sea-Level Rise for the Coasts of California, Oregon, and Washington (Sea-Level Rise Assessment Report)*<sup>67</sup> was released in June 2012 and included relative sea-level rise projections for the three states, taking into account coastal erosion rates, tidal impacts, El Niño and La Niña events, storm surge and land subsidence rates; and the range of uncertainty in selected sea-level rise projections. It provided a synthesis of existing information on projected sea-level rise impacts to state infrastructure (such as roads, public facilities, and beaches), natural areas, and coastal and marine ecosystems; and a discussion of future research needs regarding sea-level rise.

In response to EO S-13-08, the California Natural Resources Agency (Resources Agency), in coordination with local, regional, state, federal, and public and private entities, developed *The California Climate Adaptation Strategy* (Dec 2009),<sup>68</sup> which summarized the best available science on climate change impacts to California, assessed California's vulnerability to the identified impacts, and outlined solutions that can be implemented within and across state agencies to promote resiliency. The adaptation strategy was updated and rebranded in 2014 as *Safeguarding California: Reducing Climate Risk (Safeguarding California Plan)*.

Governor Jerry Brown enhanced the overall adaptation planning effort by signing EO B-30-15 in April 2015, requiring state agencies to factor climate change into all planning and investment decisions. In March 2016, sector-specific Implementation Action Plans that demonstrate how state agencies are implementing EO B-30-15 were added to the *Safeguarding California Plan*. This effort represents a multi-agency, cross-sector approach to addressing adaptation to climate change-related events statewide.

EO S-13-08 also gave rise to the *State of California Sea-Level Rise Interim Guidance Document (SLR Guidance)*, produced by the Coastal and Ocean Working Group of the California Climate Action Team (CO-CAT), of which Caltrans is a member. First published in 2010, the document provided "guidance for incorporating sea-level rise (SLR)

<sup>67</sup> *Sea Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future* (2012) is available at: [http://www.nap.edu/catalog.php?record\\_id=13389](http://www.nap.edu/catalog.php?record_id=13389).

<sup>68</sup> <http://www.climatechange.ca.gov/adaptation/strategy/index.html>



projections into planning and decision making for projects in California,” specifically, “information and recommendations to enhance consistency across agencies in their development of approaches to SLR.” The March 2013 update<sup>69</sup> finalized the SLR Guidance by incorporating findings of the National Academy’s 2012 final Sea-Level Rise Assessment Report; the policy recommendations remain the same as those in the 2010 interim SLR Guidance. The guidance will be updated as necessary in the future to reflect the latest scientific understanding of how the climate is changing and how this change may affect the rates of SLR.

Climate change adaptation for transportation infrastructure involves long-term planning and risk management to address vulnerabilities in the transportation system from increased precipitation and flooding; the increased frequency and intensity of storms and wildfires; rising temperatures; and rising sea levels. Caltrans is an active participant in the efforts being conducted in response to EO S-13-08 and is mobilizing to be able to respond to the National Academy of Science Sea Level Rise Assessment Report.

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

#### *No-Build Alternative*

The No-Build Alternative would not impact existing greenhouse gas emissions.

### **3.3 Mitigation Measures for Significant Impacts under CEQA**

The Alameda Creek Bridge Replacement Project has the potential to significantly affect visual/aesthetic resources, cultural resources (architectural history), hydrology and floodplain, water quality and storm water runoff, paleontological resources, oak woodland and riparian communities, wetlands and other waters, pacific and river lamprey, roosting bats, and Alameda whipsnake. With the exception of cultural resources (architectural history), implementation of the following mitigation measures would reduce project impacts to a less-than-significant level. Measures CULTURAL-3 and CULTURAL-4 would still be implemented even though it will not reduce project impacts to cultural resources (architectural history) to a less-than-significant level.

#### *Visual/Aesthetic for Alternative 1*

Alternative 1 would reduce the width of the visual buffer of trees between the Niles Canyon Railway and the realigned SR-84, resulting in a potentially significant visual/aesthetic impact to Niles Canyon Railway passengers. UPLAND TREES-1 and RIPARIAN TREES-1 also apply as mitigation measures to lessen the visual/aesthetic impacts of Alternative 1

VISUAL-1. The following upslope retaining wall measures will be implemented:

- Minimize the overall height of walls to the greatest extent feasible. In general, from a visual perspective, downslope widening is preferable and has less impact than upslope widening. Downslope widening may, however, have other environmental effects and would require evaluation for feasibility in light of those effects.

<sup>69</sup> <http://www.opc.ca.gov/2013/04/update-to-the-sea-level-rise-guidance-document/>

- Use appropriate context-sensitive wall texture and/or color treatments on all upslope and downslope walls as identified in the visual impact assessment, to minimize contrast with the existing natural and historic settings. Concrete safety-shape barriers shall receive color stain to lower contrast with the walls and reduce glare. Surface texture treatments shall be developed in consultation with local agencies.
- Employ color staining of the concrete safety barrier of upslope retaining walls to reduce overall contrast between the walls and the barriers.
- Coordinate wall and concrete safety-shape barrier aesthetic treatments and carry consistent themes throughout the corridor.
- Where anchored or draped wire mesh slope protection is required:
- Wherever feasible, apply hydroseeded revegetation including locally native species to blend with the surrounding setting.
- Wire mesh shall be selected to match color and value of the underlying soil substrate to the greatest feasible extent in order to minimize visual contrast: For example, light-colored mesh over light-colored substrate; dark-colored mesh over dark substrate.

*Cultural Resources (Architectural History)*

CULTURAL-3. Per preliminary consultation with the City of Fremont, Caltrans would place an interpretive panel that discusses the history of transportation in Niles Canyon and the Alameda Creek Bridge's role in it at the Vallejo Mill Park. The panel would be developed during the PS&E phase of the project and would be installed at Vallejo Mill Park within one year following construction completion.

CULTURAL-4. Recordation efforts documenting the Alameda Creek Bridge structure will occur prior to demolition activities.

### *Hydrology and Water Quality*

The release of the sediment impounded by the weir could result in a significant environmental impact on hydrology and water quality. Comments from resource agencies and members of the public would be considered before finalizing a decision on which measure(s) will be implemented.

**WATER-1. Temporary Sediment Retention and Release:** Implement temporary structure (such as plywood cofferdam or a weir constructed with large cobbles) to retain the impounded sediment. The structure will be designed to withstand low to medium flows that would minimally disperse the impounded sediment and potentially cause nuisance sediment deposits that could impede passage by fish and other aquatic organisms. The temporary structure would be designed to wash out (large cobbles) or be removed (plywood cofferdam) prior to a high flow event, allowing the high flow to disperse the sediment more evenly to downstream reaches.

**WATER-2. Staged Weir Removal:** This measure consists of the gradual removal of the weir to minimize nuisance sediment deposits in downstream reaches. Portions of the weir would be selected for lowering or removal at any one time; the weir would be removed over the course of several years. This option allows the existing weir to moderate sediment dispersion and eliminates the need to construct a temporary structure.

**WATER-3. Draw Down Rate:** Weir removal should accommodate the release of impounded water at a slow rate, taking place over the course of several days to minimize the risk of supersaturation and take of listed species. In addition, this measure would reduce bank erosion associated with a pulse of water greater than the normal natural variation.

**WATER-4. Vegetative Stabilization:** After the weir is removed and the water level drops, this measure would strategically plant vegetation species with vigorous growth habits to stabilize some of the sediment in place. Emergent vegetation species, such as cattail and bulrush, would be planted along the margin of the low-flow channel, and riparian species, including willow, mulefat, California blackberry, and tall flatsedge, would be planted in the overbank areas. The intent of the vegetation would not be to permanently stabilize the sediment, as high flow conditions are likely to uproot new plantings and wash them downstream. Rather, the vegetation would be a temporary measure to minimize the magnitude of the sediment pulse to downstream reaches. It is estimated that it would take approximately two to five years for the vegetation to have a stabilizing effect, so the performance of this option is uncertain.

### *Paleontology*

**PALEONTOLOGY-1.** A PMP defining specific mitigation measures and methods, will be prepared by a qualified paleontologist and implemented before construction begins. The PMP may include:

- The presence of the Principal Paleontologist at pre-construction meetings to consult with the construction contractor.
- Paleontological awareness training for construction workers to be provided for by the Principal Paleontologist.

- Monitoring of ground disturbing activities such as excavation by the paleontological monitors, to be conducted under the supervision and/or at the direction of the Principal Paleontologist.
- Temporary halting or diversion of construction activities in areas where fossils are discovered.
- Preparation, sorting, and cataloging of fossils collected during the monitoring and salvage. Fossils are prepared to the point of identification, not display.
- Curation of fossils, along with copies of all pertinent field notes, photos, and maps at a curation facility acceptable to Caltrans.
- Preparation of the Paleontological Mitigation Report to document the results of the mitigation program.

*Biological Resources: Natural Communities (Oak woodland and riparian communities)*

UPLAND TREES-1. During the design phase of the project, Caltrans' Office of Biological Science and Permitting would work with the Caltrans Design team to avoid and minimize project impacts to upland trees. Efforts to preserve trees in place (by designating trees on plan sheets and marking trees with Environmentally Sensitive Area fencing) would be made to avoid or minimize project impacts to trees located in temporarily impacted areas. For upland trees that are removed, Caltrans would provide tree replacement on-site at a minimum 1:1 ratio in the existing SR-84 alignment, to maximize the given space available. Caltrans anticipates that no off-site planting would be needed for upland trees as of July 2017. However, in the event that off-site planting is determined necessary, potential planting locations would be identified working with local stakeholders, private landholders, and public agencies including, but not limited to, East Bay Regional Parks District, Alameda County, and San Francisco Public Utilities Commission. Upland trees would be planted within two years of completion of the Alameda Creek Bridge Replacement Project construction and would be monitored for three years following the planting to ensure that the mortality rate does not exceed 30% of all upland trees planted.

RIPARIAN TREES-1. During the design phase of the project, Caltrans' Office of Biological Science and Permitting would work with the Caltrans Design team to avoid and minimize project impacts to riparian trees. Efforts to preserve trees in place (by designating trees on plan sheets and marking trees with Environmentally Sensitive Area fencing) would be made to avoid or minimize project impacts to trees located in temporarily impacted areas. Trees removed from the riparian zone would be replaced at a minimum 3:1 ratio on-site, to the maximum extent possible given space available. Caltrans anticipates a need for off-site riparian planting as of July 2017. Potential planting locations within the Alameda Creek watershed would be identified working with local stakeholders, private and/or public landholders, and public agencies including, but not limited to, East Bay Regional Parks District, Alameda County, and San Francisco Public Utilities Commission. On-site riparian trees would be planted within two years of completion of the Alameda Creek Bridge Replacement Project construction and would be monitored for three years following the planting to ensure that the mortality rate does not exceed 30% of all riparian trees planted. Details for off-site planting and riparian tree planting success criteria would be determined during the design and permitting phase of the project with CDFW (1602 Streambed Alteration Agreement) and RWQCB (401 Certification).

*Biological Resources: Wetlands and other Waters*

The release of the sediment impounded by the weir could result in a significant environmental impact on wetlands and other waters. Impacts to wetlands and other waters would be reduced through the implementation of measures WATER-1-4

*Biological Resources: Pacific and River Lamprey*

The release of the sediment impounded by the weir could result in a significant environmental impact to pacific and river lamprey. Impacts to pacific lamprey would be reduced through the implementation of WATER-1 through WATER-4 and LAMPREY-1

LAMPREY-1. Impacts to pacific lamprey would be reduced through the implementation of the following measures: NATURAL COMMUNITIES-1, NATURAL COMMUNITIES-2, NATURAL COMMUNITIES-5, NATURAL COMMUNITIES-6, THREATENED & ENDANGERED-SPECIES-3, THREATENED & ENDANGERED SPECIES-5, and WATER-6.

*Biological Resources: Western Pond Turtle*

The release of the sediment impounded by the weir could result in a significant environmental impact to western pond turtle. Impacts to western pond turtle would be reduced through the implementation of WATER-1 through WATER-4 and WESTERN POND TURTLE-1.

WESTERN POND TURTLE-1. Impacts to western pond turtle would be reduced through the implementation of the following measures: NATURAL COMMUNITIES-1, NATURAL COMMUNITIES-2, NATURAL COMMUNITIES-5, NATURAL COMMUNITIES-6, THREATENED & ENDANGERED-SPECIES-3, THREATENED & ENDANGERED SPECIES-5, and WATER-6.

*Biological Resources: Roosting Bats*

BATS-1. No more than two weeks prior to tree removal, a qualified biologist will conduct a pre-construction survey for crevice and cavity roosting habitat in trees within the project area that are 12 inches or greater in diameter at breast height. If active roosting habitat is identified, minimization measures will be identified through coordination with CDFW.

BATS-2. A roosting bat exclusion plan will be implemented during the non-breeding season. The bat exclusion plan would describe installation of a physical barrier, which may include plywood, plastic tarps, canvas tarps, and filling foam, and would address how one-way exclusion devices would be used to allow bats to safely exit the current bridge prior to its removal. This physical barrier would prevent bats from re-entering their roost and induce them to find alternate roost habitat. Exclusion of bats would only occur between October and March to avoid the reproductive season. Specific day and night bat roost avoidance and minimization measures would be further developed through technical assistance with CDFW and bat specialists.

BATS-3. To compensate for the loss of day and night roosting habitat from the removal of the existing bridge, Caltrans would incorporate daytime crevice roosts and recessed night roosts constructed out of concrete into the underside of the new bridge structure. Bridge elements and configurations that support night and day roosting would be installed where feasible in the new Alameda Creek Bridge. Bridge replacements should consider use of a similar bridge design when the roost is large, unique or supports a rare species. Critical issues include access, ventilation, and protection. Crevice roosts should be replaced with crevices of similar area and cavities should be replaced with cavities of similar parameters. If this is not possible due to engineering requirements, e.g., safety, replacement habitat may be considered. Supplemental habitat may also be considered when exclusion will occur for more than one season.

*Biological Resources: California red-legged frog*

The release of the sediment impounded by the weir could result in a significant environmental impact to California red-legged frog. Impacts to California red-legged frog would be reduced through the implementation of WATER-1 through WATER-4 and CRLF-1.

CRLF-1. Caltrans would provide compensation for impacts to CRLF through on-site restoration of temporarily impacted areas (at a 1:1 ratio), and compensation for prolonged temporarily (at a 1.5:1 ratio) and permanently impacted areas (at a 3:1 ratio) through a combination of off-site habitat preservation and on-site restoration and enhancement activities<sup>72</sup>. Proposed compensation by Alternative is shown in Table 36 in Section 2.3.5.4. On-site restoration and enhancement activities would consist of the restoration of disturbed areas to pre-existing or better quality. Success would be measured by total % ground cover and % survival of planted trees. On-site trees would be monitored for three years following the planting to ensure that the mortality rate does not exceed 30% of all trees planted, with reporting to CDFW and USFWS. Landscaping of impact areas would include the planting of native plants associated with California bay/coast live oak woodland, fresh water emergent wetland, valley foothill riparian, and coastal scrub habitat. A portion of this proposed compensation will be covered by the reclamation of the current bridge columns and roadway approaches. Caltrans anticipates a need for off-site compensation and plans to purchase multi-species bank credits from Ohlone West or Ohlone Preserve Conservation Banks. As of July 2017, Ohlone Preserve has credits available for California red-legged frog and the project is within the approved service area for this species. If Ohlone Preserve no longer has credits available by the time of the credit purchase (in advance of the project construction), Caltrans would purchase bank credits from Ohlone West. The most recent information states that the bank credits are available as of July 2017, and therefore, they would be open for purchase well in advance of the project's projected start date. Funding for the purchase of compensatory mitigation credits is designated within the project's right of way data sheet. In accordance with permit conditions and consultation with the resource agencies, approved banking credits shall be purchased within six months prior to the start

<sup>72</sup> The proposed compensation impact ratios for California red-legged frog and Alameda whipsnake have been updated to reflect the Biological Opinion (BO) number 08ESMF00-2015-F-0073-2, obtained from the USFWS on May 4, 2017 for this project.

of the bridge construction phase. In the event that bank credits are not available, Caltrans would purchase and conserve habitat to address the species' requirement.

*Biological Resources: Alameda Whipsnake*

AWS-1. Compensation for the minor disturbance to AWS Critical Habitat Unit 3 for AWS would occur through on-site restoration of temporarily impacted areas (at a 1:1 ratio), on-site restoration and enhancement of the existing SR-84 roadway and through compensation for prolonged temporarily (at 1.5:1 ratio) and permanently impacted areas (at a 3:1 ratio) through a combination of off-site habitat preservation and on-site restoration and enhancement activities. Proposed compensation by Alternative is shown in Table 42. On-site restoration and enhancement activities would consist of the restoration of disturbed areas to pre-existing or better quality. Success would be measured by total % ground cover and % survival of planted trees. On-site trees would be monitored for three years following the planting to ensure that the mortality rate does not exceed 30% of all trees planted, with reporting to CDFW and USFWS. Landscaping of impact areas would include the planting of native plants associated with California bay/coast live oak woodland, fresh water emergent wetland, valley foothill riparian, and coastal scrub habitat. A portion of the proposed compensation for permanent impacts will be covered by the reclamation of the current bridge columns and roadway approaches. Caltrans anticipates a need for off-site compensation and plans to purchase multi-species bank credits from Ohlone West or Ohlone Preserve Conservation Banks. As of July 2017, Ohlone Preserve has credits available for Alameda whipsnake and the project is within the approved service area for this species. If Ohlone Preserve no longer has credits available by the time of the credit purchase (in advance of the project construction), Caltrans would purchase bank credits from Ohlone West. The most recent information states that the bank credits are available as of July 2017, and therefore, they should be open for purchase well in advance of the project's projected start date. Funding for the purchase of compensatory mitigation credits is designated within the project's right of way data sheet. In accordance with permit conditions and consultation with the resource agencies, approved banking credits shall be purchased within six months prior to the start of the bridge construction phase. In the event that bank credits are not available, Caltrans would purchase and conserve habitat to address the species' requirement.



**Table 42. Proposed Compensation for impacts to Alameda whipsnake**

Design Alternative	Total (Acres)
<b>Alternative 1 Compensation</b>	
1:1 Ratio for Temporary	3.424
3:1 Ratio for Permanent	7.620
Total Compensation	11.044
<b>Alternative 2 Compensation</b>	
1:1 Ratio for Temporary	3.370
3:1 Ratio for Permanent	5.703
Total Compensation	9.073
<b>Alternative 3A Compensation</b>	
1:1 Ratio for Temporary	3.611
3:1 Ratio for Permanent	7.410
Total Compensation	11.021
<b>Alternative 3B Compensation</b>	
1:1 Ratio for Temporary	0.161
1.5:1 Ratio for Prolonged Temporary	4.197
3:1 Ratio for Permanent	4.986
Total Compensation	9.344

*Biological Resources: Steelhead*

The release of the sediment impounded by the weir could result in a significant environmental impact to steelhead. Impacts to steelhead would be reduced through the implementation of WATER-1 through WATER-4.

## **CHAPTER 4. COMMENTS AND COORDINATION**

Early and continuing coordination with the general public and appropriate public agencies is an essential part of the environmental process. It helps planners to determine the necessary scope of the environmental documentation and the level of analysis required, and to identify potential impacts and avoidance, minimization, and/or mitigation measures and related environmental requirements. Agency consultation and public participation for the Alameda Creek Bridge Replacement Project have been accomplished through a variety of formal and informal methods, including Project Development Team (PDT) meetings, interagency coordination meetings, and scoping meetings. This chapter summarizes the results of Caltrans' efforts to fully identify, address, and resolve project-related issues through early and continuing coordination.

### **4.1 Scoping Process**

#### **4.1.1 Notice of Preparation**

Caltrans began the formal environmental review process for this project by filing a Notice of Preparation (NOP) with the State Clearinghouse on February 18, 2014 (the California State Clearinghouse number is 2010082001). The posting of the NOP initiated a 30-day public scoping period, during which federal, state, and local agencies as well as members of the public had the opportunity to provide comments on potential issues to be addressed in the EIR. Members of grassroot community groups and private individuals were notified of the NOP through email and through postcards mailed to the addresses that they had provided to Caltrans. Caltrans held two public meetings during the scoping period, one in Sunol and a second in Fremont.

#### **4.1.2 Advertising of Public Meetings**

Caltrans advertised the scoping meetings in a variety of formats two weeks prior to the scheduled dates. Distribution methods included postcard mailings, letter notifications, and email notifications to the Niles Canyon Stakeholder Listserve. Information was also posted on the Niles Canyon Projects website (<http://www.dot.ca.gov/dist4/nilescanyon/>). The advertisements provided public meeting logistics, explained the purpose of the public meetings, gave the schedule for the public scoping comment period, outlined additional ways to comment, and provided methods for obtaining more project information.

#### **4.1.3 Scoping Meetings**

The first meeting occurred in Sunol at the Sunol Glen Elementary School, located at 11601 Main Street, from 7-9 PM on February 25, 2014. The second meeting was held in Fremont at the Niles Elementary School, located at 37141 Second Street, from 7-9 PM on March 4, 2014. Caltrans personnel presented informational boards and answered questions from the public in an open-house style format at the first meeting. Members of the public at the first scoping meeting requested a change in format for the second meeting. The second meeting at the Niles Elementary School included a project presentation given by the Caltrans Project Manager, Jack Siau, followed by a formal question-and-answer session with a panel of project personnel. Sixteen people attended the first scoping meeting in Sunol and forty-nine people attended the second scoping meeting in Fremont.

Both scoping meetings displayed poster boards highlighting the different alternatives for members of the public to view. Caltrans personnel from landscape architecture, environmental analysis, biology, water quality, and engineering spoke with meeting attendees and addressed questions and concerns related to the project. Caltrans personnel distributed a project informal handout and informed meeting attendees how to submit a comment about the project. The handout sheets contained information about the project, information about the CEQA process, and contact information for the project. The handouts and posters contained the following formation:

- The purpose of the meeting;
- Project description
- Project goals and need;
- Cost and funding for the project;
- Schedule for the environmental document;
- Similarities and differences among the four proposed alternatives; and
- Contact information for more information and to submit comments.

#### **4.1.4 Opportunities for Public and Agency Comment**

Members of the public and agencies had several methods for providing comments during the scoping period:

- Comments could be handwritten on comment cards at the two scoping meetings. Comment forms and pencils were provided to meeting attendees at both scoping meetings.
- Emails with comments could be sent to the project specific email address: [NilesCanyonProjects@dot.ca.gov](mailto:NilesCanyonProjects@dot.ca.gov).
- Individual letters and comments could be mailed via U.S. Postal Service to:  
Melanie Brent  
Deputy District Director  
Caltrans District 4  
P.O. Box 23660  
Oakland, CA 94623

All comments were given equal consideration, regardless of method of transmittal.

## **4.2 Circulation of the Draft EIR**

### **4.2.1 Public Review of the Draft EIR**

Caltrans released the previously circulated Draft EIR on February 3, 2015, beginning the 45-day public review period. Caltrans announced the release of the Alameda Creek Bridge Replacement Project Draft EIR and opportunity to attend a public open-forum hearing on February 3, 2015 through e-mail notification to Niles Canyon stakeholders as well as members of the public who requested e-mail notification of Niles Canyon projects. In addition to the e-mail notification, Caltrans mailed notification announcements to the residents of Niles in Fremont (who live within a five miles radius of the project limits) and the town of Sunol and published newspaper advertisements in the Fremont Argus and the Pleasanton Independent. The Fremont Argus printed the advertisement on February 7, 2015 and February 18, 2015, and the Pleasanton Independent printed the advertisement on February 12, 2015 (refer to Appendix G). The notification e-mail, mailed announcements,

and newspaper advertisements identified the website address where members of the public could view the Draft EIR online, the locations where hard copies of the Draft EIR were available, detailed information about the public open-forum hearing, and how to submit a comment on the Draft EIR.

In response to public input, Caltrans extended the deadline for comments from 5 PM on March 20, 2015 to April 3, 2015. Caltrans announced the extension of the comment period as well as the addition of a second public open-forum hearing on March 9, 2015 through an e-mail notification to Niles Canyon stakeholders and members of the public who requested e-mail notification of Niles Canyon project updates. In addition to the e-mail notification, Caltrans sent a second notification mailer to the residents of Niles in Fremont and the town of Sunol. The second notification e-mail and mailer identified the website address where members of the public could view the Draft EIR online, the locations where hard copies of the Draft EIR were available, detailed information about the public open-forum hearing, and how to submit a comment on the Draft EIR.

#### **4.2.2 Public Open-Forum Hearings**

Caltrans held a public open-forum hearing for the Alameda Creek Bridge Replacement Project at Niles Elementary School (37141 2nd Street, Fremont, CA) on February 23, 2015. Approximately 20 people attended the meeting. Poster boards around the room displayed the Alternative alignments, visual simulations from various key viewpoints, and proposed biological/cultural mitigation measures. Jack Siau, the Caltrans Project Manager for the Alameda Creek Bridge Replacement Project, gave a brief presentation at 6:30 PM. A question and answer session followed the presentation during which members of the public could ask questions about the project and Environmental Document of Caltrans staff.

In response to the public's input on the project, Caltrans held a second public open-forum hearing at Sunol Glen Elementary School, 11601 Main Street, Sunol, CA, on March 23, 2015. Approximately 31 people attended the second public open-forum hearing. The second meeting followed the format of the first meeting.

#### **4.2.3 Comments Received on the Draft EIR**

The public provided comments on the Alameda Creek Bridge Replacement Project Draft EIR in the form of comment cards at the public open-forum hearings as well as letters and e-mails to Caltrans. Of 60 comments and letters received, many expressed concerns about the range of alternatives considered, traffic safety, mitigation for biological impacts, and outstanding mitigation requirements for a different, previous Caltrans safety project. The comments received during this circulation period are considered to be part of the project record, however, these comments did not receive a written response in the Final EIR/EA. Only comments submitted for the Revised Draft EIR/EA received a response in the Final EIR/EA.

#### **4.3 External Agency Coordination**

The Alameda Creek Bridge Replacement Project requires several permits and approvals as detailed in Chapter 1. The following provides a summary of agency consultation and professional contacts in advance of the draft environmental document's release:

- July 26, 2010 – Caltrans contacted the Native American Heritage Commission (NAHC) regarding the presence of sacred lands in the project area and asked the NAHC to provide a list of Native American contacts.
- March 6, 2014 – A technical assistance meeting was held in the field with Joe Heublein (NMFS) to discuss the project and the potential removal of the concrete weir upstream of the current bridge.
- March 26, 2014 – A technical assistance meeting was held in the field with Melissa Escaron (CDFW) and John Cleckler (USFWS) to describe the proposed project.
- June 4, 2014 – A meeting was held at Caltrans District 4 Office to discuss the proposed project. Attendees included John Cleckler, Melissa Escaron and Marcia Grefsrud (CDFW), Holly Costa (USACE), Derek Beauduy (RWQCB), and Joe Heublein (NMFS). Discussion on the potential occurrence of California tiger salamander (CTS) occurred. Staff from USFWS and CDFW concluded that CTS would not likely be present in the proposed project vicinity and that mitigation would not be required. Caltrans' proposed mitigation strategy also was discussed with agencies.
- July 28, 2014 – A technical assistance meeting was held in the field with Holly Costa (USACE), Derek Beauduy (RWQCB), John Cleckler (USFWS).
- June 18, 2015 – SHPO concurred that the Alameda Creek Bridge Replacement Project would have no adverse effect on the Sunol Aqueduct and the Niles Canyon Transcontinental Railroad Historic District.
- January 13, 2016 – Caltrans received an updated USFWS species list.
- January 13, 2016 – Caltrans received an updated NMFS species list.
- March 3, 2017 – John Clecker (USFWS) submitted a draft copy of the Alameda Creek Bridge Replacement Project Biological Opinion (BO) to Caltrans for review.
- April 4, 2017 – Caltrans returned the BO to USFWS containing edits and comments. John Cleckler (USFWS) responded that the edits were made and the draft was submitted to senior review.
- April 5, 2017 – Caltrans reached out to Marcia Grefsrud (CDFW) to discuss the permits required for all of the projects within the Niles Canyon corridor, including the Alameda Creek Bridge Replacement Project. This correspondence includes a list of the special-status species to be protected (Alameda whipsnake [AWS]), permits required, and the general estimated construction timeframe for each project.
- April 14, 2017 – A phone meeting was held with Marcia Grefsrud (CDFW) to discuss the impacts of the geotechnical borings in Alameda Creek. Marcia requested the review of the draft Biological Opinion from USFWS and explained that Caltrans has the option of pursuing the geotechnical boring portion of the project under a categorical exemption.
- April 17, 2017 – Caltrans reached out to Janelle Leeson (USACE) on the phone to discuss the Nationwide Permit (NWP) requirements for the geotechnical boring work.
- April 18, 2017 – Marcia Grefsrud (CDFW) explained further that Caltrans has two options: 1) Caltrans can wait for the current CEQA document to be certified and issue the NOD or proceed with a Notice of Exemption specifically for the geotechnical borings.

- April 21, 2017 – After discussing the options among the project team, Caltrans informed Marcia (CDFW) that Caltrans will proceed with the categorical exemption option (Notice of Exemption).
- May 4, 2017 – Caltrans received the Biological Opinion from USFWS.
- May 10, 2017 – Caltrans submitted an ITP application withdrawal request to Scott Wilson, the regional manager of CDFW.
- May 11, 2017 – Caltrans submitted an updated transmittal letter to CDFW in response to Marcia Grefsrud’s inquiry for the permit numbers of the draft ITP and Streambed Alteration Agreement.
- June 8, 2017 – Caltrans received an updated USFWS species list.
- June 8, 2017 – Caltrans received an updated NMFS species list.
- June 21, 2017 – Caltrans submitted the Notice of Exemption for the geotechnical boring work to the State Clearinghouse.
- July 27, 2017 – Caltrans received the 1602 Agreement from CDFW and the Section 404 nationwide permit from USACE for the geotechnical boring work.

#### **4.4 Public Participation**

##### **4.4.1 Notice of Availability of Revised Draft EIR/EA**

A Notice of Availability was circulated to the project mailing list and to various parties listed in the Section 6. The notice provided information on the project, where the environmental document can be reviewed, the address to which comments should be sent, the close of the comment period, and the locations of the public meetings. An email blast with this information was sent to the Niles Canyon listserv on January 13, 2017. The Notice of Availability was also placed in a newspaper advertisement in the Pleasanton Independent Newspaper on February 2, 2017 and in the Fremont Argus Newspaper on February 17, 2017.

##### **4.4.2 Public Meetings**

Caltrans held a public open-forum hearing for the Alameda Creek Bridge Replacement Project at Sunol Glen Elementary School (11601 Main Street, Sunol, CA) on February 7, 2017. Approximately 10 people attended the meeting. Poster boards around the room displayed the Alternative alignments, visual simulations from various key viewpoints, and proposed biological/cultural mitigation measures. Jack Siau, the Caltrans Project Manager for the Alameda Creek Bridge Replacement Project, gave a brief presentation at 6:30 PM. A question and answer session followed the presentation during which members of the public could ask questions about the project and Environmental Document of Caltrans staff.

Caltrans held a second public open-forum hearing at Vallejo Mill Elementary School, (38569 Canyon Heights Drive, Fremont, CA) on February 21, 2017. Approximately 10 people attended the second public open-forum hearing. The second meeting followed the format of the first meeting.

##### **4.4.3 Public Comments and Responses to Comment**

The public provided comments on the Alameda Creek Bridge Replacement Project Revised Draft EIR/EA in the form of comment cards at the public open-forum hearings

as well as letters and e-mails to Caltrans. Of the 28 comments and letters received, many expressed concerns about the range of alternatives considered, traffic safety, mitigation for biological impacts, and cumulative impacts.

#### Comment Letter Legend

SA = State Agency

LJ = Local Jurisdiction

CG= Community Group

I = Individual

#### List of Comment Letters

ID	Commenter
<i>State Agencies</i>	
SA-1	Regional Water Quality Control Board
<i>Local Jurisdictions</i>	
LJ-1	Alameda County Water District
LJ-2	City of Fremont
LJ-3	East Bay Regional Park District
LJ-4	San Francisco Public Utilities Commission
<i>Community Groups</i>	
CG-1	Alameda Creek Alliance
CG-2	Bay Area Transportation Working Group
CG-3	California Native Plant Society
CG-4	Sierra Club
CG-5	Transportation Solutions Defense and Education Fund
CG-6	Tri City Ecology Center
<i>Individual</i>	
I-1	Rosemary Chang
I-2	Nancy Coumou
I-3	Connie DeGrange
I-4	Robert Foster
I-5	Robert Foster (separate card)
I-6	Mike Hanou
I-7	Nzingha Johnson
I-8	David Kiehn
I-9	Leonard Lloyd
I-10	Martha Matthiesen
I-11	Jim O’Laughlin
I-12	Flavio Poehlmann
I-13	Michelle Powell
I-14	Dan Reasor
I-15	John Weed
I-16	Laura Winter
I-17	Jacob Wouden



From: Beauduy, Derek@Waterboards [mailto:Derek.Beauduy@waterboards.ca.gov]

Sent: Wednesday, March 01, 2017 6:40 PM

To: White, Elizabeth@DOT <elizabeth.white@dot.ca.gov>; NilesCanyonProjects@DOT <NilesCanyonProjects@dot.ca.gov>

Cc: Bowyer, Dale@Waterboards <Dale.Bowyer@waterboards.ca.gov>; Takhar, Hardeep@DOT <hardeep.s.takhar@dot.ca.gov>; Vafai, Cyrus@DOT <cyrus.vafai@dot.ca.gov>

Subject: Water Board Comments on Draft EIR for SR 84 Alameda Creek Bridge Replacement Project

Elizabeth,

Thank you for providing the Water Board the opportunity to review the Draft EIR for the SR 84 Alameda Creek Bridge Replacement Project. We have reviewed the Draft EIR and have the following comments:

1. Summary Page x and the Weir Removal section Page 13, note that, per discussion with the Water Board, the removal of the wall and bridge footings upstream of the existing bridge would address anticipated compensatory mitigation requirements for project impacts under the 401 permit. The Water Board may find removal of the wall and footings to partially or fully compensate for project impacts, but we will need to evaluate the final project design and impacts, and review hydraulic modeling and geomorphic study reports, prior to making any decisions on mitigation requirements.

SA-1.1

2. We cannot make a determination of a preferred alternative without seeing a cross-section plan of the creek with the proposed bridge alternatives and columns/foundations shown. In general, we would prefer the alternative that results in the least impact to jurisdictional waters, wetlands, and riparian vegetation. From the draft EIR, the least impactful alternative appears to be Alternative 3B, but without being able to review existing and proposed creek profiles and cross-sections, we cannot definitively make that determination. As the project progresses and designs are finalized, we would look for Caltrans to continue to minimize and avoid impacts to Alameda Creek and the riparian corridor where possible.

SA-1.2

3. As the project design progresses, the Water Board will require additional information in order to fully evaluate the project impacts and issue a 401 certification. This information will include, but is not limited to:

- Final bridge/road design plans and stormwater treatment plans,
- Final impact quantities and maps (for jurisdictional waters, wetlands, and riparian impacts),
- Mitigation proposal for unavoidable impacts,

SA-1.3

- Existing and proposed longitudinal creek profiles,
- Existing and proposed creek cross sections that include the road/bridge and extend to the top of terrace,
- Geomorphic assessment and analysis of the existing channel and bridge, the new bridge configuration, and how removal of the existing bridge columns/footings and old wall and footings may impact the creek,
- Hydraulic modeling report.

Water Board staff is available to meet to discuss the project and our permitting requirements.

Previous comments we have submitted for this project on the Notice of Preparation and the previous Draft EIR are attached to this email and are still valid. I will not be sending a hardcopy of these comments and will retain this email in our project file. Please contact me if you have questions.

Regards,

Derek Beauduy

Water Resource Control Engineer

San Francisco Bay Regional Water Quality Control Board

1515 Clay Street, Suite 1400

Oakland CA, 94612

(510) 622-2348

## **Response to Comment Letter SA-1: Regional Water Quality Control Board**

### *Response to SA-1.1*

We understand that decision regarding the compensation is not finalized until review of the application. As described in Permits table, Caltrans will be applying for a permit which will include impacts to RWQCB jurisdiction.

### *Response to SA-1.2*

Thank you for the input on Alternative 3B and its potential to be least impactful to the environment. Caltrans will continue to refine project design during the next phase in order to minimize impacts to the environment to the maximum extent possible. Caltrans will coordinate with RWQCB during the permit application.

### *Response to SA-1.3*

Thank you for providing a list of documents RWQCB would like to review prior to issuance of the 401 certification. Caltrans will coordinate with RWQCB throughout the project delivery process.



43885 SOUTH GRIMMER BOULEVARD • P.O. BOX 5110, FREMONT, CALIFORNIA 94537-5110  
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March 2, 2017

Elizabeth White  
Department of Transportation District 4  
111 Grand Avenue MS 8B  
Oakland, CA 94623

Dear Ms. White:

Subject: Comments on the Revised Draft Environmental Impact Report/Environmental Assessment for the Alameda Creek Bridge Replacement Project

Thank you for the opportunity to review and comment on the Revised Draft Environmental Impact Report (Revised Draft EIR) for the Alameda Creek Bridge Replacement Project. The Alameda County Water District (ACWD) supports the project goal of improving safety along State Route 84 (SR-84) between milepost 13.0 and 13.6 and appreciates the consideration of several project alternatives and mitigation techniques.

ACWD provides drinking water to a population of over 349,000 in the cities of Fremont, Newark, and Union City. Alameda Creek and the Niles Cone Groundwater Basin provide a major portion of the drinking water supply for ACWD, so the protection of the quantity and quality of water in the creek, its tributaries, and the groundwater basin are critically important to ACWD. Additionally, as noted in the Revised Draft EIR, ACWD is involved in the ongoing steelhead restoration efforts to restore fish passage within the Alameda Creek watershed.

ACWD's comments may be grouped into five categories: accommodation of Alameda Creek flows; minimization of water quality and sediment impacts to Alameda Creek; groundwater protection; fisheries restoration projects; and ACWD property and Sunol Aqueduct.

#### Accommodation of Alameda Creek Flows

1. In order to supplement water flows for groundwater recharge, ACWD may require release of water from the South Bay Aqueduct into a tributary of Alameda Creek upstream of the proposed project. These water releases can be made throughout the year, but typically are most frequent during the period of June 1 through October 30, which overlaps with the proposed construction period. These supplemental flows may be up to thirty-five cubic feet per second (cfs) above background watershed flows, and are necessary to maintain adequate groundwater levels in the downstream drinking water aquifers. Therefore, construction work specifications need to provide for the passage of any supplemental water through the project



area, as well as mitigation for any sediment, turbidity, and pollutants from the construction work which could adversely impact the quality of the water.

2. The project proposes a temporary creek diversion and two earthen dams to maintain a dry working environment within the construction area and to prevent contaminants from entering Alameda Creek. The flow capacity of the proposed 48-inch diameter diversion pipe is approximately 105 cfs. Historic records of flows at the USGS Niles Gaging Station indicate that large rainfall runoff events, while infrequent, can occur during the proposed construction period. For example, average daily flows of more than 700 cfs in September and 1,900 cfs in October have been recorded. Such large storm flow events could mobilize sediment in the temporary earthen dams and/or construction materials and equipment at the project site, with negative impacts to the construction project as well as to downstream facilities and beneficial uses. ACWD requests that Caltrans take this possibility into account in the analysis of alternatives and preparation of construction plans. Additionally, ACWD requests that Caltrans provide a storm flow event contingency plan for review and comment to better ensure the likelihood of a well-coordinated response.

Please note that ACWD neither regulates nor has control over the release of water from rainstorm runoff, impoundments, or other dischargers within the Alameda Creek Watershed.

#### Minimization of Water Quality and Sediment Impacts to Alameda Creek

3. Construction activities can have a significant impact on water quality through discharge of contaminated runoff or spills of fuels and construction-related chemicals. For example, as stated in Section 2.2.2.3, Environmental Consequences of the Revised Draft EIR, the “large amounts of fresh concrete for the construction of the bridge... has the potential to temporarily change the pH of receiving waters.” Given the use of Alameda Creek as a drinking water resource, it is imperative that the highest level of best management practices be employed at the construction site for stormwater management, chemical and materials handling, and refueling operations. ACWD requests that Caltrans provide the stormwater pollution prevention plan and any construction best management practices to ACWD for review and comment before construction begins.
4. Post-construction stormwater management from SR-84 also has the potential to significantly affect water quality in Alameda Creek. The creek provides sensitive aquatic habitat for future restoration of a steelhead fishery. It also serves as a waterway for downstream water diversions, groundwater recharge, and eventual beneficial use as a potable water supply. ACWD appreciates Caltrans’ recognition of the importance of post-construction management and treatment of stormwater to minimize detrimental effects.
5. Although it was not mentioned in the Revised Draft EIR, there is a Caltrans restriction on trucking of hazardous materials or hazardous waste on the section of SR-84 in which the proposed project is located. The construction of the proposed project will require transportation of hazardous materials such as fuel through a portion of the restricted area, and should be done with the utmost precaution to prevent potential spills of hazardous materials

into Alameda Creek. ACWD requests that attention be paid to minimizing hazardous materials use whenever possible and alternative strategies be employed where available to reduce such risk. ACWD requests the preparation of a transportation and storage plan for hazardous construction materials that reflects the trucking restrictions in this sensitive area, and that ACWD be kept fully apprised of the plan and potential risk throughout the project so that necessary emergency action can be taken in the event of an accident.

6. In 2007, ACWD worked with Alameda County, East Bay Regional Park District, Caltrans, PG&E, and the San Francisco Public Utilities Commission (SFPUC) to close off the area formerly referred to as “Sims Park” to eliminate public access that was detrimental to water quality and habitat in Alameda Creek. Existing informal shoulders along SR-84 in and around the area of “Sims Park” and throughout Niles Canyon have been subject to illegal parking and dumping, and in some cases, other illicit activities. While recognizing the need for SR-84 safety improvements, ACWD is concerned that permanent shoulders along more areas of roadway may result in the return of problematic activities. Increased accessibility could in turn lead to an increase in potential threats to water quality from dumping and general public access, as well as the potential for poaching of steelhead once the fishery run has been restored through Niles Canyon. ACWD requests that Caltrans take these impacts into account in its analysis of proposed alternatives, and take necessary steps to mitigate potential impacts to water quality and protected species. At a minimum, ACWD requests the installation or replacement of signs prohibiting parking along the proposed project alignment and throughout Niles Canyon that is backed with adequate policing and enforcement.
7. ACWD supports the proposed removal of the concrete weir associated with the former bridge structure, but sediment released due to the removal of the concrete weir has the potential to negatively impact ACWD’s groundwater recharge operations, resulting in increased costs for operation and maintenance. ACWD appreciates the consideration in the Revised Draft EIR of several mitigation methods to reduce the impacts of the released sediment, and requests that Caltrans include the potential impacts to ACWD’s operation and maintenance costs in the analysis of proposed alternatives and mitigations. ACWD would prefer the selection of a mitigation method that minimizes the addition of further material into the creek, such as the proposed “WATER-2” mitigation of staged weir removal described in Section 2.2.1.4, Avoidance, Minimization, and/or Mitigation Measures. Additionally, ACWD requests that Caltrans carefully communicate and coordinate with ACWD during weir removal, so that there is opportunity for ACWD to adjust its operations to minimize the impact of sediment releases.

#### Groundwater Protection

8. *Well Protection/Destruction:* ACWD has identified two water wells located approximately 250 feet west of the existing bridge. In order to protect the groundwater basin, each well must be in compliance with ACWD Ordinance No. 2010-01. If the wells are to remain, a letter so indicating must be sent to ACWD and will require a permit for inactive classification if the wells will not be used for a period of twelve (12) months. Any



abandoned wells located within the project area must be properly destroyed prior to construction activities.

9. *Drilling Permit Requirement:* Reference is made to Table S-4 and Table 7, Permits and Approvals Needed. ACWD regulates the construction, repair, destruction of wells, exploratory holes, and other excavations located within the City of Fremont under ACWD Ordinance No. 2010-01, including dewatering wells, piles, and piers. As required by ACWD Ordinance No. 2010-01, drilling permits are required prior to the start of any subsurface drilling activities.

Application for a permit may be obtained from ACWD's Water Resources Department, at 43885 South Grimmer Boulevard, Fremont or online at <http://www.acwd.org>. Before a permit is issued, a cash or check deposit is required in a sufficient sum to cover the fee for issuance of the permit or charges for field investigation and inspection. All permitted work requires scheduling for inspection; therefore, all drilling activities must be coordinated with ACWD prior to the start of any field work. Therefore, ACWD requests that the Revised Draft EIR include the requirement of obtaining a drilling permit from ACWD prior to the start of any subsurface drilling activities within the City of Fremont.

10. *Dewatering:* Reference is made to Section 2.2.3.3, Environmental Consequences (page 166). This section states "Groundwater is approximately close to the creek surface in the vicinity of the creek. If needed, groundwater may need to be pumped out, treated, and taken offsite, depending on the CIDH pile design for the selected Build Alternative." Given the potential to affect the local hydrology, groundwater, and water quality, ACWD is concerned about the potential loss of water supply due to construction activities that could change or disrupt the flow of water to ACWD's groundwater recharge facilities. As a result, any groundwater pumped due to dewatering activities should be treated and released at a site downstream as stated in the Revised Draft EIR on page 156, under Section 2.2.2.3, Environmental Consequences.
11. *Piles and Piers:* ACWD regulates the construction, repair, and destruction of piers and piles (such as cast-in-drill-hole piles) as other excavations under ACWD's Ordinance No. 2010-01. Support piers and piles are frequently installed similar to wells and exploratory holes. If the annular space between the excavation or borehole wall and the support pier or pile is not properly sealed, it can act as a vertical conduit and may create preferential pathways that allow pollutants to rapidly infiltrate the subsurface and impact groundwater. For this reason, ACWD requests the project proponents coordinate the design of piles and piers with ACWD.

#### Fisheries Restoration Projects

12. Fish are not prevented from leaving, but are prevented from entering the Alameda Creek watershed by the BART weir. Please correct the language in Section 2.3.5.2, Affected Environment (page 222), and Section 2.4.4.8, Biological Environment: Steelhead Central California Coast DPS (page 282).



13. The installation of the ACWD-ACFCD fish passage features will restore fish passage to Niles Canyon and the section of Alameda Creek within the Revised Draft EIR's Steelhead Resource Study Area; however, other features upstream of the Revised Draft EIR's Steelhead Resource Study Area would prevent connectivity of the entire Alameda Creek Watershed to the San Francisco Bay. Please update the language in Section 2.3.5.2, Affected Environment (page 223).
14. Additionally, please add the following projects to Table 38, List of Projects Considered for Cumulative Impact Analysis (pages 239-249):
  - a) RD2 Decommissioning: Past Project; construction completed in November 2009. Location: Alameda Creek between the BART Bridge and Isherwood Bridge. Description: The project consists of the removal of an inflatable rubber dam fabric and the modification of the dam's foundation to provide for fish passage.
  - b) Bunting Fish Screen: Past Project; construction completed in November 2009. Location: In the City of Fremont, along the south side of the ACFCD Channel, upstream of ACWD Rubber Dam Number 3. Description: The project consisted of the installation of a fish screen for an existing diversion.

ACWD Property and Sunol Aqueduct

15. ACWD owns property adjacent to the project that will be impacted by the bridge improvements and related construction. Section 2.1.1.1 (paragraph #2) should be revised to include ACWD in the list of land owners. The Revised Draft EIR states that the project involves the acquisition of minor parcels or easements from ACWD. Table 9 Proposed Right-of-Way Requirements identifies land required to be obtained from ACWD. Caltrans should coordinate closely with ACWD on property related issues and potential impacts to ACWD access to properties due to the land acquisition and ultimate roadway and bridge alignment, including grading, retaining walls and/or concrete soil-nail walls depending on the Alternative selected, within the project area.
16. Access to ACWD properties should be maintained during and after construction and appropriate design measures incorporated into the project to provide ACWD safe ingress/egress to its properties from Highway 84. ACWD requests that Caltrans provide the access plan to ACWD for review and comment during the design process.
17. ACWD appreciates that the Revised Draft EIR acknowledges the presence and importance of the existing Sunol Aqueduct (also referred to as the Niles Canyon Aqueduct). The Revised Draft EIR identifies no impacts to the Sunol Aqueduct facility and confirms that the aqueduct will remain and be protected and unaffected by the proposed project, including proposed earthwork and retaining walls. ACWD requests that the roadway and bridge alignment and design take into account the need for safe access to the aqueduct.

The following ACWD contacts are provided so that Caltrans can coordinate with ACWD as needed during the CEQA process:

- Evan Buckland, Water Supply Supervisor, at (510) 668-6539 or by email at [evan.buckland@acwd.com](mailto:evan.buckland@acwd.com), for coordination regarding ACWD's water supply and downstream operations.
- Juniet Rotter, Development Services Supervisor, at (510) 668-4472, or by email at [juniet.rotter@acwd.com](mailto:juniet.rotter@acwd.com), for coordination regarding ACWD property; and
- Michelle Myers, Groundwater Resources Manager, at (510) 668-4454, or by email at [michelle.myers@acwd.com](mailto:michelle.myers@acwd.com), for coordination regarding groundwater, drilling, or dewatering related issues.

Thank you again for the opportunity to provide comments on the Revised Draft EIR for the Alameda Creek Bridge Replacement Project. We look forward to further coordination with you on this project.

Sincerely,



Steven D. Inn  
Manager of Water Resources

jg/cs  
By Email

## **Response to Comment Letter LJ-1: Alameda County Water District**

### *Response to LJ-1.1*

The Project design is currently in its early stages. Construction work specifications and plans will be developed in the forthcoming design phase. During final design, the project's creek diversion plans will be designed to allow ACWD's supplemental flows. The approved project plans will be provided to ACWD when available.

As stated in Section 2.2.2.3, implementation of Caltrans' construction site Best Management Practices (BMPs), measures implemented for all Caltrans projects, would ensure that temporary construction activities do not adversely affect receiving waters. Since these BMPs are an inherent part of the project, these measures are not considered mitigation measures to reduce the project impacts to less than significant. These measures are described in Section 2.2.2.4.

### *Response to LJ-1.2*

The diversion strategy will be prepared by the Contractor, with approval by Caltrans prior to installation. The diversion will be sized using historical rainfall data for the months during which it will be deployed. A storm flow event contingency plan will be included as part of the project Non-Standard Special Provisions in the construction package. The approved storm flow event contingency plan will be provided to ACWD when available.

### *Response to LJ-1.3*

Caltrans acknowledged ACWD's concern for any potential impacts to water quality. A Stormwater Pollution Prevention Plan (SWPPP) will be prepared by the Contractor, and approved by the Caltrans, prior to the associated construction activities. The SWPPP demonstrates deployment of temporary Best Management Practices (BMPs) applicable to relevant construction activities. The SWPPP, once approved, will be available via the State Water Resources Control Board (SWRCB) Stormwater Multiple Applications and Report Tracking System (SMARTS) database.

### *Response to LJ-1.4*

Thank you for acknowledging the steps Caltrans is taking to treat stormwater and minimize detrimental effects.

### *Response to LJ-1.5*

A site management plan will be prepared by the Contractor and approved by Caltrans prior to the associated construction activities. The site management plan is a mandatory requirement for all construction projects and will address construction-related issues such as fuel transport to the project site. Caltrans agrees that the safe management of hazardous materials will be an important part of this project's construction. The approved site management plan will be provided to ACWD when available.

### *Response to LJ-1.6*

This project will not result in impacts to the area formerly referred to as "Sims park" as it is outside the project scope.

*Response to LJ-1.7*

As stated in Section 2.2.2.3, the implementation of Caltrans' construction water quality BMPs would ensure temporary construction activities do not adversely affect receiving waters. It is estimated that the average annual sediment load carried by Alameda Creek exceeds the amount of sediment impounded before the weir by a factor of 40 times. Therefore, the total amount of sediment stored behind the weir is a relatively small proportion of the total sediment load transported on an annual basis.

*Response to LJ-1.8*

Caltrans will comply with ACWD Ordinance No. 2010-01 by either destroying the wells prior to construction, providing sufficient documentation regarding the status of the wells, or getting a permit for inactive classification of the wells.

*Response to LJ-1.9*

Table S-4 and Table 7 have been revised to state that the drilling permit would be obtained prior to the geotechnical boring work.

*Response to LJ-1.10*

As described in Section 2.2.2.3 Environmental Consequences, Caltrans will treat and release downstream any pumped groundwater during dewatering activities.

*Response to LJ-1.11*

During final design, Caltrans will coordinate with ACWD regarding the construction, repair, and destruction of piers and piles to comply with ACWD's Ordinance No. 2010-01. As project plans get developed, Caltrans will provide draft plans and specifications to ACWD for review.

*Response to LJ-1.12*

Section 2.3.5.2 Affected Environment and Section 2.4.4.8, Biological Environment: Steelhead Central California Coast DPS has been revised to state that the Steelhead are prevented from entering the Alameda Creek watershed.

*Response to LJ-1.13*

Section 2.3.5.2 Affected Environment has been revised to clarify that other features upstream of the project area would prevent fish passage connectivity of the entire Alameda Creek Watershed to the San Francisco Bay.

*Response to LJ-1.14*

Table 38 has been revised to include Rubber Dam No. 2 Decommissioning & Foundation Modification Project and Bunting Pond Fish Screen.

*Response to LJ-1.15*

Section 2.1.1.1 has been revised to clarify that Alameda County Water District is an adjacent land owner to the project site.

*Response to LJ-1.16*

Through the project development process, Caltrans will continue to coordinate with adjacent property owners regarding access and approvals to their properties.

*Response to LJ-1.17*

As the project is currently proposed, access to the Sunol Aqueduct is not expected to be impacted.

**From:** NVeloso@fremont.gov [mailto:NVeloso@fremont.gov]  
**Sent:** Thursday, March 02, 2017 3:33 PM  
**To:** NilesCanyonProjects@DOT <NilesCanyonProjects@dot.ca.gov>  
**Subject:** RE: Caltrans Alameda Creek Bridge Replacement Revised Draft Environmental Impact Report/Environmental Assessment Available for Public Review and Comment

Hello,

Thank you for the opportunity to review the revised EIR/EA for the Alameda Creek Bridge Replacement. The safety improvements proposed along Niles Canyon Road is of great importance to and supported by the Fremont community.

Our only comment is that the Traffic Management Plan (TMP) be reviewed by City of Fremont Public Works staff and any construction closures (short-term or long-term) be coordinated with the City of Fremont.

LJ-2.1

Noe Veloso  
Principal Transportation Engineer  
City of Fremont  
Public Works Department  
510 494-4774





## **Response to Comment Letter LJ-2: City of Fremont**

### *Response to LJ-2.1*

As identified in Section 2.1.3.4, Caltrans will prepare a Traffic Management Plan for the Niles Canyon Safety Improvements Project. The City of Fremont will be included on Caltrans Traffic Management Plan distribution list and will be notified of construction schedules as well as any lane or roadway closures due to the Niles Canyon Safety Improvements Project.



Ms. Elizabeth White  
Department of Transportation, District 4 – Office of Environmental Analysis  
111 Grand Avenue, MS 8B  
Oakland, CA 94623-0660

**RE: Notice of revised Draft Environmental Impact Report/ Environmental Assessment (EIR/EA) for the Alameda Creek Bridge Replacement Project.**

Dear Ms. White,

The East Bay Regional Park District (Park District) has reviewed the Draft Environmental Impact Report/Environmental Assessment (DEIR/EA) for the Alameda Creek Bridge Replacement (the project), proposed by the California Department of Transportation (Caltrans). The Park District has a long term commitment to protecting and maintaining open space in Alameda and Contra Costa Counties and providing safe non-motorized transportation and recreational opportunities by way of our Regional Trail Network, and connecting to other local and regional non-motorized facilities.

The project analyzes four alternative designs for the replacement of the Alameda Creek Bridge which is located in the western portion of Niles Canyon on SR-84. The roadway in each of the design alternatives would consist of a twelve-foot lane in each direction, eight-foot shoulders, a two-foot median soft barrier (suitable for a rumble strip), and a three-foot “choker” (also known as an unpaved three-foot shoulder).

The Niles Canyon corridor has become a popular route for both recreational road cyclists and commuters. Bicycling is a growing sport in Alameda County, and has increased 75% since 2002. The project does not call for a change in the posted speed limit of 45mph, but rather proposes a design that would accommodate for that speed. While the design of all four alternatives includes an eight foot shoulder for use by cyclists, the shoulder also serves as a safety measure for vehicles to make maneuvers to avoid collisions, thereby, putting cyclists at risk. The Park District strongly suggests Caltrans include an alternative that provides a separated bike lane with an inflexible barrier. Included in Caltrans’s Design Information Bulletin Number 89 are guidelines for Class I separated bikeways. The guidelines specifically say, “An inflexible physical barrier should be used in lower speed environments (where the posted speed is 35 miles per hour or less). An inflexible physical barrier should be placed in a marked buffer of 3 feet wide, with 2 feet minimum width. In higher speed environments a concrete barrier should be used. On a sidewalk, the separation may include the inflexible physical barrier 1.5 feet minimum from face of curb.”

The Park District has appreciated Caltrans participation on the Technical Advisory Committee of the Niles Canyon Trail Connectivity Feasibility Study. At each of the public meetings held in association with that study, cyclists commented that the construction of a Class I trail in Niles Canyon should not exempt Caltrans from including a bike facility as part of safety improvement projects on SR-84. Specifically, competitive cyclists who ride at higher speeds, and those who ride as a team, expressed that they would prefer to use the roadway and requested that safety improvements be included in any improvement projects.

The Park District appreciates the opportunity to review DEIR/EA and provide comments. We look forward to continue working with Caltrans to provide bicycle and pedestrian opportunities through the Niles Canyon Corridor. Please include the Park District in any future correspondence, and environmental or design review. If you have any questions or concerns, please contact me at (510) 544-2609, or by e-mail at [swilson@ebparks.org](mailto:swilson@ebparks.org).

Respectfully,



Suzanne Wilson

Senior Planner – Trails Development

CC – Sean Dougan, Trails Development Program Manager EBRPD

Neoma Lavalley, Acting Sr. Planner, Planning EBRPD

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## **Response to Comment Letter LJ-3: East Bay Regional Park District**

### *Response to LJ-3.1*

Adding a Class 1 separated bikeway is beyond the scope of replacing the Alameda Creek Bridge and its approaches. Your comment regarding bicycle facilities in the corridor has been forwarded to the proper units within Caltrans.

### *Response to LJ-3.2*

Thank you for your input along the corridor regarding bicyclist safety. Caltrans will take that into consideration, however this project is specific to Alameda Creek Bridge and its approaches. Please see Section 2.1.3.3 for more details.

Table 1. Alameda Creek Bridge Replacement Project – Revised Draft Environmental Impact Report/Environmental Assessment (DEIR/EA) - SFPUC Comments

Letter LJ-4

Comment Number	DEIR/EA Document Page Number	Section Number and Title	Beginning Text of Paragraph	Table or Figure Number	Comment
1 LJ-4.1	1	1.1 Introduction	"As of January 2017, the construction cost was estimated at \$24 million and right-of-way cost was estimated at \$275,000. Right-of-way is required from Alameda County, San Francisco Public Utilities Commission (SFPUC), City and County of San Francisco, and Alameda County Water District (ACWD)."	N/A	Caltrans should also acknowledge that it must obtain fair market value appraisals for any land acquisitions.
2 LJ-4.2	2	1.1 Introduction	"Comments received during the earlier circulation period are considered to be part of the project record, however, these comments will not receive a written response in the Final EIR/EA."	N/A	It takes considerable staff time to review large environmental documents such as this one. Caltrans should consider publishing a redlined version to clearly show where changes occurred between the previous and current version of the DEIR.
3 LJ-4.3	9	1.4.1 Common Features of all Build Alternatives - Geotechnical Investigations	"Caltrans plans to sample at approximately eleven locations within the project limits..."	N/A	Show the boring sample locations either in an existing figure or in a new figure.

Table 1. Alameda Creek Bridge Replacement Project – Revised Draft Environmental Impact Report/Environmental Assessment (DEIR/EA) - SFPUC Comments

Comment Number	DEIR/EA Document Page Number	Section Number and Title	Beginning Text of Paragraph	Table or Figure Number	Comment
4 LJ-4.4	10	1.4.1 Common Features of all Build Alternatives - Temporary Creek Diversion	"All construction equipment used for the construction of the creek diversion would use the construction access roads created for geotechnical borings."	N/A	Show access road locations either in an existing figure or in a new figure.
5 LJ-4.5	13	1.4.1 Common Features of all Build Alternatives - Bridge Demolition	"After clearing and removal, the old road grade would be re-contoured to match the surrounding area, restored, and planted with native vegetation."	N/A	To avoid inadvertent introduction of non-native plant pathogens like phytophthora (Phytophthora species), current SFPUC policy specifies that no container stock or soil-containing plant materials may be used for revegetation on Watershed lands. The SFPUC requires that all revegetation work be done by direct seeding. The SFPUC requests that Caltrans adopt this practice as well to avoid inadvertently introducing plant pathogens into the Alameda Watershed. Many of these Phytophthora species appear to have wide host ranges, capable of causing disease on plants across many families and in many different habitats.

Table 1. Alameda Creek Bridge Replacement Project – Revised Draft Environmental Impact Report/Environmental Assessment (DEIR/EA) - SFPUC Comments

Comment Number	DEIR/EA Document Page Number	Section Number and Title	Beginning Text of Paragraph	Table or Figure Number	Comment
6 LJ-4.6	15	1.4.1 Common Features of all Build Alternatives - Revegetation	"In areas of temporary construction impact, appropriate replacement native vegetation would be planted in locations where it would not affect roadway safety. The old alignment would be remediated and replanted with appropriate native vegetation/trees. Specifications regarding vegetation and tree replacement would be provided during the design phase of the project."	N/A	To avoid inadvertent introduction of non-native plant pathogens like phytophthora (Phytophthora species), current SFPUC policy specifies that no container stock or soil-containing plant materials may be used for revegetation on Watershed lands. The SFPUC requires that all revegetation work be done by direct seeding. The SFPUC requests that Caltrans adopt this practice as well to avoid inadvertently introducing more plant pathogens into the Alameda Watershed. Many of these Phytophthora species appear to have wide host ranges, capable of causing disease on plants across many families and in many different habitats.



Table 1. Alameda Creek Bridge Replacement Project – Revised Draft Environmental Impact Report/Environmental Assessment (DEIR/EA) - SFPUC Comments

Comment Number	DEIR/EA Document Page Number	Section Number and Title	Beginning Text of Paragraph	Table or Figure Number	Comment
7 LJ-4.7	16	1.4.1 Common Features of all Build Alternatives - Right-of-Way Requirements	"Where construction activities would occur outside of existing Caltrans Right-of-Way, appropriate fee or easement acquisitions would be acquired prior to project implementation. Table 3 summarizes the proposed permanent right-of-way acquisitions (fee), temporary construction easements (TCEs), and the agencies associated with the property acquisitions or easements."	N/A	Caltrans should also acknowledge that it must obtain fair market value appraisals for any land acquisitions.
8 LJ-4.8	17	1.4.1 Common Features of all Build Alternatives	N/A	Table 3. Proposed Right-of-Way Requirements by Alternative	Combine column headings "City and County of San Francisco Water Department" and "San Francisco Utility Commission" into one column heading. The correct heading title should be "San Francisco Public Utilities Commission" or simply "SFPUC." Also, fix/move the extraneous "942" square feet - it's unclear which alternative this belongs to.
9 LJ-4.9	17-36	General Comment	N/A	N/A	The SFPUC owns a small triangular parcel (Alameda County APN# 507-761-2-5) adjacent to the southern bank of Alameda Creek next to the eastern approach of the existing Alameda Creek Bridge. Caltrans should clarify if it will impact or proposes to acquire this parcel under any of the alternatives. This parcel is close to the proposed project area.

Table 1. Alameda Creek Bridge Replacement Project – Revised Draft Environmental Impact Report/Environmental Assessment (DEIR/EA) - SFPUC Comments

Comment Number	DEIR/EA Document Page Number	Section Number and Title	Beginning Text of Paragraph	Table or Figure Number	Comment
10 LJ-4.10	33	1.4.5 Unique Features of Alternative 3B	"As previously mentioned, the Caltrans PDT identified Alternative 3B as the preferred alternative, subject to public review."	N/A	Any proposal on SFPUC property must be vetted through the SFPUC's Project Review process.
11 LJ-4.11	37	1.4.7 Comparison of Alternatives	N/A	N/A	Include additional rows comparing the number of native and riparian trees that would be removed under all scenarios.
12 LJ-4.12	47	N/A	N/A	Table 7. Permits and Approvals Needed	Add San Francisco Public Utilities Commission. Caltrans will need to work with SFPUC for temporary use and permanent acquisition of watershed lands.
13 LJ-4.13	N/A	General Comment	"Chapter 2—Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures"	N/A	To avoid inadvertent introduction of non-native plant pathogens like phytophthora (Phytophthora species), current SFPUC policy specifies that no container stock or soil-containing plant materials may be used for revegetation on Watershed lands. The SFPUC requires that all revegetation work be done by direct seeding. The SFPUC requests that Caltrans adopt this practice as well to avoid inadvertently introducing more plant pathogens into the Alameda Watershed. Many of these Phytophthora species appear to have wide host ranges, capable of causing disease on plants across many families and in many different habitats.

Table 1. Alameda Creek Bridge Replacement Project – Revised Draft Environmental Impact Report/Environmental Assessment (DEIR/EA) - SFPUC Comments

Comment Number	DEIR/EA Document Page Number	Section Number and Title	Beginning Text of Paragraph	Table or Figure Number	Comment
14 LJ-4.14	53	2.1.1.1 Existing and Future Land Use	N/A	Table 9. Proposed Right-of-Way Requirements for all Alternatives	Combine column headings "City and County of San Francisco Water Department" and "San Francisco Utility Commission" into one column heading. The correct heading title should be "San Francisco Public Utilities Commission" or simply "SFPUC." Also, fix/move the extraneous "942" square feet - it's unclear which alternative this belongs to.
15 LJ-4.15	55	General Comment	"Alameda County Watershed Management Plan"	N/A	Change title of section to "Alameda Watershed Management Plan."
16 LJ-4.16	55	General Comment	"Alameda County Watershed Management Plan"	N/A	Add the following text to the description of the management plan: "The purpose of the Plan is to provide a policy framework for the SFPUC to make consistent decisions about the activities, practices, and procedures that are appropriate on SFPUC watershed lands. To aid the SFPUC in their decision-making, the Plan provides a comprehensive set of goals, policies, and management actions which integrate all watershed resources and reflect the unique qualities of the watersheds."
17 LJ-4.17	64	N/A	"Watershed Activities Policy 19 - Consistent. The SFPUC is invited to review and comment on this Revised Draft EIR/EA for the Alameda Creek Bridge Replacement Project."	Table 10. Consistency with State, Regional, and Local Plans and Policies	Any proposal on SFPUC property must be vetted through the SFPUC's Project Review process.

Table 1. Alameda Creek Bridge Replacement Project – Revised Draft Environmental Impact Report/Environmental Assessment (DEIR/EA) - SFPUC Comments

Comment Number	DEIR/EA Document Page Number	Section Number and Title	Beginning Text of Paragraph	Table or Figure Number	Comment
18 LJ-4.18	140	2.1.5.3 Environmental Consequences - Sunol Aqueduct of Spring Valley Water Company's Alameda Creek System	"The SHPO concurred with Caltrans' determination that the proposed project would have a no adverse effect on the Sunol Aqueduct on June 18, 2015."	N/A	The SFPUC also concurs that the Project will not have an adverse effect on the integrity of the Sunol Aqueduct.
19 LJ-4.19	142	2.1.5.4 Avoidance, Minimization, and/or Mitigation Measures	"CULTURAL-5. Report any unintended discoveries of human remains or artifacts within SFPUC jurisdiction to SFPUC."	N/A	Thank you for including this mitigation measure. As a responsible resource agency, the SFPUC would need to document the location and protect the resources from any potential impacts related to future SFPUC operations or construction.

Table 1. Alameda Creek Bridge Replacement Project – Revised Draft Environmental Impact Report/Environmental Assessment (DEIR/EA) - SFPUC Comments

Comment Number	DEIR/EA Document Page Number	Section Number and Title	Beginning Text of Paragraph	Table or Figure Number	Comment
20 LJ-4.20	183-185	2.3.1.2 Environmental Consequences	N/A	Tables 19,20,22,23	The DEIR includes a list of trees to be removed for each Build Alternative. Under Alternative 3B Total Impacts, 52 western sycamore trees will potentially be impacted. This is one of the few instances in which Alternative 3B has a relatively high impact compared to the other three, though Caltrans has noted that this estimate for tree removal is “conservative” and may involve fewer trees. Relative to other tree species to be removed, sycamore are potentially of greater concern because of the lack of natural recruitment. Avoidance and on and off-site restoration and replanting efforts should be emphasized for this species. Also, include information whether any of these trees were previously planted as mitigation for a separate project. For all tree removals, clarify how many are located outside of the Caltrans ROW on SFPUC land. Any tree removal proposal on SFPUC property must be vetted through the SFPUC's Project Review process. Some of these trees may have been planted by the SFPUC as mitigation for previous SFPUC projects.
21 LJ-4.21	183	2.3.1.2 Environmental Consequences	"Trees with a minimum diameter ... <i>Trees located in permanent impact areas are likely to be removed during project activities. Some trees located in temporary impact areas may be preserved depending on the specific activity occurring near them</i> ".	See tables 19-27	Clarify if most trees will be removed whether they are in the permanent or the temporary impact zones. Thus, in spite of the tables, it is unclear 1) How many trees will be impacted/need to be replanted?; 2) whether or not there is space to replant those trees on site under any of the construction alternatives because the number of trees is obscure?; and 3) what makes a tree impact permanent vs. temporary?

Table 1. Alameda Creek Bridge Replacement Project – Revised Draft Environmental Impact Report/Environmental Assessment (DEIR/EA) - SFPUC Comments

Comment Number	DEIR/EA Document Page Number	Section Number and Title	Beginning Text of Paragraph	Table or Figure Number	Comment
22 LJ-4.22	186	2.3.1.2 Environmental Consequences: Coastal Oak Woodland	"Depending on the Alternative selected... <i>Permanent impacts would result in habitat conversion and the removal of trees. Some trees located in temporary impact areas may be preserved depending on the specific activity occurring near them</i> ".	See tables 19-27	Clarify if most trees will be removed whether they are in the permanent or the temporary impact zones. Thus, in spite of the tables, it is unclear 1) How many trees will be impacted/need to be replanted?; 2) whether or not there is space to replant those trees on site under any of the construction alternatives because the number of trees is obscure?; and 3) what makes a tree impact permanent vs. temporary?
23 LJ-4.23	191	2.3.1.2 Environmental Consequences - Geotechnical Borings	"Impacts to natural communities would occur through tree and vegetation removal in summer 2017 to create access roads in order to conduct the geotechnical investigations..."	N/A	Show access road locations either in an existing figure or in a new figure.

Table 1. Alameda Creek Bridge Replacement Project – Revised Draft Environmental Impact Report/Environmental Assessment (DEIR/EA) - SFPUC Comments

Comment Number	DEIR/EA Document Page Number	Section Number and Title	Beginning Text of Paragraph	Table or Figure Number	Comment
24 LJ-4.24	N/A	General Comment	"UPLAND TREES-1. During the design phase of the project... <i>Caltrans would provide tree replacement on-site at a minimum 1:1 ratio in the existing SR-84 alignment, to maximize the given space available. Caltrans anticipates that no off-site planting would be needed for upland trees as of January 2017</i> ".	N/A	1) As written, it is difficult to evaluate the amount of potential mitigation in the current (soon-to-be-old) State Route 84 alignment. Please specify the square footage of the current (soon-to-be-old) alignment, how much of that is suitable for trees, what planting density is planned, and how that compares to the number of trees being removed/impacted. 2) It could be difficult to establish trees in the compacted soils of an old highway alignment. How will this be accomplished? Will fill and amendments be brought in? What are the mitigation measures for pathogens and weeds for imported materials? To avoid importing Sudden Oak Death (SOD) and non-SOD phytophthora pathogens (which could impact revegetation success and/or the surrounding vegetation), please avoid importing soils or using potted plants. The SFPUC requires that all revegetation work be done by direct seeding. The SFPUC requests that Caltrans adopt this practice as well to avoid inadvertently introducing plant pathogens into the Alameda Watershed.



Table 1. Alameda Creek Bridge Replacement Project – Revised Draft Environmental Impact Report/Environmental Assessment (DEIR/EA) - SFPUC Comments

Comment Number	DEIR/EA Document Page Number	Section Number and Title	Beginning Text of Paragraph	Table or Figure Number	Comment
25 LJ-4.25	N/A	General Comment	"UPLAND TREES-1. During the design phase of the project... However, in the event that off-site planting is determined necessary, potential planting locations would be identified working with local stakeholders, private landholders, and public agencies including, but not limited to, East Bay Regional Parks District, Alameda County, and San Francisco Public Utilities Commission".	N/A	The SFPUC 1) does not allow the planting of nursery stock on its property due to the risk of introducing soil pathogens. This would include mitigation planting in the SFPUC portion of the bridge project; 2) The SFPUC generally does not allow other agencies to mitigate project impacts on SFPUC property. Since mitigation opportunities are limited within the Alameda Creek Watershed, please indicate in this document that it may be necessary to look at areas outside the Alameda Creek Watershed for mitigation site opportunities.
26 LJ-4.26	N/A	General Comment	"UPLAND TREES-1. During the design phase of the project... and would be monitored <i>for three years</i> following the planting to ensure that the mortality rate does not exceed 30% of all upland trees planted".	N/A	Establishing vegetation, including trees, in a former highway alignment may be difficult. Recommend a minimum of 5 or more years of monitoring if planted from seed.

Table 1. Alameda Creek Bridge Replacement Project – Revised Draft Environmental Impact Report/Environmental Assessment (DEIR/EA) - SFPUC Comments

Comment Number	DEIR/EA Document Page Number	Section Number and Title	Beginning Text of Paragraph	Table or Figure Number	Comment
27 LJ-4.27	N/A	General Comment	"RIPARIAN TREES-1. ... Trees removed from the riparian zone would be replaced at a minimum 3:1 ratio on-site, to the maximum extent possible given space available. Caltrans anticipates a need for off-site riparian planting as of January 2017. Potential planting locations within the Alameda Creek watershed would be identified working with local stakeholders, private and/or public landholders, and public agencies including, but not limited to, East Bay Regional Parks District, Alameda County, and <i>San Francisco Public Utilities Commission</i> ".	N/A	This may or may not be on SFPUC fee owned land. Please specify which trees on SFPUC land are affected. The SFPUC 1) does not allow the planting of nursery stock on its property due to the risk of introducing soil pathogens. This would include mitigation planting in the SFPUC portion of the bridge project; 2) The SFPUC generally does not allow other agencies to mitigate project impacts on SFPUC property. Since mitigation opportunities are limited within the Alameda Creek Watershed, please indicate in this document that it may be necessary to look at areas outside the Alameda Creek Watershed for mitigation site opportunities.
28 LJ-4.28	N/A	General Comment	"RIPARIAN TREES-1. ... <i>would be monitored for three years following the planting</i> ".	N/A	Recommend a minimum of 5 or more years of monitoring if planted from seed.

Table 1. Alameda Creek Bridge Replacement Project – Revised Draft Environmental Impact Report/Environmental Assessment (DEIR/EA) - SFPUC Comments

Comment Number	DEIR/EA Document Page Number	Section Number and Title	Beginning Text of Paragraph	Table or Figure Number	Comment
29 LJ-4.29	192	2.3.1.3 Avoidance, Minimization, and/or Mitigation Measures	"NATURAL COMMUNITIES-2. Pre-construction Surveys. Prior to any ground disturbance, pre-construction surveys will be conducted by an agency-approved biologist for listed wildlife and plant species. These surveys will consist of walking surveys of the project limits and, if possible, accessible adjacent areas within at least 50 feet of the project limits. The biologist(s) will investigate all potential cover sites. This includes thorough investigation of mammal burrows, rocky outcrops, appropriately sized soil cracks, tree cavities, and debris. Native vertebrates found in the cover sites within the project limits will be documented and relocated to an adequate cover site in the vicinity."	N/A	Specify a time limit between the pre-construction survey and the ground disturbing activity.

Table 1. Alameda Creek Bridge Replacement Project – Revised Draft Environmental Impact Report/Environmental Assessment (DEIR/EA) - SFPUC Comments

Comment Number	DEIR/EA Document Page Number	Section Number and Title	Beginning Text of Paragraph	Table or Figure Number	Comment
30 LJ-4.30	193	2.3.1.3 Avoidance, Minimization, and/or Mitigation Measures	"NATURAL COMMUNITIES-3. Prevention of Wildlife Entrapment... <i>If at any time a trapped listed animal is discovered, the on-site biologist will immediately place escape ramps or other appropriate structures to allow the animal to escape or the USFWS will be contacted by telephone for guidance. The USFWS will be notified of the incident by telephone and electronic mail within 48 hours</i> ".	N/A	Caltrans will be subject to the conditions of the Biological Opinion (BO) from USFWS and Incidental Take Permit (ITP) from CDFW. Coordination regarding handling of listed species should be better described in those documents. Please clarify under what conditions the agencies will be contacted.

Table 1. Alameda Creek Bridge Replacement Project – Revised Draft Environmental Impact Report/Environmental Assessment (DEIR/EA) - SFPUC Comments

Comment Number	DEIR/EA Document Page Number	Section Number and Title	Beginning Text of Paragraph	Table or Figure Number	Comment
31 LJ-4.31	206	2.3.3.4 Avoidance, Minimization, and/or Mitigation Measures	"PLANT-1. If listed plant species are discovered within the construction zone, protective measures would be established. These protective measures would include setting a temporary protective buffer around the plant and conducting appropriate agency coordination, which may result in moving the species to another location within Caltrans right-of-way and then replanting the species during the restoration phase of the project."	N/A	In some instances, the DEIR seems to defer mitigation. This makes analysis of the sufficiency of the mitigation for various impacts difficult. While the SFPUC understands that state and federal regulations and laws will dictate protection of species and natural resources, how the mitigation allows Caltrans to arrive at a less-than-significant finding for impacts is unclear. For example, "conducting appropriate agency coordination" in the event that special-status plants are found (PLANT-1). It is difficult to determine if this mitigation measure sufficiently mitigates the impacts since the measure has not yet been developed.
32 LJ-4.32	217	2.3.4.4 Avoidance, Minimization, and/or Mitigation Measures	"WOODRAT-1. Caltrans proposes a woodrat relocation plan..."	N/A	While removal of giant reed ( <i>Arundo donax</i> ) is an overall benefit to the natural community, it could be a potential impact to San Francisco dusky-footed woodrat (SFDW) and should be addressed in the mitigation. The SFDW willingly utilizes the giant reed as habitat and should be included in the description of impacts and mitigation for that species". See also pg. 216 "2.3.4.3 Environmental Consequences...San Francisco Dusky-Footed Woodrat"

Table 1. Alameda Creek Bridge Replacement Project – Revised Draft Environmental Impact Report/Environmental Assessment (DEIR/EA) - SFPUC Comments

Comment Number	DEIR/EA Document Page Number	Section Number and Title	Beginning Text of Paragraph	Table or Figure Number	Comment
33 LJ-4.33	217	2.3.4.4 Avoidance, Minimization, and/or Mitigation Measures	"WOODRAT-1. Caltrans proposes a woodrat relocation plan... These baseline conditions of the woodrat relocation plan would undergo review with CDFW as Caltrans would be requesting a Memorandum of Understanding (MOU) on the woodrat relocation plan".	N/A	In some instances, the DEIR seems to defer mitigation. This makes analysis of the sufficiency of the mitigation for various impacts difficult. While the SFPUC understands that state and federal regulations and laws will dictate protection of species and natural resources, how the mitigation allows Caltrans to arrive at a less-than-significant finding for impacts is unclear. For example, mitigation for the dusky-footed woodrat entails developing and implementing a MOU with the California Department of Fish and Wildlife for the relocation of dusky-footed woodrat stick houses (WOODRAT-1). It is difficult to determine if this mitigation measure sufficiently mitigates the impacts since the measure has not yet been developed.
34 LJ-4.34	217	2.3.4.4 Avoidance, Minimization, and/or Mitigation Measures	"BATS-1. .... If active roosting habitat is identified, minimization measures will be identified through coordination with CDFW".	N/A	Do the minimization measures already exist as standards or would they need to be created? It is difficult to determine if this mitigation measure sufficiently mitigates the impacts since the measure has not yet been developed.
35 LJ-4.35	217	2.3.4.4 Avoidance, Minimization, and/or Mitigation Measures	"BATS-2. .... Specific day and night bat roost avoidance and minimization measures would be further developed through technical assistance with CDFW and bat specialists".	N/A	Does the roosting bat exclusion plan already exist as a standard or would it need to be created? It is difficult to determine if this mitigation measure sufficiently mitigates the impacts since the measure has not yet been developed.

Table 1. Alameda Creek Bridge Replacement Project – Revised Draft Environmental Impact Report/Environmental Assessment (DEIR/EA) - SFPUC Comments

Comment Number	DEIR/EA Document Page Number	Section Number and Title	Beginning Text of Paragraph	Table or Figure Number	Comment
36 LJ-4.36	218-219	2.3.4.4 Avoidance, Minimization, and/or Mitigation Measures	"BIRDS-4. A bird exclusion plan would be implemented during the non-breeding season. The bird exclusion plan would describe installation of a physical barrier, which may include plywood, plastic tarps, canvas tarps, or filling foam. In addition, as part of the bird Alameda Creek Bridge Replacement Project 219 exclusion plan, bird nests under construction would be removed prior to egg laying. The bird exclusion plan would be developed by the project contractor and approved by Caltrans prior to the demolition of the existing Alameda Creek Bridge".	N/A	As written, the mitigation does not fully address requirements under federal and state law. Although mitigation measures for bats are proposed in the DEIR, the discussion of migratory birds and appropriate mitigation for nesting migratory birds on the bridge could be more robust. On page 214 of the DEIR, the presence of mud nests constructed by cliff swallow on the bridge is mentioned. The DEIR does not propose any specific exclusion measures for cliff swallows or other migratory bird species (black phoebe, white-throated swift, northern rough-winged swallow) that also commonly nest on bridges. Also, the work window seems to coincide with avoidance of CRLF and steelhead migration, but does not appear to address nesting season. It is not clear if the bridge demolition will avoid the nesting season for migratory birds. If not, there should be mitigation measures proposed to install exclusion netting or other exclusion measures. A nest prevention survey protocol should also be considered. While exclusion measures are called for, the bird exclusion plan appears to be deferred mitigation. It is difficult to determine if this mitigation measure sufficiently mitigates the impacts since the measure has not yet been developed.
37 LJ-4.37	235-234	General Comment	"Section 2.3.6 Invasive Species"	N/A	Section 2.3.6 Invasive Species of the DEIR addresses Invasive Species. This section needs to address in more detail, mitigation measures to prevent the introduction of non-native pests and pathogens, such as invasive weeds and Phytophthora. Pathogens such as the soil born Phytophthora are not addressed at all.



Table 1. Alameda Creek Bridge Replacement Project – Revised Draft Environmental Impact Report/Environmental Assessment (DEIR/EA) - SFPUC Comments

Comment Number	DEIR/EA Document Page Number	Section Number and Title	Beginning Text of Paragraph	Table or Figure Number	Comment
38 LJ-4.38	239-249	N/A	N/A	Table 38. List of Projects Considered for Cumulative Impact Analysis	Add the following SFPUC projects to the table: Sunol Long Term Improvements Project; Fish Passage Facilities within the Alameda Creek Watershed (Alameda Creek Diversion Dam Fish Passage); and Calaveras Dam Replacement Project
39 LJ-4.39	247	N/A	19. San Francisco City and County – SFPUC/Little Yosemite Fish Passage Project	Table 38. List of Projects Considered for Cumulative Impact Analysis	This project has not been completed.
40 LJ-4.40	251	2.4.3 Resource Areas with No Contribution to Cumulative Impacts - Land Use	Although the proposed project involves the acquisition of minor parcels from Alameda County, the ACWD, and the SFPUC, land use in the Niles Canyon corridor is protected by Alameda County's Save Agriculture and Open Space Lands Initiative and the City of Fremont's Measure T, the Hill Area Initiative.	N/A	Any proposal on SFPUC property must be vetted through the SFPUC's Project Review process.

Table 1. Alameda Creek Bridge Replacement Project – Revised Draft Environmental Impact Report/Environmental Assessment (DEIR/EA) - SFPUC Comments

Comment Number	DEIR/EA Document Page Number	Section Number and Title	Beginning Text of Paragraph	Table or Figure Number	Comment
41 LJ-4.41	264-266	2.4.4.4 Biological Environment: Wetlands and Other Waters	"The RSA of jurisdictional wetlands and other waters analysis includes Alameda Creek upstream to its confluence with Calaveras Reservoir and downstream to the San Francisco Bay and its tributaries (refer to Figure 46)"	Figure 46. Wetlands and Other Waters Resource Study Area	This text is inconsistent with the "Wetland Resources Study Area" in figure 46 which shows the RSA up to San Antonio Reservoir instead of Calaveras Reservoir.



## **Response to Comment Letter LJ-4: San Francisco Public Utilities Commission**

### *Response to LJ-4.1*

Comment noted regarding fair market value property acquisitions.

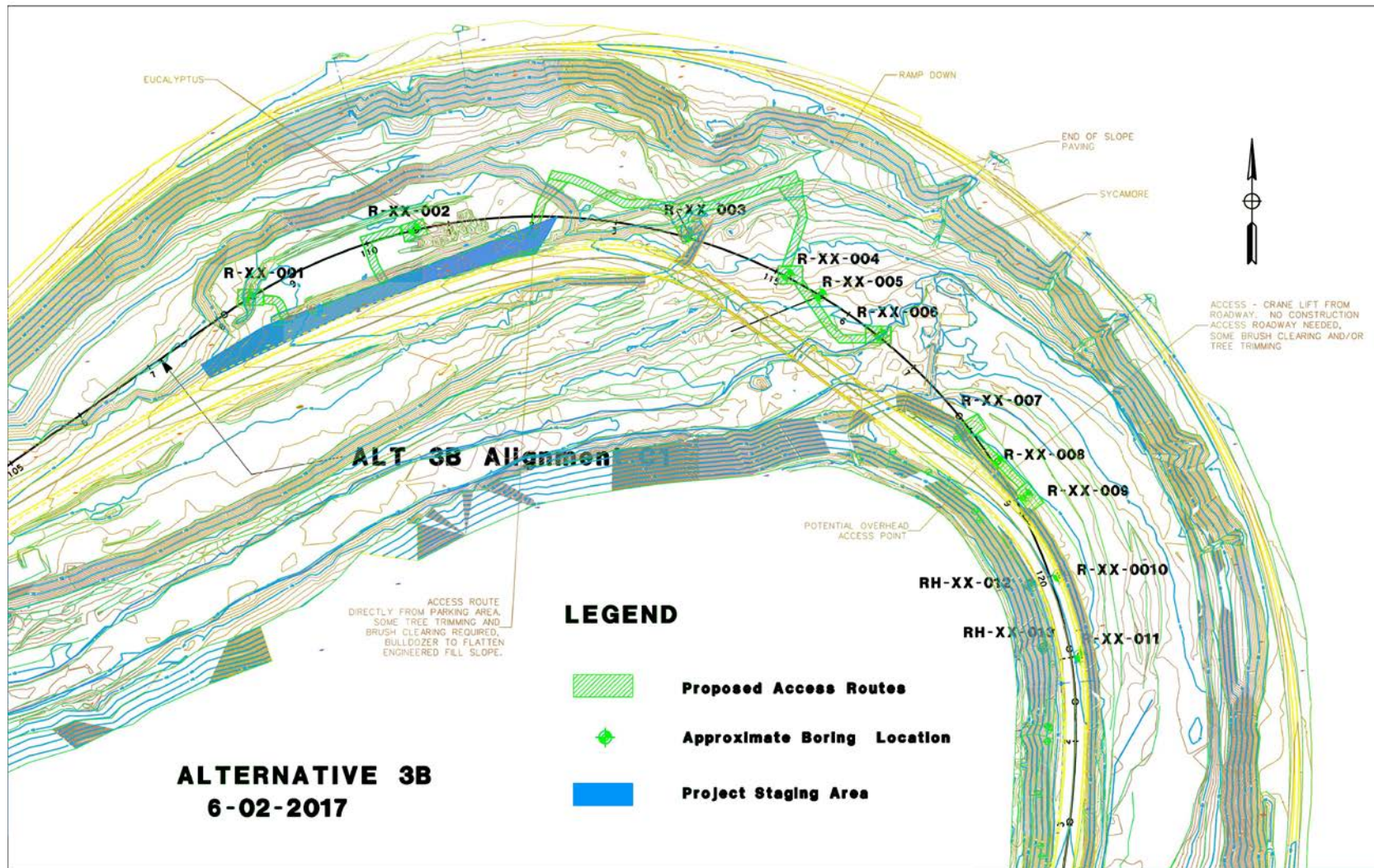
### *Response to LJ-4.2*

Due to the substantial amount of changes between the Draft EIR and Revised Draft EIR/EA, as referenced in the Preface of the Revised Draft EIR/EA, the readers were directed to the numerous sections where those changes occurred. A redlined version would not be practical and hard for readers to follow due to the high degree of change.

### *Response to LJ-4.3*

The figure below identifies the locations of the borings and the proposed access road.

Figure 54. Geotechnical Boring Plan



*Response to LJ-4.4*

See response to LJ-4.3.

*Response to LJ-4.5*

Caltrans would include the practice of direct seeding in the proposed restoration plan in the project's permit applications. However, the restoration plan would be subject to review and approval by the permitting agencies. Caltrans would apply the seeding with a hydraulic slurry or dry apply technique. Plant community zone specific seed mixes would be used. Seed mixes would include grasses, shrubs, and forbs. Tree plantings would be with oak tree acorns or tree species conducive to direct seeding techniques. In the follow-up Maintain Existing Planted Areas (MEPA) contract, potted plants could be used to enhance the earlier plantings done by direct seeding and hydroseeding. If potted plants are required, the potted plants would be from a licensed Nursery participating in the CA Nursery Services Program and implementing California Department Food and Agriculture (CDFA) protocols for disease standards. The contract would include funds for the Caltrans Landscape Construction Inspector to visit the nurseries as needed.

*Response to LJ-4.6*

See response to LJ-4.5.

*Response to LJ-4.7*

See response to LJ-4.1.

*Response to LJ-4.8*

Table 3 and Table 9 have been revised to combine both columns into San Francisco Public Utility Commission and the reference to 942 has been removed.

*Response to LJ-4.9*

As shown on Figure 12, the project would not impact or propose to APN# 507-761-2-5.

*Response to LJ-4.10*

As identified in Table 3 and Table 9, the project would impact SFPUC property.

*Response to LJ-4.11*

Please see Tables 19 through 24 for the comparison of tree impacts for each alternative.

*Response to LJ-4.12*

Please see Table 3 and Table 9 for the proposed right-of-way requirements, including temporary construction easements.

*Response to LJ-4.13*

See response to LJ-4.5.

*Response to LJ-4.14*

See response to LJ-4.8.

*Response to LJ-4.15*

“Alameda County Watershed Management Plan” has been revised to “Alameda Watershed Management Plan” throughout the final environmental document.

*Response to LJ-4.16*

In Section 2.1.1.2, the text has been revised to clarify the description of the Alameda Watershed Management Plan.

*Response to LJ-4.17*

Caltrans will coordinate with SFPUC through the SFPUC’s Project Review process for impacts to SFPUC property.

*Response to LJ-4.18*

Thank you for your comment.

*Response to LJ-4.19*

Thank you for your comment.

*Response to LJ-4.20*

As described in UPLAND TREES-1, Caltrans’ Office of Biological Science and Permits would work with the Caltrans Design team to further avoid and minimize project impacts to western sycamore trees. Efforts to preserve trees in place (by designating trees on plan sheets and marking trees with Environmental Sensitive Area fencing) would occur to avoid or minimize impacts to trees located in temporarily impacted areas. Furthermore, several trees may be preserved through the preservation of the root balls as part of the tree removal process and replanted during the restoration phase.

No trees within SFPUC lands will be removed within permanently impact areas. There are 24 trees within the temporary impact areas within SFPUC lands for Alternative 3B.

Species	Scientific Name	Status	Temporary
Arroyo willow	<i>Salix lasiolepis</i>	Native	2
Coast live oak	<i>Quercus agrifolia</i>	Native	2
Fremont cottonwood	<i>Populus fremontii</i>	Native	2
Feral plum	<i>Prunus cerasifera</i>	Native	1
Red willow	<i>Salix laevigata</i>	Native	6
Western sycamore	<i>Platanus racemosa</i>	Native	4
White alder	<i>Alnus rhombifolia</i>	Native	7
Total			24

Caltrans will coordinate with SFPUC for impacts to trees within their property.

*Response to LJ-4.21*

As described in Section 2.3.1.2, trees located in permanent impact areas are likely to be removed as a result of project features and construction activities, whereas trees located in temporary impact areas may be preserved depending on the project activity occurring near them. As the project progresses through design, Caltrans will continue to make an effort to reduce the impact



to trees in the temporary impact areas to the greatest extent possible. In addition, during final design, the exact boundaries of tree planting locations will be finalized. Tables 22, 23, and 24 describe the total number of impacted trees for Alternative 3B.

*Response to LJ-4.22*

See response to comment LJ-4.21.

*Response to LJ-4.23*

See response to LJ-4.3.

*Response to LJ-4.24*

The total area of the old SR-84 alignment would be 26,150 square feet. The western portion of the old alignment would be 23,100 square feet and the eastern portion would be 3,050 square feet. The old highway would be able to accommodate 0.6 acres of tree and shrub planting. The project proposes to impact approximately 296 trees.

The old highway will be restored with local soil that is mixed with compost. To avoid the introduction of non-native pathogens and weeds to the Alameda watershed, the compost will be from a US Composting Council (USCC) Seal of Testing Assurance Participant Producer and supplemental costs will be included in the project to test the compost and/or to allow the Caltrans Landscape Construction Inspectors to visit the compost Producer's Facilities as needed. The imported soil will also undergo a Growth Trial to test for the presence of weed seed. Please see response LJ-4.5 for proposed measures during plantings.

As the project progresses through project design, temporary impact areas will be reduced where practical to avoid unnecessary impacts to the number of trees being removed. Avoidance, minimization, and/or mitigation measures UPLAND TREES-1 and RIPARIAN TREES-1 would be implemented.

Please see the updated avoidance, minimization, and/or mitigation measures in Section 2.1.4.4, Section 2.3.1, and 2.3.5 which have been revised to include measures as directed through jurisdictional permits and approvals, as well as the development of the Niles Canyon Tree Planting Plan.

*Response to LJ-4.25*

In kind mitigation for potential impacts will be the first priority and where necessary and practical, Caltrans will coordinate with local jurisdictional agencies through their permitting process. During the design phase of the project, Caltrans will apply for permits from the California Fish and Wildlife Service, Army Corps of Engineers and the Regional Water Quality Control Board to address impacts and mitigation to resources under their jurisdiction. See response to LJ-4.5 for a discussion on soil pathogens.

*Response to LJ-4.26*

The project would project to provide a plant establishment period (PEP) and a follow-up MEPA contract. The proposed plant establishment period would be one year to maintain acorns, direct seeding, and hydroseeding work. The MEPA contract would be between two to four additional

years to maintain the earlier plantings. Monitoring would be required throughout the PEP and MEPA contract.

*Response to LJ-4.27*

See response to LJ-4.20, LJ-4.24, and LJ-4.25.

*Response to LJ-4.28*

See response to LJ-4.26.

*Response to LJ-4.29*

An agency-approved biologist will conduct a pre-construction survey for special-status species prior to any ground disturbance. The survey generally covers the area for the remainder of the day. If work occurs on consecutive days, the area will be surveyed before the construction activity starts every morning, as several listed species are nocturnally active and could enter the site overnight. Due to the disturbance caused by construction, diurnal listed species and general wildlife are less likely to enter a site once construction commences. For nesting birds, the survey covers the area for 72 hours. If work occurs past 72 hours, another survey will be conducted for the area prior to the continuation of construction activities.

*Response to LJ-4.30*

Caltrans received the Biological Opinion on May 4, 2017 (Appendix J) and the measures have been included in the Final EIR/EA. Caltrans will receive the Incidental Take Permit during final design.

*Response to LJ-4.31*

Avoidance, Minimization, and/or Mitigation Measure PLANT-1 is a measure implemented for all Caltrans projects when there is potential for listed plant species to occur within the project limits. Since this is an inherent part of the project, this measure is not considered a mitigation measure to reduce the project impacts to less than significant. Listed plant species were not observed during the plants surveys conducted for the project. If listed plant species are discovered within the construction zone, Caltrans will coordinate with appropriate agencies such as USFWS, CDFW, and USACE to establish protective measures. Please see measure PLANT-1 for a description of potential protective measures.

*Response to LJ-4.32*

San Francisco dusky-footed woodrat nests were not observed around giant reed stands during the tree or plant surveys conducted for the project. Prior to the removal of giant reed, which may require substantial soil disturbance, a biologist will be onsite to conduct surveys of special-status species such as San Francisco dusky-footed woodrat. Under the circumstance in which an active woodrat nest is discovered within or near giant reed, the nest will be relocated per the Nest Relocation Plan proposed for SFDW mitigation outlined in WOODRAT-1.

*Response to LJ-4.33*

Avoidance, Minimization, and/or Mitigation Measure WOODRAT-1 is a measure implemented for all Caltrans projects when there is potential for woodrat houses to occur within the project limits. Since this is an inherent part of the project, this measure is not considered a mitigation

measure to reduce the project impacts to less than significant. To avoid and minimize project impacts to dusky-footed woodrats, the project will propose a woodrat relocation plan for CDFW's review.

*Response to LJ-4.34*

Minimization measures will be developed based on the site specific conditions observed during the pre-construction survey. Caltrans currently has no standard specifications for bats. As described in BATS-2, a roosting bat exclusion plan would include the installation of physical barriers during the non-breeding season. This physical barrier would prevent bats from re-entering their roost and induce them to find alternate roost habitat. The general measures proposed in these specifications require the bat exclusion devices to be installed during the non-roosting season from November 30th to March 1st, monitored, maintained, and repaired on a daily basis, and removed upon completion of work. The specification also includes the requirement for contractors to clean the contact surface of bird and bat waste or other debris prior to the installation of the exclusion devices, and limits the materials used to thick weatherproof plastic sheeting, weather-resistant polypropylene netting with 0.25 inch or smaller openings, or spray foam. A bat exclusion plan is required in the specifications, and must include the type of exclusion devices proposed, the location, schedule, and installation methods of the exclusion devices, and methods to prevent exclusion materials from falling into the waterways.

*Response to LJ-4.35*

See response to LJ-4.34.

*Response to LJ-4.36*

Avoidance, Minimization, and/or Mitigation Measure BIRD-1 through 4 are measures implemented for all Caltrans projects when there is potential for migratory birds to occur within the project limits. These measures would be implemented for all species of migratory birds, including the cliff swallow and other bird species. Since these measures are an inherent part of the project, these measures are not considered mitigation measures to reduce the project impacts to less than significant. These are measures are described in Section 2.3.4.4. As stated in Section 2.3.4.2, under the Migratory Bird Treaty Act (MBTA) and California FGC Sections 3503-3505, 3513, and 3800, migratory birds, their nests, and eggs are protected from disturbance or destruction. To avoid and minimize project impacts to migratory birds, their nests, and eggs, the project will implement measures BIRD-1 through 4.

Due to the work window for CRLF and Steelhead, the bridge demolition would occur during the nesting bird season. To avoid and minimize impacts to migratory birds, their nests, and eggs during the bridge demolition, the project will implement measure BIRDS-2 through 4. First, measure BIRD-4, bird exclusion measures, would be installed and monitored during the non-breeding season. Second, measure BIRD-2, pre-construction surveys for nesting birds, would be conducted by a qualified biologist during the breeding season. Then, if active nests are discovered, measure BIRD-3 would be implemented to establish a non-disturbance buffer 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.

Measure BIRDS-4 has been updated to include other nesting bird abatement strategies the project may include.

*Response to LJ-4.37*

Section 2.3.6.4 has been updated to include avoidance, minimization, and/or mitigation measures to prevent the introduction of non-native pathogens and weeds. Also, please see response to LJ-4.5.

*Response to LJ-4.38*

Table 38 has been revised to include the Sunol Long Term Improvements Project, Fish Passage Facilities within the Alameda Creek Watershed (Alameda Creek Diversion Dam Fish Passage), and the Calaveras Dam Replacement Project.

*Response to LJ-4.39*

Table 38 has been revised to state that the Little Yosemite Fish Passage Project has not been completed.

*Response to LJ-4.40*

See response to LJ-4.17.

*Response to LJ-4.41*

Text revised to show that Figure 46 does not show Calaveras.



March 1, 2017

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**Re: Comments on Draft Environmental Impact Report for Alameda Creek Bridge Replacement Project**

These are the comments of the Alameda Creek Alliance, Citizens Committee to Complete the Refuge and Ohlone Audubon Society regarding the Revised Draft Environmental Impact Report/Environmental Assessment ("RDEIR") for the proposed Alameda Creek Bridge Replacement Project ("Project").

This RDEIR for the project replaces a January 2015 Draft Environmental Impact Report ("DEIR") for which Caltrans received numerous scoping comments and formal public comments from the public, the Alameda Creek Alliance, other community groups, regulatory agencies, and traffic and wildlife experts, expressing concerns about the lack of meaningful alternatives and severe environmental impacts from the project. As noted in the RDEIR, recirculation of the DEIR means that Caltrans now will not respond to any formal comments made on the January 2015 DEIR, but that the comments are "considered to be part of the project record and are kept within the project's file." Given that the RDEIR fails to summarize the supposed new information that necessitated recirculation, and that the project appears to be substantially similar to the original project, we are very skeptical of the motivation for re-circulating the DEIR. The public perception is that Caltrans is using the recirculation of the RDEIR to attempt to dodge and discard the extensive and significant comments on the project and requests for information made by the public, rather than to fully inform the public about the impacts of the project. Many of the comments raised by the Alameda Creek Alliance and members of the public in scoping comments and comments on the 2015 DEIR remain unaddressed.

### **Failure to Summarize Revisions to DEIR, As Required Under CEQA**

Caltrans is re-circulating the RDEIR based on a claim that there is “significant new information” added to the project analysis. The summary and introduction of the RDEIR cite CEQA guidelines for recirculation of an EIR and claim that “This Revised Draft EIR/Environmental Assessment (EA) for the Alameda Creek Bridge Replacement Project provides new information relevant to the proposed project that was not included in the January 2015 Draft EIR. This document is substantially revised. Per CEQA Guideline 15088.5 (g), a summary of revisions to the previously circulated Draft EIR is located in the Preface of this document.” However, the preface to the RDEIR has no such information, just a partial table of contents of sections that have changes, with absolutely no useful or informative information for the public about changes to the project or project analysis from the 2015 DEIR. The current RDEIR does not even identify, let alone summarize the revisions made to the 2015 DEIR.

CG-1.1

CEQA Guideline 15088.5 (g) requires that “when re-circulating a revised EIR, either in whole or in part, the lead agency shall, in the revised EIR or by an attachment to the revised EIR, summarize the revisions made to the previously circulated draft EIR.” This is significant because the purpose of a CEQA analysis is to allow the public to understand and intelligently comment on the impacts of the project. Caltrans has failed to provide or clearly identify any summary of revisions to the project or project analysis, anywhere in the RDEIR or by attachment. Nowhere in the RDEIR does the phrase “new information” appear, other than to falsely state in the summary that the preface contains the new information. The preface does not contain any such summary. The RDEIR does not comply with CEQA and Caltrans’ failure to comply with CEQA procedures thwarts informed public comment. Before proceeding, Caltrans must provide a summary of the significant new information and changes to the project analysis. Caltrans must also extend the public comment period to allow informed comment.

### **Failure to Justify Need for the Project**

Caltrans has changed the purpose of the project from correcting most deficiencies associated with the existing bridge facility and improving traffic safety for all transportation modes, to “correcting structural and geometric deficiencies” while “providing a facility that meets driver expectations of operating speed, to improve safety.” Thus the purpose of the project has effectively been changed from improving traffic safety to changing the road geometry and design speed of the roadway. This changed purpose for the project predetermines that the design speed of this road section will be increased, and that extensive road construction and expansion of the bridge and approach curve diameters will be made, regardless of the environmental impacts. This fuels the public perception that extensive construction and increasing the design speed of the road are the true purpose of the project, not safety.

CG-1.2

The RDEIR purports to forecast and divine driver expectations of operating speed on Niles Canyon road. This results in a project design driven by the prognosticated demands of speeding motorists rather than the constraints and environment of Niles Canyon. Aside from the fact that Caltrans has provided no evidence in the RDEIR that motorists “expect” to be able to drive this section of roadway at 45 mph, the RDEIR directly contradicts Caltrans’ assertions that the current bridge approach speeds do not meet driver expectations of operating speed and that low design speeds are a “deficiency.”

The RDEIR notes that “Although the speed limit of the Niles Canyon corridor is 45 mph, the existing conditions at the Alameda Creek Bridge have posted advisory signs that recommend that the bridge be driven at 30 mph going eastbound and 35 mph going westbound.” The RDEIR then claims that “Motorists driving at the 45 mph speed limit through the Niles Canyon corridor are not anticipating the 30 mph and 35 mph curves and as a result, do not have enough time to adjust to tight curve radii at the Alameda Creek Bridge.” This contradicts the previous sentence, where Caltrans notes that drivers are in fact warned by posted advisory signs and do indeed anticipate lower speeds at the bridge curves.

CG-1.2

The RDEIR discussion of “Driver Expectations of SR-84 Operating Speed” (pages viii-ix) relies on highway design speeds adhering rigidly to the surveyed 85th percentile “critical speed,” which in the Niles Canyon project area was found to be 47.8 mph in the eastbound direction and 47.7 mph in the westbound direction. Under that logic, should then the entire SR 84 through Niles Canyon be redesigned for speeds of 48 mph to meet supposed driver expectations? Obviously, such design speed changes would result in allowing and encouraging drivers being able to drive faster than 48 mph, and in a few years, the 85th percentile speed would increase, necessitating another increase in design speed. This fuels the public perception that Caltrans intends to incrementally turn Niles Canyon into a freeway, through piecemeal projects to increase the design speed of the roadway, such as the current project, which will lead to increased driver speeds and will in turn increase the 85<sup>th</sup> percentile speed, necessitating never-ending road “improvements.”

The RDEIR does not disclose that exceptions to what Caltrans claims are “mandated” design speeds on state highways can be and are used in special circumstances, such as in the narrow, constrained confines of Highway 84 in Niles Canyon, according to the Federal Highway Administration (“FHA”) and Caltrans’ own Highway Design Manual. The FHA 2012 Road Safety Analysis referenced in the RDEIR (*Final Quantitative Road Safety Analysis Study Report SR 84 – Niles Canyon Road Corridor (Value Management Strategies 2012)*) noted that a lower than “standard” design speed is allowed under “Exceptions to Mandatory Design Standards” and “was approved” by the FHA for projects such as the current project. Likewise, the Caltrans Highway Design Manual (Caltrans 2014) notes that “It is *preferable* that the design speed for any section of highway be a constant value. However, during the detailed design phase of a project, situations may arise in which engineering, economic, *environmental*, or other considerations make it impractical to provide the minimum elements for other design standards (e.g., curve radius, stopping sight distance, etc.) established by the design speed.” (Emphasis added)

CG-1.3

The RDEIR fails to adequately discuss whether mitigation measures other than increasing the design speed of the bridge approaches would be adequate to improve motorist anticipation of slower curves. In fact, the FHA report referenced by Caltrans (Speed Concepts: Informational Guide) provides other mitigation measures for safely reducing motorist speed, such as speed display signs, improving friction on roadway surfaces, and traffic calming. Additional mitigation measures suggested by the Alameda Creek Alliance and community members during scoping for the project include installation of flashing lights at speed advisory signs, pavement markings and horizontal rumble strips. Collectively, these measures could more than adequately meet driver expectations of lower operating speeds at the bridge curves, but the RDEIR fails to

CG-1.4



discuss these measures. Instead, Caltrans presumes, without any meaningful analysis of other options, that “correcting geometric deficiencies” is the only option for the bridge approaches.

CG-1.4

The other bridge facility deficiencies identified in the RDEIR as justifying the need for the project are: restricted sight distances, bridge railings that do not offer the structural integrity of modern railing, lack of width for vehicular maneuvers to avoid collisions, and room for bicyclists. These deficiencies could all be addressed in a project that replaces and widens the bridge in a revised alignment, without increasing the design speeds or widening the geometry of the bridge approaches, thereby avoiding unnecessary, and for most alternatives, severe, environmental impacts from the project.

CG-1.5

### **Lack of Meaningful Alternatives Analysis**

The RDEIR fails to provide, evaluate or analyze meaningful alternatives which could meet the project need and purpose without severe environmental impacts. Instead the RDEIR evaluates four supposedly different alternatives that are essentially variants of the same project and presents them as project alternatives. All of the four alternatives analyzed in the RDEIR would require road design for the bridge and its approaches for 45 mph, all have essentially the same or similar bridge and road footprint and geometry, and all would realign SR-84 by increasing the curve radii of the bridge approaches and widening the roadway on the new alignment sections to 48 feet. All four alternatives would require extensive tree cutting, rock cuts, embankment fill, and retaining walls in Niles Canyon and all four have unnecessary, and sometimes severe, impacts on riparian trees, endangered species habitat, and the hydrology and habitat value of Alameda Creek. The only major differences between the four alternatives are variations in the treatments for the western and eastern alignments of “improved” approach curves to the bridge.

CG-1.6

The requirement to identify and discuss alternatives to the project arises from California's stated policy that state agencies, such as Caltrans, should not approve projects - as proposed - if there are feasible alternatives available which would substantially lessen a project's significant environmental effects (Pub. Res. Code §21002). An EIR should explain how the project alternatives were selected for analysis. It should also briefly identify alternatives rejected as infeasible and explain why they were rejected (14 CCR 15126.6(c)). An EIR must focus on alternatives that would avoid or substantially lessen a project's significant effects, “even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly” (*Mira Mar Mobile Cmty. v. City of Oceanside* (2004) 119 Cal. App. 4th 477, 487, citing CEQA Guideline 15126.6, subd. (a) & (b); see also *Habitat & Watershed Caretakers v. City of Santa Cruz* (2013) 213 Cal. App. 4th 1277, 1283). Thus, alternatives must be able to implement most project objectives, but they need not be able to implement all of them. Alternatives presented in an EIR must also be potentially feasible (14 CCR 15126.6(a)). Among the factors taken into account when addressing alternative feasibility are site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries, and whether the proponent can reasonably acquire, control or otherwise have access to the alternative site (or the site is already owned by the proponent) (14 CCR 15126.6(f)). “Feasible” means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors (Pub. Res. Code § 21061.1).

The CEQA Guidelines instruct that comments by the public “are most helpful when they suggest additional specific alternatives or mitigation measures that would provide better ways to avoid or mitigate the significant environmental effects” (14 CCR 15204). During formal scoping for the project and in formal public comments on the 2015 DEIR for the project, the Alameda Creek Alliance presented Caltrans with feasible project alternatives and mitigation measures that could significantly lessen the project’s environmental impacts, while meeting most or all of the project objectives.

CG-1.7

A no-build alternative was provided in the RDEIR as an environmental baseline to compare the potential environmental impacts of project alternatives. The RDEIR evaluated and rejected four additional alternatives (Alternatives Considered but Eliminated from Further Discussion, pages 38-43). Other alternatives considered but rejected include: correct the western alignment approach and replace the bridge railing; construct a new bridge at the existing location; a southern bridge alignment; and transportation management and demand strategies. These alternatives were rejected as inadequate either: because they did not provide safety features or were piecemeal measures to improving safety at the bridge and its approaches; required construction of a compound curve; required excessive environmental impacts; or resulted in lengthy closure of Highway 84.

The most viable rejected alternative was the 35 mph Alternative to replace the existing Alameda Creek Bridge and construct a 35 mph alignment approach with advanced warning systems and/or traffic mitigation. This alternative would construct a new bridge north of the existing alignment and realign SR-84 on a 35 mph alignment (approximately a 450-foot-radius curve). Advanced warning measures would also be installed and a new bridge constructed. This alternative would have curve radii corresponding to a 35 mph speed at the westbound approach and a 41 mph speed at the center of the bridge and eastbound approach to the bridge, in order to conform to the existing roadway and minimize environmental impacts.

CG-1.8

The 35 mph Alternative was rejected because Caltrans “determined that there would not be a substantial decrease in potential environmental impacts” between this 35 mph Alternative and preferred build Alternative 3B. However, Table 5 of the RDEIR (Comparison of 35 mph Alternative impacts to Alternative 3B) clearly shows that environmental impacts would be greater under Alternative 3B than the 35 mph Alternative: for native trees (25% greater), riparian trees (12% greater), vegetation and land cover types (41% greater), endangered species habitat (46% greater), designated critical habitat (53% greater) and steelhead trout habitat (46% greater). So the 35 mph Alternative is in fact the environmentally superior alternative. The RDEIR fails to discuss whether or not any cut and fill would be required for the 35 mph Alternative; or to compare that to the impacts of the 1,400 feet of grade and fill on the western approach and 300 feet of rock cut on the eastern approach which would be required for Alternative 3B. Likewise the RDEIR fails to compare the differences in aesthetic impacts to Niles Canyon within the scenic corridor from the two alternatives. Table 6 on page 45, Comparison of Environmental Impacts across the Alternatives Considered but Rejected, would have been more useful to the public if it had compared the most viable rejected alternative, the 35 mph Alternative, to the four alternatives analyzed in the RDEIR rather than to the infeasible rejected alternatives.

The RDEIR also purports to compare safety characteristics between the 35 mph Alternative and the preferred build Alternative 3B. The RDEIR claims (page 40) that a design speed of 35 mph on any segment of the bridge and its approaches would reduce the effectiveness of crash reduction, even with traffic calming measures and advanced warning measures, and could at best potentially reduce crashes by only 22 to 40%, referencing what are apparently Federal Highway Administration reports. However the RDEIR gives no basis or factual information to back up this assertion and gives no clue how the crash reduction values were generated, so it is impossible to tell if these statements are correct. The RDEIR also claims that increasing the radius of a horizontal curve could potentially reduce total curve related crashes by up to 80%, citing a National Cooperative Highway Research Program report. However, again no information is given as to how the 80% reduction was calculated, and under what circumstances that could be achieved. None of the reports cited are provided with the RDEIR nor are they listed in the citations section of the RDEIR. Further, these assertions in the RDEIR contradict traffic safety research given to Caltrans by the Alameda Creek Alliance during formal comment on the 2015 DEIR, finding that increases in vehicle speed (as proposed in the project) lead to an increase in crash severity (Renski et al. 1999), and that infrastructure improvements are not necessarily effective at reducing total fatalities and injuries (Noland 2002).

CG-1.9

The RDEIR does not adequately or convincingly explain why the 35 mph Alternative was rejected as unfeasible, nor does it show that the 35 mph Alternative could not meet the project purpose and need. The 35 mph Alternative is clearly the environmentally superior alternative. A 35 mph Alternative that also included multiple measures to meet driver expectations of the operating speed (such as speed display signs, improving friction on the roadway surface, installing flashing lights at the speed advisory signs, pavement markings and horizontal rumble strips) would improve safety and meet the project objectives.

### **Piecemeal Approach to CEQA Analysis of Niles Canyon Corridor Projects**

Caltrans has failed to evaluate the whole of the Niles Canyon corridor traffic safety project. It is impermissibly segmenting the traffic safety deficiencies associated with the Alameda Creek Bridge Replacement Project from Caltrans' other planned and completed safety projects in the Niles Canyon corridor – the Niles Canyon Short-Term Safety Improvements Project, Niles Canyon Medium-Term Safety Improvements Project, and Arroyo de la Laguna Bridge Project. The Federal Highway Administration (FHA 2012) has identified another high priority safety hot spot in Niles Canyon requiring safety measures, at Rosewornes Underpass and its approaches, which Caltrans is likely to propose a project for at a future date.

CG-1.10

CEQA forbids 'piecemeal' review of the significant environmental impacts of a project. Environmental considerations must not be submerged by chopping a large project into many little ones—each with a minimal potential impact on the environment—which cumulatively may have greater consequences. A project under CEQA is "the whole of the action" which has a potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment. An EIR must include an analysis of the environmental effects of other actions if (1) they are a reasonably foreseeable consequence of the initial project; and (2) the future action will be significant in that it will likely change the scope of the initial project or its environmental effects. In *Laurel Heights Improvement Assn. v. Regents of University of*

*California* ((1988) 47 Cal.3d 376, 396), officials had publicly announced their intention to use a whole building, but improperly piecemealed the project by only doing an EIR for a move into part of the building that was available yet excluding review of the use of the remaining area after a tenant's lease expired. The Supreme Court held that "the future expansion and general type of future use is reasonably foreseeable" and required analysis in the EIR.

There is improper project segmentation in this case because the Alameda Creek Bridge Replacement Project is a step toward future roadway construction by Caltrans throughout the Niles Canyon corridor. There is improper project segmentation because the Alameda Creek Bridge Replacement Project, Niles Canyon Short-Term Safety Improvements Project, Niles Canyon Medium-Term Safety Improvements Project, and Arroyo de la Laguna Bridge Project are all by the same project proponent, for the same purpose, in the same canyon corridor.

CEQA must be interpreted in such manner as to afford the fullest possible protection to the environment within the reasonable scope of the statutory language. An EIR's purpose is to provide the public with detailed information about the effect which a proposed project is likely to have on the environment. That purpose can best be served by circulation of an EIR that considers the whole of the Caltrans safety improvements in the Niles Canyon corridor.

CG-1.10

#### **Promised Mitigation for Significant Tree Impacts Is Infeasible, Illegally Deferred**

The RDEIR acknowledges that construction of any of the four project alternatives would require extensive cutting of native trees, which would be a significant environmental impact under CEQA. The RDEIR quantifies the impacts to native trees for Alternatives 1, 2, 3A and 3B (tables 20 and 23, page 184-185): Alternative 1 would have permanent impacts to 142 native trees, temporary impacts to 253 native trees, for total impacts to 395 native trees; Alternative 2 would have permanent impacts to 118 native trees, temporary impacts to 265 native trees, for total impacts to 383 native trees; Alternative 3A would have permanent impacts to 166 native trees, temporary impacts to 278 native trees, for total impacts to 444 native trees; and Alternative 3B would have permanent impacts to 108 native trees, temporary impacts to 188 native trees, for total impacts to 296 native trees.

CG-1.11

Caltrans proposes the following mitigation measures for these significant tree cutting impacts of removing 296-444 native trees:

UPLAND TREES-1. During the design phase of the project, Caltrans' Office of Biological Science and Permitting would work with the Caltrans Design team to avoid and minimize project impacts to upland trees. Efforts to preserve trees in place (by designating trees on plan sheets and marking trees with Environmentally Sensitive Area fencing) would be made to avoid or minimize project impacts to trees located in temporarily impacted areas. For upland trees that are removed, Caltrans would provide tree replacement on-site at a minimum 1:1 ratio in the existing SR-84 alignment, to maximize the given space available. Caltrans anticipates that no off-site planting would be needed for upland trees as of January 2017. However, in the event that off-site planting is determined necessary, potential planting locations would be identified working with

local stakeholders, private landholders, and public agencies including, but not limited to, East Bay Regional Parks District, Alameda County, and San Francisco Public Utilities Commission. Upland trees would be planted within two years of completion of the Alameda Creek Bridge Replacement Project construction and would be monitored for three years following the planting to ensure that the mortality rate does not exceed 30% of all upland trees planted.

RIPARIAN TREES-1. During the design phase of the project, Caltrans' Office of Biological Science and Permitting would work with the Caltrans Design team to avoid and minimize project impacts to riparian trees. Efforts to preserve trees in place (by designating trees on plan sheets and marking trees with Environmentally Sensitive Area fencing) would be made to avoid or minimize project impacts to trees located in temporarily impacted areas. Trees removed from the riparian zone would be replaced at a minimum 3:1 ratio onsite, to the maximum extent possible given space available. Caltrans anticipates a need for off-site riparian planting as of January 2017. Potential planting locations within the Alameda Creek watershed would be identified working with local stakeholders, private and/or public landholders, and public agencies including, but not limited to, East Bay Regional Parks District, Alameda County, and San Francisco Public Utilities Commission. On-site riparian trees would be planted within two years of completion of the Alameda Creek Bridge Replacement Project construction and would be monitored for three years following the planting to ensure that the mortality rate does not exceed 30% of all riparian trees planted. Details for off-site planting and riparian tree planting success criteria would be determined during the design and permitting phase of the project with CDFW (1602 Streambed Alteration Agreement) and RWQCB (401 Certification).

CG-1.11

Both mitigation measures promise replacement trees will be planted within two years of project completion and monitoring of trees would occur for three years following planting. These promised mitigations constitute improperly deferred mitigation, since the RDEIR gives no specifics about where the replacement trees will be located, nor their habitat value relative to those trees removed for the project. The sufficiency of these promised mitigations cannot be assessed. Under CEQA, formulation of mitigation measures can not be deferred until some future time, but measures may specify performance standards which would mitigate the Project's effects (Guideline 15126.4(a)(1)(B)). An EIR is inadequate where mitigation efforts largely depend upon management plans that have not yet been formulated, and have not been subject to analysis and review within the EIR (*Communities for a Better Environment v. City of Richmond* (2010) 184 Cal.App.4th 70, 92, citing *San Joaquin Raptor II*, supra, 149 Cal.App.4th at 670). "In the First District, an agency violates CEQA by deferring the formulation of mitigation measures without committing to specific performance criteria for judging the efficacy of the future mitigation measures" (*POET, LLC v. California Air Resources Board* (2013) 218 Cal.App.4th 681, 698-99).

The tree cutting mitigations UPLAND TREES-1 and RIPARIAN TREES-1 proposed in the RDEIR are similar to the mitigation Caltrans promised in the Negative Declaration and committed to in permits from the Regional Water Quality Control Board and California Department of Fish and Wildlife, for the cutting and removal of 143



native trees in 2011 along Alameda Creek in Niles Canyon, on SR-84 between post-miles 12.1 to 13.3, in preparation for the now-defunct Niles Canyon 1 Project.

These promised mitigations UPLAND TREES-1 and RIPARIAN TREES-1 for tree cutting are neither credible nor feasible. The Alameda Creek Alliance has met repeatedly with Caltrans since 2011 regarding promised mitigations for the impacts of cutting 143 riparian trees along Alameda Creek in 2011. After 6 years, Caltrans has failed to complete any of the promised mitigation measures for the significant, illegal impacts from the Niles I project.

CG-1.11

See the attached December 2015 memo from Caltrans, *Caltrans Niles I Safety Project Tree Cutting Impacts and Remediation*, promising the Alameda Creek Alliance and the local community mitigation measures for the Niles I tree-cutting, including: replacing the Stonybrook Creek culvert under Palomares Road with a free-span bridge; removing invasive plants from the reaches with cut trees in the Niles I project area; conducting restoration tree plantings in the areas where trees were cut; monitoring restoration planting and invasive plant removal locations; monitoring cut sycamores in the Niles I project reach; and conducting public outreach. Caltrans has not yet, after 6 years, followed through on any of the promised tree planting and invasive plant removal mitigations. In the RDEIR (pages 255, 272 and 276), Caltrans is claiming that regrowth of trees cut in the Niles 1 project has limited impacts on aesthetics and visual quality, and implies regrowth has partially restored the functions and habitat values of the cut trees. The RDEIR also characterizes the riparian areas that were cut as “recovering.” Attached is a memo from the Alameda Creek Alliance based on our 2015 site visit by a forester, noting that Caltrans has not thoroughly surveyed or documented the cut trees, and documenting loss of riparian trees (stumps that have not re-sprouted), loss of riparian canopy, and loss of cover and shelter for wildlife. Of particular concern are cut California sycamores, since this tree species is limited in distribution, and sycamores in Niles Canyon likely generated from one or two flood events more than 130 years ago. Natural sycamore regeneration is unlikely in Niles Canyon due to the highly managed flood regime, making remaining sycamore trees even more valuable. The habitat values of mature sycamore trees in Niles Canyon (such as bank stabilization, shade, and bird and bat habitat) cannot be replaced by any mitigation once Caltrans has cut them.

CG-1.12

Caltrans has acknowledged at public hearings for the Alameda Creek Bridge Replacement Project and other Niles Canyon projects that the agency is unable to mitigate in-kind in Niles Canyon or along Alameda Creek for loss of riparian trees. Caltrans has had difficulty finding suitable locations and projects that regulatory agencies will accept as mitigation for loss of riparian trees. Caltrans is unable to “replace” in habitat value any mature riparian trees that would be cut. CEQA requires that agencies not approve projects unless feasible mitigation measures have been adopted to reduce significant impacts (§§ 21002; 21002.1, subd (b); 21081, subd (b)(3)). “Feasible” means capable of being accomplished in a successful manner within a reasonable period of time taking into account economic, environmental, legal, social, and technological factors (CEQA Guideline 15364).

CG-1.13

Caltrans now is proposing to replace a culvert at Stonybrook Creek with a clear span bridge as an out of kind mitigation for Niles 1 tree cutting impacts. Caltrans has demonstrated from its failure to mitigate on and off site with in-kind tree planting for the Niles I project and has admitted in the 2015 DEIR for the Alameda Creek Bridge Replacement Project that replacement planting of cut riparian trees is not feasible. The

CG-1.14

promise that replacement trees will be planted within two years of project completion is not credible, as Caltrans promised similar mitigations for the Niles I project and has not yet provided these mitigations after 6 years. For these reasons, Caltrans should focus on avoidance of impacts to native upland trees and riparian trees in this project, rather than promise mitigation it cannot deliver. The community is not going to let Caltrans cut 296-444 more native trees.

CG-1.14

### **Positive Project Elements**

The proposed project contains some environmentally beneficial elements, which should continue to be included in a meaningful project alternative. These include the proposed removal of a concrete weir in Alameda Creek which currently serves as a barrier to fish passage, removal of the existing Alameda Creek Bridge's in-stream piers, and removal of invasive giant reed and pampas grass from the project area. Removal of the concrete weir would allow the stream to take on a more natural morphology and would remove a low flow fish passage barrier. Removal of the existing bridge and building a replacement bridge that would reduce the in-stream footprint of the bridge piers would improve the geomorphology of Alameda Creek. Removal of the invasive plants would improve habitat for native fish and amphibian species.

CG-1.15

### **Citations**

Alameda Creek Alliance. 2015. Response to Caltrans Niles I Safety Project Tree Cutting Impacts and Remediation. **(attached)**

California Department of Transportation. 2015. Caltrans Niles I Safety Project Tree Cutting Impacts and Remediation. **(attached)**

Federal Highway Administration. 2012. Road Safety Assessment (RSA) – SR 84 Niles Canyon Corridor. **(attached)**

Noland, R.B. 2003. Traffic Fatalities and Injuries: The Effect of Changes In Infrastructure and Other Trends. Accident Analysis and Prevention 35 (2003) 599–611. **(attached)**

Renski, H., A. J. Khattak and F.M. Council. 1999. Effect of Speed Limit Increases on Crash Injury Severity: Analysis of Single-Vehicle Crashes on North Carolina Interstate Highways. Transportation Research Record No. 1665.

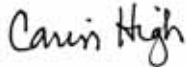


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## **Response to Comment Letter CG-1: Alameda Creek Alliance**

### *Response CG-1.1*

Due to the substantial amount of changes between the Draft EIR and the Revised Draft EIR/EA, as referenced in the Preface of the Revised Draft EIR/EA, the readers were directed to the numerous sections where those changes occurred. These substantial changes were a result of adding an Environmental Assessment under NEPA, clarifying the purpose and need, and expanding the alternatives considered but eliminated section. With the addition of the Environmental Assessment, all of the individual resource sections were considerably revised to also include the compliance of federal laws and regulations. As a result, Caltrans recirculated the draft environmental document per CEQA Guideline 15088.5.

### *Response CG-1.2*

As described in Section 1.2, the project is needed to address deficiencies of the Alameda Creek Bridge, existing safety deficiencies, and driver expectations of SR-84 operating speeds. With the existing posted advisory signs and the installation of rumble strips in 2007, there is still a pattern of drivers leaving the roadway on the outside of the curve due to the tight-curve radius on the western end of Alameda Creek Bridge. Please see Section 1.2.2 for quantitative accident data and Section 1.2.2 for statistical analysis of drivers' speeds and expectations.

Caltrans currently has the following projects planned along this section of SR-84: the Niles Canyon Safety Improvements Project (Medium-Term Improvements), the Arroyo de la Laguna Bridge Scour Project, and the Alameda Creek Bridge Replacement Project. All of these projects have independent utility, logical termini, and do not propose to increase the speed limit in the corridor. Therefore, the speed limit will remain at 45mph.

### *Response CG-1.3*

As described in Section 1.4.8, an alternative to replace the Alameda Creek Bridge with a 35 mph alignment approach with advanced warning systems and/or traffic mitigation was considered but eliminated from further discussion. Through analysis of the potential environmental impacts of this alternative and a comparison with the project's preferred build alternative on safety characteristics, it was determined that there would not be a substantial decrease in potential environmental impacts and therefore there is no change to the project's significant impact determinations.

### *Response to CG-1.4*

Per the California Highway Design Manual the design speed throughout the Niles Canyon corridor is maintained at a constant value of 45 mph. However, exceptions are made at certain curve locations along the corridor with the 30 mph advisory speed limit signs. Likewise, per FHA 2012 Road Safety Analysis and the provisions in the Highway Design Manual, an "Exception to the Mandatory Design Standards" is made in the Alameda Creek Bridge Replacement Project Design by reducing the bridge approach speeds to less than the 45 mph due to curve radius and environmental impacts.

In addition to what is described in Section 1.4.8, the following explanation addresses your comment in more specific detail.

Federal Highway Studies (Ref. 1 below) indicate that a 35 mph curve in conjunction with advanced warning measures cannot fully address the risk associated with speed differentials. The studies indicate that there is insignificant reduction in 85th percentile speeds as a result of most of the following countermeasures. When “Adding Flashers to Existing Curve Warning Signs”, the 85th percentile speeds go up by 1%. The “Advisory Speed Limit Sign as Supplemented to Horizontal Curve Warning Sign” would reduce the driver expected 45 mph speed to 38 mph (15% reduction), which exceeds the 35 mph design alternative. In other words, as relevant to the Niles Canyon corridor and the Alameda Creek Bridge approaches, these advanced warning measures are not fully effective in reducing speeds as they run contrary to the motorist’s expectation of a uniform speed in the corridor.

Furthermore, the majority type of accidents that have occurred in the Alameda Creek Bridge and its approaches are run-off-road, “hit object”, head-on, and sideswipe type collisions. Primary collision factors were identified as unsafe speeding for prevailing geometric conditions and improper turns within the tight curve radius at the bridge approaches with limited horizontal sight distance. Crashes have occurred because motorists do not have enough time to adjust to this geometric constraint despite the posted advisory curve warning signs. The Federal Highway Studies (Ref. 1) indicate that even though some of these mitigation measures are found to provide partial safety effectiveness in terms of some crash mitigation, they are not fully effective in reducing speeding related crashes that currently exist within the Alameda Creek Bridge and its approaches. Similar type of collisions would continue to occur with the existing bridge approach alignment.

Studies reported by Zegeer et. al. (Ref. 2) have shown that increasing the radius of a horizontal curve can be very effective in improving the safety performance of a curve by reducing total curve-related crashes by up to 80 percent. These are documented in the National Cooperative Highway Research Report (Ref. 3). A bigger radius design curve presented as the preferred Alternative, that is both consistent with the corridor speed and has improved horizontal sight distance, would provide better safety performance by significantly reducing run-off-road, head-on, “hit-object”, and sideswipe type collisions.

- 1.) Factors Influencing Operating Speeds and safety on Rural and Suburban Roads, FHWA Publication No. FHWA-HRT-15-030, May 2015.
- 2.) Zegeer, C., Stewart, R., Safety Effects of geometric improvements on horizontal curves. 17 Transportation Research Board. No. 1356. Washington D.C, 1992. pp.11-19.
- 3.) National Cooperative Highway Research Program (NCHRP), Report 500, Volume 7: A Guide for Reducing Collisions on Horizontal Curves.

#### *Response CG-1.5*

Caltrans’ Mission is to provide a safe, sustainable, integrated and efficient transportation system to enhance California’s economy and livability. As described in Section 1.2, the project is needed to address deficiencies of the Alameda Creek Bridge, existing safety deficiencies, and driver expectations of SR-84 operating speeds. The project balances meeting these needs while avoiding and minimizing impacts where all possible. Please see Section 1.4.8 for the discussion of an alternative that would replace the existing Alameda Creek Bridge and construct a 35 mph alignment approach with advanced warning systems and/or traffic mitigation.

*Response CG-1.6*

Please see Section 1.4.8 for the discussion of alternatives considered but eliminated from further discussion. Table 6 summarizes the rejected alternatives, comparison of the environmental impacts, and the reason for rejection. From these discussions, Caltrans analyzed the four alternatives identified in the Revised Draft EIR/EA as they represent the feasible alternatives which would meet the project's purpose and need while still reducing environmental impacts where possible.

*Response CG-1.7*

The Revised Draft EIR/EA reflects the substantive and feasible comments received during public scoping and attempted to include those discussions in the revised document. See Section 1.4.8 for the rationale of alternatives that were considered but eliminated from further discussion. Avoidance, Minimization, and Mitigation Measures have been updated to offset project impacts.

*Response CG-1.8*

As described in Section 1.4.8, the 35 mph Alignment Alternative was considered, but eliminated from further discussion. The rejected 35 mph alternative would not reduce the project's potential environmental impacts to a level below significance under CEQA. In addition, the rejected 35 mph alternative can only potentially reduce crashes by 22-40% even with traffic calming measures compared to the potential 80% improvement with Alternative 3B.

*Response CG-1.9*

See response to CG-1.4.

*Response CG-1.10*

Caltrans currently has the following projects planned along this section of SR-84: the Niles Canyon Safety Improvements Project, the Arroyo de la Laguna Bridge Scour Project, and the Alameda Creek Bridge Replacement Project. All of these projects have independent utility, logical termini, and stand-alone purpose and need.

*Response CG-1.11*

Measure VISUAL-6. Niles Canyon Tree Planting Plan has been added to Section 2.1.4.4 to describe how UPLANDS-1 and RIPARIAN TREES-1 would be implemented. The plan would be completed during final design when a more precise project footprint is defined.

The plan would follow the general framework below and would be further developed as the project design becomes more refined and jurisdictional agency permits are applied for and received.

- Description of Existing Conditions / Environmental Setting
- Objectives of Planting Plan
- Rationale for Expecting Implementation Success
- Responsible Parties
- Identification of Potential Planting Sites
- Site Preparation, Irrigation, and Planting Plans
- Maintenance Activities and Schedule
- Performance Standards & Reporting

*Response CG-1.12*

The impacts from the Niles 1 Project were included in this project's cumulative analysis. As described in Section 2.4.4.1, photos taken in March 2015 from Niles 1 key viewpoints were compared to photos taken right after the impacts associated with Niles 1 (July 2011). Side by side comparisons of the keypoints from July 2011 and March 2015 indicate that visual quality has gradually been restored since the impacts associated with Niles 1. In spite of Caltrans' Niles 1 project, the overall health of the landscape in the resource study area remains stable. The natural recovery of the trees within the RSA post the Niles 1 Project has diminished the perception of the original impact. Section 2.4.4.5 has been updated to include the observations from the December 2016 tree surveys. The quantitative tree surveys were conducted to identify the amount of regrowth in the area that has occurred in the years following Caltrans' Niles 1 Project. Data obtained from the survey showed that the majority of the recorded trees were showing positive signs of regrowth. 261 trees were documented from the Niles 1 project, 205 were considered in "good" condition (78.5%), 17 were in "fair" condition (6.51%), 2 were in "poor" condition (0.77%), 31 were determined to be "dead" (11.88%), and 6 were unknown (2.30%). 39 western sycamore trees were documented, 37 in "good" condition, 1 in "poor" condition, and 1 in "unknown" condition.

*Response CG-1.13*

Caltrans has developed a robust mitigation strategy and will continue to work with our partner agencies and the public to provide suitable biological mitigation for project impacts.

*Response CG-1.14*

The project development of the Alameda Creek Bridge Replacement Project is independent from the abandoned Niles 1 Project. The impacts from the Niles 1 Project were included in this project's cumulative analysis.

*Response CG-1.15*

Thank you for acknowledging the ecological benefits within this project.

**From:** Cautn1@aol.com [mailto:Cautn1@aol.com]

**Sent:** Friday, March 03, 2017 2:42 PM

**To:** NilesCanyonProjects@DOT <NilesCanyonProjects@dot.ca.gov>

**Cc:** of, Friends <unioncityhills@gmail.com>; jeff@alamedacreek.org; bobf@att.net; mwillia@mac.com; Sartipi, Bijan@DOT <bijan.sartipi@dot.ca.gov>; media@calsta.ca.gov

**Subject:** Preserving Sunol Canyon...response to RDEIR

## Bay Area Transportation Working Group

Dear Ms. White,

BATWG first expressed its objections to what Caltrans District IV seems to want to do to Niles Canyon at your public meetings in Sunol in May of 2015 and won't repeat them here. Suffice to say our objections are stronger now than they were then. For this reason we wish to associate ourselves with and support the statements you have already received from the Citizens Committee to Complete the Refuge, the Alameda Creek Alliance, the Ohlone Audubon Society, Transdef and other groups. And we fully support the apt comments of Mr. Flavio Poehlmann of Fremont, California.

There is great scenic and environmental value in Sunol Canyon that deserves long range preservation, as opposed to its gradual desecration to serve the short-range objectives of auto-commuters looking for a shortcut.

As everyone knows from recent reports....the one element that invariably transforms a minor accident into a major one is speed. For this reason it makes little sense to be taking actions designed to increase speeds along the scenic highway running through Niles Canyon. On the contrary, as Mr. Poehlmann points out, you should be taking active steps to slow down the impatient drivers who are currently driving at higher than safe speeds.

BATWG challenges Caltrans to redirect its energies and its program from gradually ruining Niles Canyon to actively protecting it.

An acknowledgment of your receipt of this statement would be appreciated. Thank you.

Gerald Cauthen,  
Chair, Bay Area Transportation Working Group





## **Response to Comment Letter CG-2: Bay Area Transportation Working Group**

### *Response to CG-2.1*

As described in Section 1.2, the project is needed to address deficiencies of the Alameda Creek Bridge, existing safety deficiencies, and driver expectations of SR-84 operating speeds. With the existing posted advisory signs and the installation of rumble strips in 2007, there is still a pattern of drivers leaving the roadway on the outside of the curve due to the tight-curve radius on the western end of Alameda Creek Bridge. Please see Section 1.2.2, Safety for quantitative accident data and Section 1.2.2, Driver Expectations of SR-84 Operating Speed for statistical analysis of drivers' speeds and expectations.





## CALIFORNIA NATIVE PLANT SOCIETY

East Bay Chapter, [www.ebcnps.org](http://www.ebcnps.org)  
PO Box 5597, Elmwood Station, Berkeley, CA 94705

March 3, 2017

Caltrans District 4  
Office of Environmental Analysis  
Attn: Elizabeth White  
111 Grand Avenue MS 8B  
Oakland, CA 94612

*Submitted by email to:* [nilescanyonprojects@dot.ca.gov](mailto:nilescanyonprojects@dot.ca.gov)

**RE: 2017 Recirculated Draft Environmental Impact Report/ Environmental Assessment  
(RDEIR/ EA) for the Alameda Creek Bridge Replacement Project**

Dear Ms. White:

The East Bay Chapter of the California Native Plant Society (EBCNPS) appreciates the opportunity to comment on the 2017 Recirculated Draft Environmental Impact Report/ Environmental Assessment (RDEIR) for the Alameda Creek Bridge Replacement Project (Project) proposed by the California Department of Transportation, superseding in entirety the previously circulated January 2015 Draft EIR, including comments submitted regarding that document.

The California Native Plant Society is a statewide non-profit organization that works to protect California's native plant heritage and preserve it for future generations. The Society's mission is to increase the understanding and appreciation of California's native plants and to preserve them in their natural habitat. We promote native plant appreciation, research, education, and conservation through our 5 statewide programs and 36 chapters. The East Bay Chapter covers Alameda and Contra Costa Counties and represents some 1000 members. Pursuant to the mission of protecting California's native flora and vegetation, CNPS submits the following comments for the RDEIR:

*Protecting California's native flora since 1965*

## **Alternatives Analysis is inadequate**

California Law requires that “public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects...” (Pub. Res. Code §21002.) Each of the alternatives listed in the DEIR include engineering the new bridge and its approach roads to increase motorist speed from 35 to 45 miles per hour and widening the roadway to 42 feet. The impacts of these alternatives include the destruction of between 284 and 414 native trees. These alternatives will all result in significant damage to the ecology of Alameda Creek and the surrounding plant communities in the canyon.

In spite of these impacts, the California Department of Transportation failed to consider an environmentally superior project alternative that would replace the bridge with a new bridge engineered for the current speed limit of 35 miles per hour. EBCNPS supports the alternative described by the Alameda Creek Alliance during scoping and in their letters submitted on April 3, 2015, and March 1, 2017. This alternative should be restored and considered in the EIR next to other alternatives. Alternative 3B may not meet the project’s purpose and need while also truly minimizing environmental impacts to natural communities and habitats, compared to this discarded alternative. Analysis was forgone, and so the public cannot make an informed decision between an alternative which maintains the speed limit and one which increases the speed limit on the bridge and its approach.

CG-3.1

The Lead agency has offered only alternatives which achieve necessary safety improvements packaged together with speed limit increases. The Lead agency appears to have avoided analysis of an alternative which would maintain current speed limits. We believe that removing a seemingly mandatory speed limit increase from the bridge replacement equation, may reduce project infrastructure requirements to achieve significantly fewer environmental impacts than are offered by Alternative 3B.

## **Affected Environment and Mitigation Measures descriptions of vegetation are inadequate**

In the Affected Environment descriptions of Natural Communities (Chapter 2.3.1.1), each vegetation type starts with a description of major, dominant, and common plant species within each community. . At the end of each community description special status wildlife species are mentioned, but special status plant species which may or do occur at the project area are not. While the focus of the natural communities section is not on individual plant or animal species, we find it misleading to list special status wildlife species at the end of each community description. Therefore special status plant species that occur in these communities should be included also within the summaries contained in this section.

CG-3.2

All vegetation in riparian and wetlands areas are considered sensitive natural communities under CEQA. Mitigation measures to protect them must be robust across the board for any sensitive natural community identified. We note that a minimum 3:1 mitigation ratio for riparian trees is suggested in RIPARIAN TREES section, but only a minimum 1:1 mitigation for impacted wetlands in the WETLANDS section and 1:1 mitigation for trees in the UPLAND TREES section. All built alternatives

CG-3.3

have significant and permanent impacts to sensitive natural communities of all types, including wetlands and upland trees. Regardless of expected long term benefits to the wetlands from removal of some weirs, columns, and invasive species, impacts to wetlands should be valued at a higher mitigation ratio than 1:1.

CG-3.3

Natural communities need not be solely defined by their value to wildlife. Our organization provides a publication called the Manual for California Vegetation, which has been adopted as the standard vegetation classification by state and federal agencies such as the California Department of Fish and Game, United States Forest Service, National Park Service, and United States Geological Survey. We recommend defining vegetative and aquatic communities using Manual for California Vegetation 2016, for which several crosswalks are available such as to CDFW's California Natural Communities List. The Manual provides greater understanding of local variation, restoration, conservation, and management of vegetation throughout the state. There may be vegetation alliances and sensitive natural communities present which are not revealed by the current RDEIR analysis.

CG-3.4

With such extensive riparian and wetland habitat present, there are likely aquatic plants present, but these are missing from the RDEIR and appendices. Hydrophytic plants are sparingly listed if at all as plants occurring in the project area. However, aquatic vegetation. It does not appear surveys for these species took place for the EIR. This further calls into question the Environmental Consequences section for Plant Species (chapter 2.3.3.3) statement that "plant surveys indicate there is a low potential for rare plant occurrences in the project study limits." Complete native plant surveys are vital to proper EIR analysis of impacts. Without acknowledgement of surveys for aquatic plants, some of which are native and rare, this RDEIR is incomplete.

### **Mitigation and Discussion for Sensitive Natural Communities is inadequate**

This project has direct, significant, permanent, and substantial adverse effect on any riparian habitat or other sensitive natural communities of various habitat types. As such, mitigation for this large scale impact (at least 6 acres) must include minimum mitigation ratios substantially above the 1:1 proposed. All sensitive natural community impacts should be mitigated at minimum 3:1 ratio. Additionally, what definition of sensitive natural communities is the Lead Agency using? The definition of sensitive natural communities should be defined by the Lead Agency in separate dedicated sections, within at least the project setting and impacts sections.

CG-3.5

These are valuable resources which are only recognized and names as sensitive currently in very few places in the RDEIR/ EA document. Within the section addressing Environmental Consequences to Biological Resources (Chapter 2.3.1.2), a list is given of various habitat types present which are considered sensitive natural communities. These communities are also named in various mitigation and impact evaluation tables, but without further explanation of their higher value over other types of native habitat. For clarity, we suggest that quantifying sensitive natural communities (in acres) and their protections. Both temporary and permanent impacts to sensitive natural communities carry greater weight than to other communities, due exactly to their sensitive nature.

CG-3.6

More analysis for further avoidance techniques or increased mitigation to address this known potentially significant impact, before it occurs. One place these impacts are acknowledged, is in the RDEIR CEQA Environmental Checklist for Biological Resources, as a check in the box for Potentially

CG-3.7

Significant Impact on “riparian habitat or other sensitive natural communities of various habitat types.” Very few other categories within this project have a Potentially Significant Impact. This checklist appears to acknowledge that even with mitigation measures proposed in the RDEIR, impacts will probably be significant on “riparian habitat or other sensitive natural communities of various habitat types.”

CG-3.7

### **Resolve Unmitigated Project Impacts from 2011 before proceeding**

We strongly recommend that progress on the Alameda Creek Bridge Replacement project be halted until all other promised mitigations within the Niles Canyon Corridor are successfully implemented. Caltrans has yet to mitigate for the removal of 150 native trees that they carried in preparation for the abandoned Niles 1 project in 2011. The agency must carry out the required mitigations for that impact now, before it begins a new project, especially one that is as environmentally harmful as those described in this RDEIR/ EA.

CG-3.8

Similar mitigation commitments are described in both the 2011 project and this 2017 project. Insufficient mitigation is a predictable significant impact for future projects like this one to consider. When several nearby regional projects do not resolve mitigation issues, cumulative impacts begin to occur. The 2011 project has set an upsetting precedent for the agency. Since insufficient or absent mitigation is a reasonably foreseeable consequence of this project, this must be an impact analyzed in the EIR for this project.

CG-3.9

Listed mitigation measures (UPLAND TREES-1) commit to a two year timeline after project completion to plant trees for on-site or off-site mitigation. The RDEIR/ EA must address concerns that mitigation measures are not met with current projects which committed to a similar post-project completion timeline. In the RDEIR/ EA or elsewhere, the lead agency needs to publicly address this community concern regarding a current net loss of resources and unacceptably tardy mitigation implementation. The lack of follow up project mitigation poses real impacts to natural communities and special status species. Any timeline gap in mitigation implementation, means that lack of mitigation in itself likely creates compounded and additional new impacts.

CG-3.10

Within the RDEIR/ EA, we suggest the lead agency further describe tangible commitments to appropriate mitigation on an enforced timeline. Provide consequences to the agency for not providing mitigation on the timeline committed to within this environmental analysis. These consequences could include enhanced mitigation requirements such as significantly increasing mitigation ratios for removed trees significantly beyond the minimum stated 1:1 ratio, if original mitigation efforts are unsuccessful for any reason. Other consequences could include temporarily halting other projects in the same region until mitigations are resolved, or a fiscal commitment to land acquisition.

Mitigation success would be measured not only by a less than 30% mortality rate of all upland planted trees, but also, defined as successful only if following the timeline given in the RDEIR/ EA. In the RDEIR/ EA, Table 23 (page 185) describes tree impacts: 284 total impacted native trees (185 temporarily impacted, 99 permanently impacted) for preferred Alternative 3B. This level of environmental impact needs improvement for increased avoidance and increased mitigation ratios for sensitive natural communities as described in this letter, but would also be an unacceptable compounding of unmitigated impacts from the 2011 project.



The lead agency should state in the EIR how they will commit greater resources for resolving issues of unaddressed mitigation and delayed mitigation timelines, should this occur again for another project. To increase public accountability, we suggest that the date of project completion be made publicly available. The public could then accurately calculate exactly two years after project completion. If upon that date, mitigation area has not been secured and trees not yet planted, then the lead agency should enact consequences they would outline in the EIR, and also communicate with the public immediately how this issue would be resolved.

CG-3.10

### **Piecemeal projects must not proceed**

EBCNPS notes that Caltrans is attempting to segment the Niles Canyon Corridor Project into several different projects that will all be subjected to independent environmental reviews. The cumulative effects of this entire project, the Niles Canyon Safety Improvements Project, Niles Canyon Short Term Improvements Project, and Arroyo de la Laguna Bridge Project must be properly considered as part of a total environmental review to ensure that cumulative impacts are properly quantified and understood. It is a violation of CEQA to do otherwise.

CG-3.11

Caltrans needs to continue with current efforts to appropriately tier the Niles Canyon Corridor projects under a program-level EIR, currently under consideration. Analysis for the entire corridor needs to be completed, before projects within the corridor continue. Analysis of cumulative impacts within Niles Canyon Corridor is currently at the DEIR/EA stage by the same lead agency. It is necessary that this comprehensive analysis be completed before more individual projects within its scope, advancing in the environmental analysis process. Cumulative effects revealed by this entire corridor review will likely significantly inform impact analysis for the Alameda Creek Bridge Replacement Project, and may even provide room for avoidance and mitigation alternative analysis on a corridor-wide scale, providing possibilities not yet analyzed in this RDEIR/ EA.

The RDEIR/ EA makes no mention of how the Alameda Creek Bridge Replacement Project fits into the larger Niles Canyon Safety Improvements Project. The Niles Canyon Safety Improvements Project appears to be a program-level EIR evaluating cumulative impacts of all projects along SR-84 from postmile 10.8 to 18.0, and closed public comments on their Draft EIR/ EA on December 2, 2016. It does specifically describe the Alameda Creek Bridge Replacement Project as a project within its study area. The Alameda Creek Bridge Replacement Project RDEIR/ EA was released on January 17, 2017. This short span of time between project comment periods implies that feedback on the larger scope project is not necessarily informing the more specific project. These projects must not proceed simultaneously, but rather, the larger scope project analysis completed and published before smaller projects within its scope proceed.

## Conclusion

EBCNPS supports the environmentally beneficial aspects of the project including removal of invasive plants in the project area, and would support removal of all invasive species in the project area where feasible including listed Eucalyptus species, Plum species, Tree of Heaven, Giant reed, and Pampas grass. We also support the mitigation measure of marking trees with Environmentally Sensitive Area fencing, and the high value on avoidance of impacts especially to trees in the riparian zone. We support use of native and locally native plant stock at all replanted areas.

CG-3.12

EBCNPS supports and references the comments made jointly by the Alameda Creek Alliance, San Francisco Bay Citizens to Complete the Refuge, and Ohlone Audubon Society in their March 1, 2017 letter. The Environmental Impact Report must evaluate an alternative that meets the safety goals of the project without severe environmental and aesthetic impacts to Niles Canyon.

CG-3.13

Thank you for the opportunity to comment. We look forward to continuing engagement with all Niles Canyon Corridor environmental review processes. Please feel free to contact me anytime, contact information below.

Sincerely,



Karen Whitestone

Conservation Analyst  
California Native Plant Society, East Bay Chapter  
conservation@ebcnps.org  
510-734-0335

## **Response to Comment Letter CG-3: California Native Plant Society**

### *Response to CG-3.1*

As described in Section 1.4.8, the 35 mph Alignment Alternative was considered, but eliminated from further discussion. Through analysis of the potential environmental impacts of this alternative and a comparison with the project's identified alternative on safety characteristics, it was determined that there would not be a substantial decrease in potential environmental impacts and therefore there is no change to the project's significant impact determinations. The rejected 35 mph alternative would impact approximately 228 native trees and Alternative 3B would impact approximately 284 native trees. In addition, the rejected 35 mph alternative can only potentially reduce crashes by 22-40% even with traffic calming measures compared to the potential 80% improvement with Alternative 3B.

Per the California Highway Design Manual the design speed throughout the Niles Canyon corridor is maintained at a constant value of 45 mph. However, exceptions are made at certain curve locations along the corridor with the 30 mph advisory speed limit signs. Likewise, per FHA 2012 Road Safety Analysis and the provisions in the Highway Design Manual, an "Exception to the Mandatory Design Standards" is made in the Alameda Creek Bridge Replacement Project Design by reducing the bridge approach speeds to less than the 45 mph due to curve radius and environmental impacts.

In addition to what is described in Section 1.4.8, the following explanation addresses your comment in more specific detail.

Federal Highway Studies (Ref. 1 below) indicate that a 35 mph curve in conjunction with advanced warning measures cannot fully address the risk associated with speed differentials. The studies indicate that there is insignificant reduction in 85th percentile speeds as a result of most of these countermeasures. When "Adding Flashers to Existing Curve Warning Signs", the 85th percentile speeds go up by 1%. The "Advisory Speed Limit Sign as Supplemented to Horizontal Curve Warning Sign" would reduce the driver expected 45 mph speed to 38 mph (15% reduction), which exceeds the 35 mph design alternative. In other words, as relevant to the Niles Canyon corridor and the Alameda Creek Bridge approaches, these advanced warning measures are not fully effective in reducing speeds as they run contrary to the motorist's expectation of a uniform speed in the corridor.

Furthermore, the majority type of accidents that have occurred in the Alameda Creek Bridge and its approaches are run-off-road, "hit object", head-on, and sideswipe type collisions. Primary collision factors were identified as unsafe speeding for prevailing geometric conditions and improper turns within the tight curve radius at the bridge approaches with limited horizontal sight distance. Crashes have occurred because motorists do not have enough time to adjust to this geometric constraint despite the posted advisory curve warning signs. The Federal Highway Studies (Ref. 1) indicate that even though some of these mitigation measures are found to provide partial safety effectiveness in terms of some crash mitigation, they are not fully effective in reducing speeding related crashes that currently exist within the Alameda Creek Bridge and its approaches. Similar type of collisions would continue to occur with the existing bridge approach alignment.

Studies reported by Zegeer et. al. (Ref. 2) have shown that increasing the radius of a horizontal curve can be very effective in improving the safety performance of a curve by reducing total curve-related crashes by up to 80 percent. These are documented in the National Cooperative Highway Research Report (Ref. 3). A bigger radius design curve presented as the preferred Alternative, that is both consistent with the corridor speed and has improved horizontal sight distance, would provide better safety performance by significantly reducing run-off-road, head-on, “hit-object”, and sideswipe type collisions.

- 1.) Factors Influencing Operating Speeds and safety on Rural and Suburban Roads, FHWA Publication No. FHWA-HRT-15-030, May 2015.
- 2.) Zegeer, C., Stewart, R., Safety Effects of geometric improvements on horizontal curves. 17 Transportation Research Board. No. 1356. Washington D.C, 1992. pp.11-19.
- 3.) National Cooperative Highway Research Program (NCHRP), Report 500, Volume 7: A Guide for Reducing Collisions on Horizontal Curves.

#### *Response to CG-3.2*

Section 2.3.1.1 has been revised to list special status plant species for each natural community of concern.

#### *Response to CG-3.3*

Caltrans shares your view and acknowledges the importance of riparian and wetland vegetation communities and will continue to work with our fellow public agencies to avoid, minimize, and mitigate for those impacts.

#### *Response to CG-3.4*

The complete plant list, which includes aquatic plant species observed during the field surveys, is an appendix to the rare plant report, which is an attachment to the Natural Environment Study. Prior to conducting the field surveys, Caltrans consolidated a list of potentially occurring rare plant species generated from literature review. These lists were taken from the Inventory of Rare and Endangered Plants of California, the California Natural Diversity Database, USFWS Information, Planning, and Conservation System and previous Niles Canyon plant survey reports. From these sources, Caltrans was able to evaluate each plant’s potential to occur based on its general habitat preferences. Several aquatic plant species were included, but all were considered to have low or no potential to occur onsite. Common habitat preferences between the aquatic species on the list were alkaline, saline, coastal salt marsh habitat, or vernal pool habitat, which are not supported on the project site. The aquatic plant species slender-leaved pondweed (*Stuckenia filiformis* ssp. *alpina*), which has preference for assorted shallow freshwater marshes and swamps, was not observed during the rare plant species surveys. The fresh emergent wetland and riverine habitats were visually surveyed for rare plants, and results were negative. Common aquatic plant species observed during the rare plant surveys were included in the plant list for the rare plant report.

The Natural Environmental Study is available in electronic format at <http://www.dot.ca.gov/d4/nilescanyon/>.

#### *Response to CG-3.5*

Section 2.3.5 has been updated to reflect the Biological Opinion (BO) number 08ESMF00-2015-F-0073-2, obtained from the USFWS on May 4, 2017 (Appendix J) for this project. The BO covers impacts associated with the preferred alternative, Alternative 3B, and divides the impacts up into three categories: temporary, prolonged temporary, and permanent. The 1:1 ratio is set for temporary impacts, which are not anticipated to permanently convert habitat. Temporary impacts occur in areas generally used for access. Since these areas would be restored onsite, there is no habitat conversion associated with temporary impact areas. The prolonged temporary category was defined as an area that was either subjected to multiple years of disturbance or would take over a year to restore to baseline conditions present prior to construction and would be mitigated at a 1.5:1 ratio. Impacts where the project would convert habitat are considered permanent impacts, and would be mitigated 3:1 offsite. These ratios have been historically accepted by the regulatory agencies.

The habitat types have been defined based on A Guide to Wildlife Habitats of California (Mayer and Laudenslayer 1988). Caltrans has chosen to use this guide as it was published by California Department of Fish and Game under its California Wildlife Habitat Relationships System (CWHR). The CWHR “classification scheme has been developed to support the CWHR System, a wildlife information system and predictive model for California's regularly-occurring birds, mammals, reptiles and amphibians” and assists with Caltrans studies when determining wildlife-habitat associations (<https://www.wildlife.ca.gov/Data/CWHR/Wildlife-Habitats>). This guide has been used in past on-going Niles studies (i.e., rare plant reports, Natural Environmental Studies, Biological Assessments, and aquatic resources reports), and Caltrans would like to maintain consistency in the methods with these prior Niles technical reports

#### *Response to CG-3.6*

Please see Section 2.1.1.1 for descriptions of each type of natural community including a list of plant species and wildlife species that reside in it. Table 15 through Table 18 has been revised to include the land cover acreage for each type of land cover.

The following tables below clarifies the impacts to riparian trees for each alternative.

**Table 43. Impacts to Riparian Trees for Alternatives 1 and 2**

Species	Alternative 1 Permanent Impacts	Alternative 1 Temporary Impacts	Alternative 1 Total Impacts	Alternative 2 Permanent Impacts	Alternative 2 Temporary Impacts	Alternative 2 Total Impacts
Arroyo willow	0	11	11	9	21	30
Big-leaf maple	8	13	21	6	12	18
Box elder	0	1	1	0	1	1
Fremont cottonwood	0	12	12	4	15	19
Red willow	2	26	28	9	38	47
Western sycamore	25	38	63	11	38	49
White alder	0	23	23	4	37	41
Total	35	124	159	43	162	205

**Table 44. Impacts to Riparian Trees for Alternatives 3A and 3B**

Species	Alternative 3A Permanent Impacts	Alternative 3A Temporary Impacts	Alternative 3A Total Impacts	Alternative 3B Permanent Impacts	Alternative 3B Temporary Impacts	Alternative 3B Total Impacts
Arroyo willow	4	27	31	0	7	7
Big-leaf maple	7	12	19	4	11	15
Box elder	0	1	1	0	1	1
Fremont cottonwood	1	18	19	0	11	11
Red willow	5	42	47	0	23	23
Western sycamore	16	40	56	16	36	52
White alder	1	36	37	0	19	19
Total	34	176	210	20	108	128

*Response to CG-3.7*

Measure VISUAL-6. Niles Canyon Tree Planting Plan has been added to Section 2.1.4.4 to describe how UPLANDS-1 and RIPARIAN TREES-1 would be implemented. The plan would be completed during final design when a more precise project footprint is defined. The plan would follow the general framework below and would be further developed as the project design becomes more refined and jurisdictional agency permits are applied for and received.

- Description of Existing Conditions / Environmental Setting
- Objectives of Planting Plan
- Rationale for Expecting Implementation Success
- Responsible Parties
- Identification of Potential Planting Sites
- Site Preparation, Irrigation, and Planting Plans
- Maintenance Activities and Schedule
- Performance Standards & Reporting

As described in Section 3.2.4, the project would have a significant impact on the Niles Canyon Riparian Corridor. Measure RIPARIAN TREES-1 would be implemented to mitigate for trees removed from the riparian zone at a 3:1 ratio and would be replaced within the Alameda Creek watershed and off-site, with as many riparian mitigation trees planted on-site as possible. The lack of development and disturbance within the Niles Canyon Riparian Corridor over the past 100 years preserved Alameda Creek as an intact and contiguous riparian corridor. Opportunities and areas to restore or mitigate onsite within the Niles Canyon Corridor are limited or not practicable. As a result, project impacts to riparian natural communities are considered a significant impact that cannot be mitigated below a level of significance. Please refer to Section 2.3.1 for more detailed analysis. The project would require the placement of two columns in riparian habitat, but impacts would be reduced by constructing a sidehill viaduct, aligning the roadway towards the hillside, and minimizing encroachment into the creek. As described in Measure RIPARIAN TREES-1, Caltrans would continue to avoid and minimize project impacts to riparian trees during design and as the project footprint becomes more defined.

*Response to CG-3.8*

The project development of the Alameda Creek Bridge Replacement Project is independent from the abandoned Niles 1 Project. The impacts from the Niles 1 Project were included in this project's cumulative analysis. Section 2.4.4.5 has been updated to include the observations from the December 2016 tree surveys. The quantitative tree surveys were conducted to identify the amount of regrowth in the area that has occurred in the years following Caltrans' Niles 1 Project. Data obtained from the survey showed that the majority of the recorded trees (78.5%) were showing positive signs of regrowth.

*Response to CG-3.9*

The mitigation proposed in the Final EIR/EA is neither insufficient nor absent and represents a robust avoidance, minimization, and mitigation package for sensitive biological resources. Caltrans has received the Biological Opinion from USFWS (Appendix J) addressing potential impacts to listed species. Section 2.3.1.3, 2.3.5.3, and 2.3.5.4 were updated to reflect the BO for this project. During the design phase, Caltrans would continue to coordinate with ACOE, RWCB, CDFW, and other appropriate agencies in order to provide sufficient conditions to offset potential environmental impacts. Please see Section 3.2.3 in the Final EIR/EA for mitigation measure details.

*Response to CG-3.10*

The project development of the Alameda Creek Bridge Replacement Project is independent from the abandoned Niles 1 Project. Certain permits for this project from regulatory agencies require Caltrans to generate a restoration plan that outlines a timeline for planting activities. These permits include the Clean Water Act Section 404 Nationwide Permit with USACE, 1602 Agreement with CDFW, and Incidental Take Permit with CDFW. These permits would be obtained prior to the construction of the Alameda Creek Bridge during final design when the project footprint becomes more defined. In addition to the planting timeline, the restoration plan would also include a timeline for when a mitigation site must be obtained, a success criteria, a schedule of when monitoring reports during and after construction need to be submitted, and consequences in the form of mitigation ratio increase if success goals are not met after certain milestones. Please see response to CG-3.7 regarding the Niles Canyon Tree Planting Plan.

*Response CG-3.11*

All of the projects mentioned in this comment, the Niles Canyon Safety Improvements (Medium-Term Improvements), the Niles Canyon Short-Term Improvements Project (Short-Term Improvements), the Arroyo de la Laguna Bridge Scour Project, and the Alameda Creek Bridge Replacement Project have logical termini, independent utility, and stand-alone purpose and need. These projects were taken into consideration in the Cumulative Impact Analysis, please see Section 2.4.2 for that discussion.

*Response CG-3.12*

Thank you for acknowledging the ecological benefits within this project.

*Reponses to CG-3.13*

Caltrans will continue to work with area stakeholders to meet the safety needs of the public and develop a project that is context sensitive to the Niles Canyon corridor.





Serving Alameda, Contra Costa, Marin and San Francisco counties

March 3, 2017

via email to [nilescanyonprojects@dot.ca.gov](mailto:nilescanyonprojects@dot.ca.gov)

Ms. Elizabeth White,  
Caltrans District 4,  
Office of Environmental Analysis  
111 Grand Avenue, MS 8B  
Oakland, CA 94612

SUBJECT: Comments on Revised Draft EIR for SCH # 2010082001  
Alameda County, CA - District 4  
Proposed Replacement of the Alameda Creek Bridge

Dear Ms. White:

On behalf of the Sierra Club, we appreciate the opportunity to comment on the Draft Environmental impact Report for the proposed replacement of the Alameda Creek Bridge. In doing so, however, we reserve our entitlement to supplement these comments given your refusal to extend the time to provide comments to this 493-page analysis.

First, based on our review, this project appears to be part of the previous rejected Niles Canyon Corridor project. In this regard, we object to Caltrans preparation of separate EIRs for each segment of this corridor. The effect and result is to preclude the public from properly evaluating the full impact of the entire project. The other proposed and/or in-progress projects for other segments of SR-84 which have separate EIR's should be combined with this project so that the public may review and comment on a the DEIR that outlines and identifies the full impacts of the combined projects. A full program EIR including all proposed/in-progress SR-84 segment improvements needs to be provided to the public before any projects proceed.

CG-4.1

In the case of SR-84 this should include the East-West Connector, all projects in the Niles Canyon Corridor, Isabel Ave. improvements in Livermore (to I-580) and any other projects Caltrans is considering. All of these projects together will induce demand, substantial changes in vehicular traffic across the region, and a substantial increase in GHG as the roadway improvements will encourage increased vehicle miles travelled (VMT). We refer you to *Impact of Highway Capacity and Induced Travel on Passenger Vehicle Use and Greenhouse Gas Emissions* that outlines the impacts of induced demand, the link that is below.

CG-4.2

Based on our review, there are three distinct SR-84 EIR/projects in the Niles Canyon corridor under review. These comments do not include the other EIR's for the proposed SR-84 East-West Connector, Fremont or the EIR for SR-84 Isabel Ave. "improvements" in Livermore. We view this as evidence that Caltrans by its own admission is piece-mealing the SR-84 projects and hence the adverse environmental impacts associated with these projects, contrary to CEQA requirements.

CG-4.2

### The DEIR Relies On Setting

*The EIR notes that: Niles Canyon, SR 84 is a narrow, winding, gently rolling two-lane rural highway that traverses Niles Canyon. Much of the alignment is bordered by steep slopes – often rocky or tree-lined – on one or both sides, with numerous sign supports, utility poles, fencing and guardrail. Throughout much of its length, SR 84 is flanked by Alameda Creek, an important fish and wildlife habitat; and the Niles Canyon Railroad, once part of the Transcontinental Railroad and now a popular tourist attraction. There are also several other historic areas, both formal and informal, including an extensive aqueduct system and a site known locally as "The Spot," believed to have been the setting for several Charlie Chaplin movies.*

The Niles Canyon Corridor is a segment of SR-84 which is a designated Scenic Highway protected by the State Scenic Highway Program. This designation as a Scenic Highway means at a minimum:

- Regulation of land use and intensity (density) of development;
- Detailed land and site planning processes;
- Prohibition of offsite outdoor advertising and control of onsite outdoor advertising;
- Careful attention to and control of earthmoving and landscaping;** and
- Design and appearance of structures and equipment.**

The primary subject of this EIR, the Alameda Creek Bridge, is a structure considered eligible for the Alameda County Register of Historic Resources, DEIR pp. 138 & 186, which Caltrans is proposing to remove.

Presently unexplained are the designations of the Alameda County Registrar of Historic Resources. See: Historical and Cultural Resource Survey -- East Alameda Co. -- June 2005

<http://www.acgov.org/cda/planning/landuseprojects/documents/eastalameda.pdf>

See "Addendum to table" P 51 (P 49 on doc page) in above doc.

CG-4.3

### LINES read:

SNV-1	-----	Niles Canyon	E RB (1947)	Bridge: Alameda Canyon	BOH 33-039
SNV-1	5-17	Niles Canyon	K /RB (1928)	Richmond Bridge at	PM. 13.33

Based on our review, assuming the date of construction is correct (1928) the PM marker is within 0.2 mi/PM markers of those listed in the EIR, PM 13.355-13.421.

The “Alameda Creek Bridge,” built in 1928, is an integral part of this scenic, rural route, which connects two historic districts, Niles and Sunol, both of which have numerous buildings and other items on the Alameda County Historical Recourses Listing. To “cut” out a segment of this scenic area to replace the bridge with a modern bridge will impact the historic fabric of this important riparian corridor. Further discussion of preserving the bridge should be explored.

CG-4.4

In this regard, Appendix E includes a letter from the State Historical Officer claiming it represents the State Historic Preservation Officer’s “concurrence.” However, the “project” on which the officer appears to be commenting, while related, appears to be different based on the June 18, 2015 letter. Under the DEIR, various alternatives are presented; however, the Officer is commenting on the “project as proposed.” This refers to the January 2014 First Amended Programmatic Agreement. At the time, this revised DEIR did not exist. Therefore, Appendix E appears unreliable and a proper submittal should be made to the State Historic Officer identifying the different projects being proposed.

CG-4.5

#### **EIR Project Purpose:**

The purpose of the proposed Alameda Creek Bridge Replacement Project is to correct structural deficiencies of the Alameda Creek Bridge and its approaches while providing a facility that meets driver expectations of SR-84's operating speed, all of which is supposed to improve safety.

The project as outlined will replace the roughly 24 foot wide bridge, with a roughly 42 foot wide bridge that includes two 8-foot wide shoulders with a wider radius curve and wider approaches. The evidentiary support as to whether the replacement bridge will improve safety is missing, however.

CG-4.6

Based on our review, the preferred alternative 3B does not meet the stated purpose of improving safety.

First, the DEIR concedes that the proposed bridge design will encourage travel at greater speeds

Neither does the EIR provide an analysis or data outlining the impact on driver "confidence"/ "human factors" and rate of speed as a result of increasing the curve radius of the bridge (e.g. "smoothing the curve " and providing wide shoulders for speeding vehicles to recover). Caltrans Representatives at the Public Meeting held on February 22, 2017, commented that Caltrans does *not* “believe” that increasing the curve radius and providing 8 ft. road shoulders will cause drivers to drive at faster speeds. However, these opinions generally are contradicted by the attachments below.

Specifically, the Caltrans 2012 RSA report (p23) notes, that the crash statistics reflect that "speeding" was the most often cited as the PCF in SR84 crashes.

Pages pdf 127 & 79 of the EIR notes: "The speed survey points identified that the Critical Speed within the Alameda Creek Bridge Replacement Project vicinity is 45mph or greater."

CG-4.6

Caltrans 2012 RSA report notes an average speed of 47-48 mph depending on the direction of travel.

The DEIR , Common Features section, states that at the conclusion of the project the posted advisory speed limit for the EB direction of the proposed new bridge ***will be increased*** from 30 mph to 35 mph, the WB direction will remain 35 mph. The DEIR by its own admission concedes that the speed will be increased and that the greatest numbers of accidents are caused by speed. Speed discourages non-vehicle travelers and could induce more traffic. This analysis of this impact on the recreational and the environmental impact on the protected species by increasing the speeds needs to be better explored.

Caltrans 2012 RSA report, also attached below, claims that the proposed replacement would decrease the number of accidents by 0.37 collisions per year. This appears to be a very small reduction of accidents to justify the numerous adverse/negative environmental impacts of the project or the associated taxpayer expense. The attached map (dated 2011) estimates a project cost of \$33.7 million for a hardly a half a mile segment of roadway. We can assume costs have only increased. The DEIR, however, fails to identify what those same funds may pay for applied to alternatives, such as transit and/or Class I trail networks that actually reduce VMT and GHG. This project, however, increases VMT and therefore GHG. RSA Report: [http://www.dot.ca.gov/dist4/nilescanyon/docs/84\\_niles\\_canyon\\_rsa\\_final\\_report.pdf](http://www.dot.ca.gov/dist4/nilescanyon/docs/84_niles_canyon_rsa_final_report.pdf)

CG-4.7

Caltrans 2012 RSA report claims that the present bridge railings do not meet current standards. However, not discussed are upgrading the railings. This needs to be discussed. The report also suggests several recommendations for improved dynamic signage and lighting at the Rosewarnes Undercrossing. These likewise need to be discussed and considered for the Alameda Creek Bridge to preserve the bridge and provide safety enhancements.

CG-4.8

Also not discussed are the alternatives such as periodic pavement of some of the current gravel shoulders to provide "turn outs" at intervals throughout the corridor and provide signage in advance of the "turnout."

CG-4.9

Caltrans 2012 SRA report -- Signs and Markings notes:

*Signs, signals and pavement markings are key to providing drivers with positive guidance so that they can navigate the alignment confidently and understand the actions required of them. ... the centerline rumble strips are proving to be effective in reducing targeted crash types. Most other traffic control devices are equally effective in managing driver expectations.*

CG-4.10

*There are, however, opportunities to enhance their effectiveness by ensuring that they are more readily seen and placed where their message can be recognized and understood in time to make required or desired actions.*

*If signs are partially obscured by vegetation or pavement markings are worn, their effectiveness can be diminished.*

*If signs are placed too close to a decision point, drivers may miss a turn or make erratic last-minute maneuvers. If signs are spaced too close together, they compete for the driver's attention, and make it more difficult for the driver to focus on the most relevant information.*

Less detrimental alternatives such as maintaining growth to improve signage should be explored, but are not provided.

CG-4.10

Caltrans 2012 RSA report states bicycle ridership has increased significantly by approximately 75% since 2002; however the varying and limited road shoulders make riding a bicycle in the Niles Canyon corridor challenging (P120). Page 72 of the EIR notes that Caltrans, EBRPD and other agencies are currently in the early planning phase for a Class I trail for Niles Canyon. There should be a discussion on the alternative to provide a **safe**, non-vehicular travel option for both commuters and recreational use with significantly less negative environmental impacts. Travel options that encourage safe non-vehicular travel decrease VMT and GHG consistent with protecting Niles as a recreational and historical area are missing.

CG-4.11

## **Chapter 2 – Growth**

Page 59 of the EIR, Chapter 2 - East County Area Plan –This section notes that the "proposal requires the acquisition of land designated as "Open Space" for transportation. And says "all Alternatives are consistent with Measure D as they would have no growth-inducing effect on the East County Area and would not expand the service beyond the capacity of the existing facility."

CG-4.12

This conclusion, however, appears unsupported. Caltrans RSA report notes an average of 14,000 vehicles per day at Niles Canyon / Palomares Rd. Unstated, however, is the design capacity for this Scenic Highway and the Alameda Creek Bridge. Also unstated is the projected capacity following the proposed SR-84 replacement of the bridge. These numbers need to be disclosed and discussed in relation to the number of new housing units planned in the area.

## **Project Impacts – Environmental Topics**

The existing natural and biological resources in the project area include Coastal oak woodland, California bay laurel and coast live oak. At least 60 species of mammals depend on oaks in some way, and as many as 110 species of birds have been observed during the breeding

season in California habitats where oaks form a significant part of the canopy or sub canopy. The riverine and riparian habitats within the project limits serve as important wildlife corridors and there has been real progress for fish as evidenced by the comeback of the steelhead. The project area also impacts special-status species, including California Red-legged frog, Foothill yellow-legged frog, California Tiger Salamander, Alameda Whipsnake, Pallid bat, Western Mastiff bat and San Francisco dusky-footed woodrat (Pdf page 225 / Page 177).

Caltrans' preferred option 3B necessitates direct impacts to 6.3 acres of various habitat types (2.1 acres of permanent impacts and 4.2 acres of temporary impacts), and necessitates the removal of 296 trees (127 riparian/ 169 upland trees) to construct a bridge of roughly 6/10 of a mile and its approaches. This alternative will detrimentally affect California Red-legged frog habitat (303 acres of temporary impacts, 1.7 acres of permanent impacts), the Alameda whipsnake habitat (3.0 acres of temporary impact 1.7 acres of temporary impacts) and the Steelhead habitat (2.2 acres of temporary impacts, 0.3 acres of permanent impacts).

Not disclosed, however, is why Caltrans has yet to replace the hundreds of trees removed in approximately 2010-2011 and what cumulative impact this drastic tree removal of this scenic byway will have on impacted habitats.

CG-4.13

Although the DEIR claims that the numerous adverse environmental impacts will be remediated to less than significant, the proposed compensation or trapping and relocation of species, such as suggested for the woodrat-1/ p 217, or roosting and relocation such as suggested for bats-2 etc. does not appear to be a real "mitigation". **These are not mitigations to the natural residents of this area.** The DEIR should discuss mitigations and alternatives that will best protect the natural residents so that they may remain in their natural habitats. Additionally Caltrans concludes that all project alternatives may affect and are likely to adversely affect the Alameda whipsnake. This contradicts EECCS Goal 16: increase Alameda Whipsnake population (P 114/EIR 66).

CG-4.14

In this regard, there needs to be an alternative included which does not detrimentally impact the whipsnake, since this DEIR claims that "all" its alternatives may and are likely to adversely affect the whipsnake.

CG-4.15

#### Alternatives:

The EIR notes that proposed option 3B is the least damaging to the environment of the options Caltrans chose to consider. However, not considered and which need to be addressed are options that would meet project objectives more effectively, significantly reduce VMT and GHG which are environmentally superior, including not removing the bridge that is part of the historic fabric of this important scenic riparian corridor.

CG-4.16

The DEIR needs to better explore Transportation System Management (TSM) and Transportation Demand Management (TDM) Alternatives. TSM strategies increase the efficiency of existing facilities while TDM focuses on regional means of reducing the number of vehicle trips and vehicle miles traveled as well as increasing vehicle occupancy.

We acknowledge Caltrans rational that this alternative was rejected because a TSM and TDM Alternative would not meet the project's purpose and need as this alternative would not improve the structural deficiencies of the Alameda Creek Bridge and its approaches in a manner that improves safety and provides a facility that meets driver expectations of SR-84's operating speed. A TSM and TDM alternative could not satisfy the purpose and need of the project and therefore, was rejected from further consideration."

However, the revised DEIR discussion of "Driver Expectations of SR-84 Operating Speed" (pages viii-ix) relies on highway design speeds adhering rigidly to the surveyed 85th percentile "critical speed," which in the Niles Canyon project area was found to be 47.8 mph in the eastbound direction and 47.7 mph in the westbound direction. Under that logic, the entire SR 84 through Niles Canyon would be redesigned for speeds of 48 mph to meet supposed driver expectations. Such design speed changes would result in allowing and encouraging drivers being able to drive faster than 48 mph, and in a few years, the 85th percentile speed would increase, necessitating another increase in design speed. The result, of course, would be to turn Niles Canyon into a freeway contrary to the stated purpose of the project.

CG-4.16

We suggest that the project scope be further revised to focus on implementation of strategies/alternatives that reduce vehicles in the Canyon Corridor and manage travel speeds to a level safe for the roadway and weather conditions, reducing GHG and protecting the special and endangered species that reside in this important riparian corridor.

Missing is any discussion of increased public transit infrastructure, increased rail service with transit connections and/or park & ride lots. Nor is there sufficient discussion on development of a network of interconnected trails that would provide a safe means of transportation for both commuters and recreational users. Either option or a combination of all of these modes of transportation could significantly reduce VMT and GHG, more effectively meet the projects stated overall objective.

In that regard, also missing is any analysis of the impacts once the HOV/Toll lane on 680 is completed, which, once opened, may reduce congestion. This information should be first gathered so that it may be included in any additional analysis.

CG-4.17

We look forward to the preparation of a revised programmatic DEIR for SR-84, including options that incorporate increased use of alternate/non-vehicular modes of transportation, such as trails, along with environmentally superior options for safety improvements to the



Scenic Niles Canyon corridor that do not detrimentally impact the important environmental and historic fabric of the area.

Sincerely,

*/s/ Jannet Benz*

Jannet Benz

cc: Richard Valle, Supervisor District 2  
Alameda County Board of Supervisors

Scott Haggerty, Supervisor District 1  
Alameda County Board of Supervisors

Julianne Polanco, State Historic Preservation Officer  
CA Department of Parks and Recreation

Dionisio Rosario, Chair  
Alameda County Parks, Recreation, and Historical Commission

Al Minard, Commissioner District 1  
Alameda County Parks, Recreation, and Historical Commission

Attachments:

**MAP -- State Route 84: Niles Canyon Projects:**

<http://www.dot.ca.gov/dist4/nilescanyon/niles3home.htm>

[http://www.dot.ca.gov/dist4/nilescanyon/images/niles\\_canyon1\\_12\\_11web.pdf](http://www.dot.ca.gov/dist4/nilescanyon/images/niles_canyon1_12_11web.pdf)

**Impact of Highway Capacity and Induced Travel on Passenger Vehicle Use and Greenhouse Gas Emissions,**

Susan Handy et al,  
[http://www.arb.ca.gov/cc/sb375/policies/hwycapacity/highway\\_capacity\\_brief.pdf](http://www.arb.ca.gov/cc/sb375/policies/hwycapacity/highway_capacity_brief.pdf) (accessed 2/27/17)

**The OLR Research Report - Speed limit increases and accident reports,**

<https://www.cga.ct.gov/2013/rpt/2013-R-0074.htm>

indicates increased speeds = increased accidents and increased injuries.

**Noland, R.B. 2003. Traffic Fatalities and Injuries: The Effect of Changes In Infrastructure and Other Trends. Accident Analysis and Prevention 35 (2003) 599–611. (attached)**

[http://www.bikewalktwincities.org/sites/default/files/Noland-Traffic\\_Fatalities\\_and\\_Injuries.pdf](http://www.bikewalktwincities.org/sites/default/files/Noland-Traffic_Fatalities_and_Injuries.pdf)

Renski, H., A. J. Khattak and F.M. Council. 1999. **Effect of Speed Limit Increases on Crash Injury Severity: Analysis of Single-Vehicle Crashes on North Carolina Interstate Highways**. Transportation Research Record No. 1665.

**Caltrans, Road Safety Assessment (RSA)**

[http://www.dot.ca.gov/dist4/nilescanyon/docs/84\\_niles\\_canyon\\_rsa\\_final\\_report.pdf](http://www.dot.ca.gov/dist4/nilescanyon/docs/84_niles_canyon_rsa_final_report.pdf)

## **Response to Comment Letter CG-4: Sierra Club**

### *Response CG-4.1*

Caltrans currently has the following projects planned along this section of SR-84: the Niles Canyon Safety Improvements Project (Medium-Term Improvements), the Arroyo de la Laguna Bridge Scour Project, and the Alameda Creek Bridge Replacement Project. All of these projects have independent utility, logical termini, and stand-alone purpose and need.

### *Response CG-4.2*

Please see Chapter 1, where the reader will find a discussion on the purpose and need, independent utility, and logical termini for the proposed project.

### *Response CG-4.3*

The Alameda Creek Bridge that is subject of the DEIR is identified as the "Richmond Bridge" in the Historical and Cultural Resource Survey -- East Alameda Co. -- June 2005. The "Richmond Bridge" moniker is an archaic designation for this structure. The Survey incorrectly identifies the post mile as 13.33. The post miles are correctly identified in the DEIR as 13.355-13.421. Alameda County identified this bridge as eligible for its Registrar of Historic Resources, though it has not officially been placed on the Registrar yet.

### *Response CG-4.4*

As described in Section 1.4.8, Caltrans determined that the existing Alameda Creek Bridge cannot be widened in place because it would require staged removal, which would be necessary to keep SR-84 open during construction. Widening the existing bridge and bringing it up to current standards would require approximately two years of complete closure of this section of SR-84. Removal of the existing bridge in stages would result in the bridge not being structurally adequate to carry traffic loads. Complete closure of SR-84 at the project location would sever the main regional connection between I-880 and I-680. As a result, the project would need to demolish the existing Alameda Creek Bridge.

### *Response CG-4.5*

The June 18, 2015 letter from the California Office of Historic Preservation (OHP) was in regards to the project that is the subject of this DEIR. The project scope has not materially changed since this request for concurrence was sent to the OHP. No further consultation with the OHP is necessary. The January 2014 First Amended Programmatic Agreement is not in reference to a specific project. The Programmatic Agreement is an agreement between Caltrans, the OHP, and others to streamline the Section 106 process that must be taken for all projects with a federal nexus that have the potential to affect historic properties. The reference to the Programmatic Agreement in this letter was simply to reference the regulatory framework under which this consultation was performed.

### *Response CG-4.6*

In addition to what is described in Section 1.4.8, the following explanation addresses your comment in more specific detail.

Federal Highway Studies (Ref. 1 below) indicate that a 35 mph curve in conjunction with advanced warning measures cannot fully address the risk associated with speed differentials. The studies indicate that there is insignificant reduction in 85th percentile speeds as a result of

most of these countermeasures. When “Adding Flashers to Existing Curve Warning Signs”, the 85th percentile speeds go up by 1%. The “Advisory Speed Limit Sign as Supplemented to Horizontal Curve Warning Sign” would reduce the driver expected 45 mph speed to 38 mph (15% reduction), which exceeds the 35 mph design Alternative. In other words, as relevant to the Niles Canyon corridor and the Alameda Creek Bridge approaches, these advanced warning measures are not fully effective in reducing speeds as they run contrary to the motorist’s expectation of a uniform speed in the corridor.

Furthermore, the majority type of accidents that have occurred in the Alameda Creek Bridge and its approaches are run-off-road, “hit object”, head-on, and sideswipe type collisions. Primary collision factors were identified as unsafe speeding for prevailing geometric conditions and improper turns within the tight curve radius at the bridge approaches with limited horizontal sight distance. Crashes have occurred because motorists do not have enough time to adjust to this geometric constraint despite the posted advisory curve warning signs. The Federal Highway Studies (Ref. 1) indicate that even though some of these mitigation measures are found to provide partial safety effectiveness in terms of some crash mitigation, they are not fully effective in reducing speeding related crashes that currently exist within the Alameda Creek Bridge and its approaches. Similar type of collisions would continue to occur with the existing bridge approach alignment.

Studies reported by Zegeer et. al. (Ref. 2) have shown that increasing the radius of a horizontal curve can be very effective in improving the safety performance of a curve by reducing total curve-related crashes by up to 80 percent. These are documented in the National Cooperative Highway Research Report (Ref. 3). A bigger radius design curve presented as the preferred Alternative, that is both consistent with the corridor speed and has improved horizontal sight distance, would provide better safety performance by significantly reducing run-off-road, head-on, “hit-object”, and sideswipe type collisions.

- 1.) Factors Influencing Operating Speeds and safety on Rural and Suburban Roads, FHWA Publication No. FHWA-HRT-15-030, May 2015.
- 2.) Zegeer, C., Stewart, R., Safety Effects of geometric improvements on horizontal curves. 17 Transportation Research Board. No. 1356. Washington D.C, 1992. pp.11-19.
- 3.) National Cooperative Highway Research Program (NCHRP), Report 500, Volume 7: A Guide for Reducing Collisions on Horizontal Curves.

#### *Response CG-4.7*

Please see Chapter 1 for description of proposed project. The project does not propose improvements which would increase capacity. Therefore, this project would not increase VMT or GHG. Alternative modes of transit were not assessed because it would not address the purpose and need of the project. The project proposes to install eight-foot shoulders on both sides of the bridge, which would improve access and safety for bicyclists using the facility. Funding for highway transportation projects are based on the availability of funds for certain types of projects, categorized into various funding programs. The funds for a particular program cannot be transferred to fund a different type of project if it does not meet the program's criteria. For example, funds programmed from the Bridge Rehabilitation program designed to address structural deficiencies cannot be used to provide improvements solely for transit or bicycle trails.

The Alameda Creek Bridge Project was funded out of the Bridge Rehabilitation Program and thus, cannot be used to fund transit or trail projects in the corridor.

*Response CG-4.8*

The existing bridge railing on the Alameda Creek Bridge do not offer the structural integrity of a modern railing. It is nonstandard and requires replacement to meet current standards. This project would upgrade the bridge railing to the see-through four-bar steel California ST-70 Bridge railing. This railing provide the capability to redirect vehicles back into the roadway in the event of a collision. This see-through bridge railing also minimizes visual impact.

Furthermore, the construction of an alternative that replaces just the bridge railing would result in continued use of a functionally obsolete structure that would still need to be replaced at some point in the future and would not address deficiencies of the bridge approaches or lack of shoulders.

Lighting on the approaches and on the bridge may be considered during the design phase with due regard to any potential environmental concerns on nocturnal habitat at the project location. Curve warning signs with flashing beacons are proposed at the approaches to the bridges. Vehicles Speed Feedback Signs (VSFS) are being installed as part of the Niles Canyon Safety Improvements Project (Medium-Term Improvements) throughout the corridor. VSFS signs may also be considered on the approaches to the bridge during the design phase. Since the new bridge would have standard eight foot shoulders and separate bike lanes, push-button activated flashing beacons that cyclists can use to signal their presence on the ridge are not needed.

*Response CG-4.9*

Turn outs are not included in the scope of the Alameda Creek Bridge Replacement Project. Your comment has been forward the proper functional units working on the Niles Canyon Safety Improvements Project (Medium-Term Improvements).

*Response CG-4.10*

Because of inadequate width, centerline rumble strips have not been installed on the Alameda Creek Bridge in any of the previous projects. Instead, a modified centerline striping was installed. Various signing, pavement striping and markings, and electronic warning signing improvements throughout the corridor are being implemented through the Niles Canyon Safety Improvements Project (Short-Term Improvements), completed in Fall 2016, and the Niles Canyon Safety Improvements Project (Medium-Term Improvements), currently in the environmental phase. Every effort are made to place the signs and pavement markings at the most appropriate location to increase their effectiveness. Caltrans Landscape Maintenance does periodic maintenance to clear overgrown vegetation that obstructs signs.

*Response CG-4.11*

Caltrans is coordinating closely with the EBRPD to assist in the development of a separate bike/pedestrian trail in the corridor. As the project is limited to the Alameda Creek Bridge itself, discussion of a non-vehicular travel option through this section would not be appropriate.

*Response CG-4.12*

The project would neither increase capacity nor would it expand the service of SR-84. Please see Chapter 1 for description of proposed project.

*Response CG-4.13*

The project development of the Alameda Creek Bridge Replacement Project is independent from the abandoned Niles 1 Project. The impacts from the Niles 1 Project were included in this project's cumulative analysis. As described in Section 2.4.4.1, photos taken in March 2015 from Niles 1 key viewpoints were compared to photos taken right after the impacts associated with Niles 1 (July 2011). Side by side comparisons of the keypoints from July 2011 and March 2015 indicate that visual quality has gradually been restored since the impacts associated with Niles 1. In spite of Caltrans' Niles 1 project, the overall health of the landscape in the resource study area remains stable. The natural recovery of the trees within the RSA after the Niles 1 Project has diminished the perception of the original impact. Section 2.4.4.5 has been updated to include the observations from the December 2016 tree surveys. The quantitative tree surveys were conducted to identify the amount of regrowth in the area that has occurred in the years following Caltrans' Niles 1 Project. Data obtained from the survey showed that the majority of the recorded trees (78.5%) were showing positive signs of regrowth. The baseline natural community environmental before the Niles 1 Project was high in quality. The impacts to natural communities associated with Niles 1 have continued to diminish through natural regrowth. In the analysis for this project's direct impacts, the baseline for natural communities has continued to be high in quality.

Measure VISUAL-6. Niles Canyon Tree Planting Plan has been added to Section 2.1.4.4 to describe how UPLANDS-1 and RIPARIAN TREES-1 would be implemented. The plan would be completed during final design when a more precise project footprint is defined. The plan would follow the general framework below and would be further developed as the project design becomes more refined and jurisdictional agency permits are applied for and received.

- Description of Existing Conditions / Environmental Setting
- Objectives of Planting Plan
- Rationale for Expecting Implementation Success
- Responsible Parties
- Identification of Potential Planting Sites
- Site Preparation, Irrigation, and Planting Plans
- Maintenance Activities and Schedule
- Performance Standards & Reporting

*Response to CG-4.14*

Avoidance, Minimization, and/or Mitigation Measure WOODRAT-1 is a measure implemented for all Caltrans projects when there is potential for woodrat houses to occur within the project limits. Since this is an inherent part of the project, this measure is not considered a mitigation measure to reduce the project impacts to less than significant. To avoid and minimize project impacts to dusky-footed woodrats, the project would include a woodrat relocation plan.

As described in Section 2.3.4.3, the demolition of the existing Alameda Creek Bridge would permanently remove a known day and night roost site for several species of bats. As described in BATS-2, the roosting bat exclusion plan would install a physical barrier to prevent bats from re-

entering their roost and induce them to find alternative roost habitat. Measure BATS-2 would minimize the potential impacts to roosting bats by excluding them from the work area. An alternative that would not impact the existing bat roosts by maintaining the existing Alameda Creek Bridge would not meet the project's purpose and need.

As described in 3.2.3, impacts to AWS are significant given the proposed project may directly affect individual AWS in the project area as a result of construction activities. Avoidance and minimization measures listed in Section 2.3.5.4 would lessen project impacts to AWS. In addition to avoidance and minimization measures, measure AWS-1 would be implemented to mitigate for the degradation of AWS habitat.

*Response to CG-4.15*

Caltrans on May 4, 2017 received the Biological Opinion from the United States Fish and Wildlife Service (Appendix J) for impacts to the Alameda whipsnake and its critical habitat. The conservation measure identified in the BO has been incorporated into the project. There were no project alternatives which both met the purpose and need while avoiding adverse effect to the Alameda whipsnake.

*Response to CG-4.16*

Since this is not a congestion relief project, transit alternatives would not meet the project's purpose and need. Rail lines, trail systems, and operation of transit services are all outside of Caltrans' functions.

*Response to CG-4.17*

As described in Section 1.2, this project is neither intended to affect regional transportation patterns and congestion nor increase capacity for more vehicles along SR-84.



Transportation Solutions Defense and Education Fund  
transdef.org

P.O. Box 151439 San Rafael, CA 94915 415-331-1982

March 3, 2017  
By E-Mail to:  
nilescanyon  
projects  
@dot.ca.gov

Elizabeth White  
Office of Environmental Analysis  
Caltrans District 4, MS 8B  
111 Grand Avenue  
Oakland, CA 94612

Re: Proposed Replacement of the Alameda Creek Bridge: SR 84, PM 13.0

Dear Ms. White:

The Transportation Solutions Defense and Education Fund, TRANSDEF, is an environmental non-profit advocating for the regional planning of transportation, land use and air quality, with a focus on climate change. We take an interest in this project because it is likely to exacerbate the dependence of Bay Area residents on personal automobiles, rather than build infrastructure to support commute travel markets with public transit. We offer the following thoughts on the Revised Draft EIR/EA for the Alameda Creek Bridge Replacement Project ("DEIR"). Citations are to DEIR page numbers.

Context Sensitive Design

If ever there was an area that called out for a context sensitive design, it would be Niles Canyon. The Department has developed a significant body of policy guidance on context sensitive solutions:

The Department uses "Context Sensitive Solutions" as an approach to plan, design, construct, maintain, and operate its transportation system. These solutions use innovative and inclusive approaches that integrate and balance community, aesthetic, historic, and environmental values with transportation safety, maintenance, and performance goals.

CG-5.1

Caltrans Director's Policy on Context Sensitive Solutions, (DP #22), 2001. Caltrans' website accessed 3/3/17: <http://www.dot.ca.gov/hq/oppd/context-solution.pdf>

The policies, practices or mandatory design standards used for any project should meet the minimum guidance given to the maximum extent feasible, but the philosophy provides for the use of nonstandard design when such use best satisfies the concerns of a given situation. Deviations from the Caltrans policies, practices or mandatory design standards requires review and approval for nonstandard design through the exception process (see Index 82.2 of the Highway Design Manual) and should be discussed early in the planning and design process.

Caltrans' website accessed 3/3/17: [http://www.dot.ca.gov/hq/LandArch/16\\_livability/css/index.htm](http://www.dot.ca.gov/hq/LandArch/16_livability/css/index.htm).

CG-5.1

The fact that the design process resulted in the proposed demolition of an historic bridge on a Scenic Highway is an indication of a complete failure to implement the Department's Context Sensitive Solutions policies. The proposed project is a classic example of applying Caltrans' design standards in a cookbook manner, without any recognition of context.

#### Purpose and Need

p. 4: We strongly disagree with the Project Purpose's implication that "driver expectations of SR-84's operating speed" are a value that should be given more weight than the Scenic Highway designation. This is a values judgment, not an engineering judgment. The State of California has decided that its scenic and historic resources must be preserved. Increasing the typical speeds on a roadway is a direct challenge to the experiential qualities that have been preserved in law and regulation.

CG-5.2

While modern transportation has descended into merely getting from one place to another as quickly as possible, this stands in sharp contrast to the savoring of scenic and historic places, such as Niles Canyon. While America has built millions of unmemorable places--and unmemorable freeways to connect them--Niles Canyon represents something entirely different: a place where taking the time to take in the experience is paramount. Caltrans is proposing to destroy this resource to make it more like the rest of California, to make it more convenient for oblivious commuters. We do not accept the premise.

#### Specific Comments

p. 5: The Alameda Creek Bridge has functioned for 89 years without shoulders (similar to the SFOBB). Please provide a justification for the destruction of an historic resource to enable the construction of shoulders, based on an actual history of incidents that demonstrate the need for shoulders. "The Design Manual requires us to put shoulders into the design" is not an acceptable justification for this sensitive context.

CG-5.3

p. 6: Because we disagree with the criteria used for the evaluation, we reject the classification of the bridge as "functionally obsolete." By those criteria, all of our national monuments would have to be torn down, as not compliant with current building codes. Obviously, that would be silly. Treating an historic and scenic resource with the same standards as Caltrans treats its typical roadways is profoundly wrong. It goes against all the current thinking about context-sensitive planning, a value Caltrans allegedly champions. (See above.)

CG-5.4

p. 15: We note that 12-foot travel lanes are associated with high-speed freeways. It is well-known that road diets--the utilization of narrower lanes--produce lower average speeds, resulting in lower accident rates, less severe injuries, and fewer fatalities.<sup>1</sup> If speeds on the bridge are too high, narrower lanes on the approaches should be used as a way of controlling "driver expectations." Making lanes wider in the name of safety makes no more sense than letting out one's belt in order to control one's weight. It is also well known that the severity of injuries and the probability of fatal collisions increases with increased average speeds.

CG-5.5

p. 43: The rejection of the TDM Alternative is unsupported by evidence. Note that the language in the Reason for Rejection refers to structural deficiencies: "A TSM and TDM Alternative would not meet the project's purpose and need as this alternative would not improve the structural deficiencies of the Alameda Creek Bridge and its approaches in a manner that improves safety and provides a facility that meets driver expectations of SR-84's operating speed." (emphasis added.)

CG-5.6

This is contradicted by the statement on p. 5 that "Although the bridge is structurally adequate as of 2017, it is currently classified as "functionally obsolete, meaning it is no longer functionally adequate for its task due to the design deficiencies listed above." TRANSDEF asserts that applying modern design standards to historic and scenic resources--and demolishing them when they don't measure up--is a fundamentally flawed approach to preserving those resources. We also disagree (see above) that driver expectations are a valid factor in considering the preservation of historic and scenic resources.

#### Project Segmentation

Table 38, List of Projects Considered for Cumulative Impacts Analysis, p. 239, is woefully inadequate. A series of projects are underway, including Alameda County Transportation Commission's East-West Corridor project, which, when cumulatively considered, will provide significantly more capacity for vehicles to travel from I-580 in the Tri-Valley to the Peninsula, via the Dumbarton Bridge. The DEIR has failed to adequately study the cumulative impacts of this collection of projects. This is classic segmentation, and is not permissible under CEQA.

CG-5.7

Caltrans has focused far too narrowly with this DEIR. What must occur is a program-level document (which used to be called a Major Investment Study) that studies travel in the SR 84 Corridor, and selects the feasible alternative with the least environmental impacts to serve that travel. This will necessitate origin-destination studies, to be able to

determine exactly which the travel patterns need to be accommodated with higher capacities.

The proposed project has resulted from a narrow design process that did not consider the users. Because Niles Canyon Road is a state highway and not just a local road, it is essential to start with a regional planning perspective, recognizing the need to understand who is travelling, where they are going, and whether they are travelling to specific destinations in sufficient numbers to warrant service by a new public transit mode. Merely providing more capacity for more cars is no longer an adequate approach to transportation planning in the age of climate change.

CG-5.7

#### Resource Areas with No Adverse Impacts

TRANSDEF strongly disagrees with the projects' impact characterization in Table 8, p. 49: Resource Areas with No Adverse Impacts. Because the stated purpose of the project is to increase speeds on the approaches and over the bridge, the proposed Project would increase vehicle throughput, even though it does not add a lane, thereby making SR 84 more attractive to commuters. The increased traffic, especially when considered in the context of reasonably foreseeable future projects (see above), will result in cumulative impacts that were not disclosed in the DEIR, including the increased emissions of criteria pollutants and greenhouse gases.

CG-5.8

#### Greenhouse Gas Emissions

While the DEIR mentions "The California Transportation Plan (CTP) provides a long-range policy framework to meet California's future mobility needs and reduce greenhouse gas emissions" (p. 54), it ignores its policy guidance. We have significant problems with the DEIR's treatment of greenhouse gases (GHGs).

p. 302: Consistent with Caltrans' 100% focus on automobiles, the analysis of strategies to reduce GHGs completely ignores shifting travel activity to lower-carbon modes, including public transit.

CG-5.9

p. 309: The list of state laws and Executive Orders is not current. SB 743 and SB 32 are especially significant recent laws relating to climate change. When Caltrans was given the legislative mandate by SB 391 to plan for an 80% reduction in GHGs, senior management removed the parts of the Draft CTP that did so, and replaced them with Business-As-Usual language that did not comply with the law.

CG-5.10

p. 311: It is unclear which edition of the Scoping Plan is being discussed. The current draft Scoping Plan has a later inventory.

CG-5.11

312: TRANSDEF asserts that, due to its inadequate cumulative impacts analysis, the DEIR's conclusion is incorrect that "The proposed project ... is not anticipated to have an increase in operational greenhouse gas emissions."

CG-5.12

p. 314: The discussion of GHG reduction strategies is all fluff. Caltrans continues to build capacity-increasing projects, which result in increased VMT and GHG emissions.

CG-5.13

p. 402: TRANSDEF asserts that the time has passed where Caltrans can "get away" with statements like this one in the Initial Study:

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

CG-5.14

The scientific evidence is now in, and is reflected in the CTP<sup>2</sup> and the Draft 2017 Scoping Plan Update.<sup>3</sup> These documents acknowledge the essential role that VMT reduction must play in California's response to climate change. As a result, Caltrans must make an impact significance determination. We disagree that there are any measures in the DEIR that mitigate the project's operational greenhouse gas emissions.

#### Alternatives

TRANSDEF has long advocated for a new passenger rail line in this corridor, connecting the Central Valley with the Silicon Valley. Because the existing Altamont Commuter Express shares low-speed tracks with Union Pacific freight trains, its ability to attract commuters is limited. A higher speed line, potentially capable of 150 mph, would be time-competitive with auto travel: it would be far more convenient, faster and more comfortable than commuting in heavy traffic (and travelling over this bridge).

CG-5.15

TRANSDEF proposes that Caltrans evaluate at a programmatic level the Alternatives Analysis<sup>4</sup> completed by the Alameda Corridor Rail Project, along with its Appendices,<sup>5</sup> Preliminary Project Description,<sup>6</sup> and project promotional brochures,<sup>7, 8</sup> as a distinct alternative to adding highway capacity to the SR 84 Corridor, including the East-West Connector and similar projects. The Rail Alternative should include a reopened Dumbarton Rail Bridge, to provide a complete rail alternative to SR 84. If large amounts of traffic were diverted from the highway to rail, it would result in lower congestion, lower GHG emissions, lower fatalities, and happier travelers, able to spend more time at home. Commuting by train has the potential of lowering household transportation costs.

TRANSDEF appreciates this opportunity to advocate for an environmentally sustainable alternative to the destruction of historic and scenic resources.

Sincerely,

/s/ DAVID SCHONBRUNN

David Schonbrunn,  
President  
David@Schonbrunn.org

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<sup>1</sup> Area-wide urban traffic calming schemes: a meta-analysis of safety effects, Elvik, R, 2001, [http://dx.doi.org/10.1016/S0001-4575\(00\)00046-4](http://dx.doi.org/10.1016/S0001-4575(00)00046-4) (Accessed 3/3/17.)

<sup>2</sup> California Transportation Plan 2040, Caltrans, 2016, [http://www.dot.ca.gov/hq/tpp/californiatransportationplan2040/Final%20CTP/FINALCTP2040-Report-PRINT-NoBleed\\_secured.pdf](http://www.dot.ca.gov/hq/tpp/californiatransportationplan2040/Final%20CTP/FINALCTP2040-Report-PRINT-NoBleed_secured.pdf) (Accessed 3/3/17.)

<sup>3</sup> Proposed Final 2017 Climate Change Scoping Plan Update, ARB, 2017, [https://www.arb.ca.gov/cc/scopingplan/2030sp\\_pp\\_final.pdf](https://www.arb.ca.gov/cc/scopingplan/2030sp_pp_final.pdf) (Accessed 3/3/17.)

<sup>4</sup> Altamont Corridor Rail Project, Project Environmental Impact Report/Environmental Impact Statement, Preliminary Alternatives Analysis Report, February 2011 [http://transdef.org/HSR/Altamont\\_assets/Altamont%20Corridor%20Rail%20Project%20Preliminary%20AA%20Report.pdf](http://transdef.org/HSR/Altamont_assets/Altamont%20Corridor%20Rail%20Project%20Preliminary%20AA%20Report.pdf) (Accessed 3/3/17.)

<sup>5</sup> Preliminary AA Report Appendices, [http://transdef.org/HSR/Altamont\\_assets/%20Preliminary%20AA%20Report%20Appendices.pdf](http://transdef.org/HSR/Altamont_assets/%20Preliminary%20AA%20Report%20Appendices.pdf) (Accessed 3/3/17.)

<sup>6</sup> Altamont Corridor Preliminary Project Description, California High-Speed Rail Authority, May 2009, [http://transdef.org/HSR/Altamont\\_assets/Altamont\\_Corridor\\_Preliminary\\_Project\\_Description\\_5\\_1\\_09.pdf](http://transdef.org/HSR/Altamont_assets/Altamont_Corridor_Preliminary_Project_Description_5_1_09.pdf) (Accessed 3/3/17.)

<sup>7</sup> "Welcome to the start of a new vision!", October 2009 newsletter from Altamont Corridor Rail Project, [http://transdef.org/HSR/Altamont\\_assets/AltamontNewsletter1Oct2009.pdf](http://transdef.org/HSR/Altamont_assets/AltamontNewsletter1Oct2009.pdf) (Accessed 3/3/17.)

<sup>8</sup> "Help Realize The Altamont", February 2011 newsletter from Altamont Corridor Rail Project, [http://transdef.org/HSR/Altamont\\_assets/AltamontNewsletter%202011.pdf](http://transdef.org/HSR/Altamont_assets/AltamontNewsletter%202011.pdf) (Accessed 3/3/17.)

## **Response to Comment Letter CG-5: Transportation Solutions Defense and Education Fund**

### *Response to CG-5.1*

As described in Section 1.4.8, Caltrans determined that the existing Alameda Creek Bridge cannot be widened in place because it would require staged removal, which would be necessary to keep SR-84 open during construction. Widening the existing bridge and bringing it up to current standards would require approximately two years of complete closure of this section of SR-84. Removal of the existing bridge in stages would result in the bridge not being structurally adequate to carry traffic loads. Complete closure of SR-84 at the project location would sever the main regional connection between I-880 and I-680. As a result, the project would need to demolish the existing Alameda Creek Bridge.

### *Response to CG-5.2*

This project would not increase the design speed of the Niles Canyon roadway, which is 45 mph, except at a few spot locations. Despite the existing posted 30 mph and 35 mph advisory curve warning signs at the Alameda Creek Bridge approaches, speed surveys show that drivers are not slowing down and continue to drive at speeds exceeding 35 mph. As a result, there continues to be curve related crashes at the bridge approaches. This project would further enhance traffic safety by increasing the eastern approach alignment to 40 mph design speed, which is closer to the 45 mph posted speed in the Niles Canyon corridor. For the western approach, the project proposes to realign the bridge approach to a 35 mph speed from the existing 30 mph.

As described in Section 2.4.1, the project would not adversely impact the scenic integrity of Niles Canyon and would not conflict with the Scenic Corridor Protection Plan for SR-84.

### *Response to CG-5.3*

As described in Section 1.2, the purpose of the project is to correct structural and geometric deficiencies of the Alameda Creek Bridge and its approaches while providing a facility that meets driver expectations of SR-84's operating speed, all of which improve safety. The project is needed to address deficiencies of the Alameda Creek Bridge, existing safety deficiencies, and driver expectations of SR-84 operating speeds. Eight-foot shoulders are an important safety feature that allow vehicles to take corrective action to avoid collisions, provide room for disabled vehicles, and provide width for bicyclists to ride in if they do not wish to take the travel lane. The Traffic Safety Analysis Memo dated January 4, 2016 has documented accidents involving bridge rail hits, run-off-road, and rear-end type collisions. These type of accidents may be due to lack of vehicle maneuverability on the bridge because of no shoulders.

### *Response to CG-5.4*

Thank you for your comment regarding how highway design standards are implemented.

### *Response to CG-5.5*

Please see Section 1.4.1 for a description of the project's features. The project would not be widening lanes, but would be installing two eight-foot shoulders for each direction. Eight-foot shoulders are an important safety feature that allow vehicles to take corrective action to avoid collisions, provide room for disabled vehicles, and provide width for bicyclists to ride in if they do not wish to take the travel lane. The Traffic Safety Analysis Memo dated January 4, 2016 has



documented accidents involving bridge rail hits, run-off-road, and rear-end type collisions. These type of accidents may be due to lack of vehicle maneuverability on the bridge because of no shoulders. See response to CG-5.2 regarding the speed limit of the corridor.

*Response to CG-5.6*

An independent study conducted by FHWA in 2012 confirmed the need to replace the existing bridge with a new bridge that meets current safety standards. FHWA's Roadside Safety Audit (RSA) indicated that the number of accident rates at the Alameda Creek Bridge and eastern and western approaches are higher than they would be with a facility that meets current design standards. The RSA concluded the new bridge would improve safety of passage across the bridge for vehicles and bicyclists. Factors contributing to this assessment include poor sight distances, low design speeds, a bridge rail that does not offer structural integrity and the ability to redirect vehicles into the roadway in the event of a collision, the lack of a shoulder space to allow for maneuvers to avoid collisions, and insufficient space for bicycles to share the lanes and to maneuver to avoid collisions.

*Response to CG-5.7*

Thank you for the information, the Alameda County Transportation Commission East-West Corridor Project has been added to the Cumulative Impacts section. As stated in Section 1.2 which address the project's purpose and need, this project is not intended to affect regional transportation patterns nor is it increasing capacity for more cars along SR-84.

Caltrans currently has the following projects planned along this section of SR-84: the Niles Canyon Safety Improvements Project (Medium-Term Improvements), the Arroyo de la Laguna Bridge Scour Project, and the Alameda Creek Bridge Replacement Project. All of these projects have independent utility, logical termini, and stand-alone purpose and need.

*Response to CG-5.8*

Operating speed throughout the corridor is, and would remain at 45 mph, except at few spot locations where the speed is reduced with Advisory speed signs. Approaches to the Alameda Creek Bridge are widened to be more consistent with the corridor speed. This would improve horizontal sight distance and provide better safety performance by significantly reducing run-off-road, head-on, "hit object", and sideswipe type collisions. Improvements to the Alameda Creek Bridge is not anticipated to increase vehicle flow through the corridor.

*Response to CG-5.9*

As described in Section 1.2, the purpose of the project is to correct structural and geometric deficiencies of the Alameda Creek Bridge and its approaches while providing a facility that meets driver expectations of SR-84's operating speed, all of which improve safety. The project is needed to address deficiencies of the Alameda Creek Bridge, existing safety deficiencies, and driver expectations of SR-84 operating speeds. Mode shift is outside the scope of this bridge safety project. The project's addition of wider shoulders to the bridge would improve bicycle access and safety, and may encourage more people to bicycle instead of using vehicles. Section 3.2.6 has been revised to add the Caltrans Strategic Management Plan as a Greenhouse Gas Reduction Strategy. The Caltrans Strategic Management Plan includes increasing percentage of non-auto mode share.

*Response to CG-5.10*

The list of state laws and executive orders has been updated to include SB 32. SB 743 is relevant to the CEQA transportation impacts analysis, not directly related to the analysis of project specific GHG analysis. This project does not meet the criteria for consideration of VMT impacts under proposed SB 743 guidelines (January 20, 2016). The California Transportation Plan 2040 release in June 2016 includes scenario planning for achieving the 2050 GHG reduction target.

*Response to CG-5.11*

The discussion of the AB 32 Scoping Plan has been revised to note that an updated Scoping Plan is in progress. The emissions projection information has been updated to reflect the First Update to the Scoping Plan (2014 Edition).

*Response to CG-5.12*

The proposed project would not increase the capacity of the roadway or otherwise induce additional traffic. Accordingly, operation of the project would not cause an increase in vehicle-related greenhouse gas emissions.

*Response to CG-5.13*

As described in Section 1.2, the purpose of the project is to correct structural and geometric deficiencies of the Alameda Creek Bridge and its approaches while providing a facility that meets driver expectations of SR-84's operating speed. The project does not propose to increase capacity.

*Response to CG-5.14*

This is not a capacity-increasing project, and therefore would not induce more traffic that would increase operational greenhouse gas emissions.

CEQA requires a lead agency to make a good faith effort to identify impacts and gives the lead agency discretion on the approach to analyze impacts. Caltrans has used the best available modeling data (EMFAC 2014) to analyze greenhouse gas emissions related to the project. Section 3.2.6.2 has been updated to include construction emissions. While it is challenging to link the direct impacts of the proposed project to the global greenhouse gas effects on a cumulative scale to climate change, Caltrans is committed to reducing GHG emissions as outlined in the Final EIR/EA.

*Response to CG-5.15*

The scope of the Alameda Creek Bridge Replacement Project does not propose to increase capacity in the corridor. The scope of the project is limited only to the 0.5 mile stretch of Route 84 between PM 13.0 and PM 13.6. Improvements to the rail system in the corridor are beyond the scope and funding available for this project.

**From:** tcecdonna@juno.com [mailto:tcecdonna@juno.com]  
**Sent:** Thursday, March 02, 2017 12:04 PM  
**To:** NilesCanyonProjects@DOT <NilesCanyonProjects@dot.ca.gov>  
**Subject:** Caltrans Alameda Creek Bridge Replacement Project

To: Caltrans District 4 Office of Environmental Analysis Attn: Elizabeth White 111 Grand Avenue, MS 8B Oakland, CA 94612

Re: Comments on Draft Environmental Impact Report for Alameda Creek Bridge Replacement Project

This letter is from the Tri-City Ecology Center.

We would like to add our support to the Caltrans Alameda Creek Bridge Replacement Project comment letter written by Alameda Creek Alliance, Citizens Committee to Complete the Refuge and Ohlone Audubon Society.

The letter was mailed to you March 1, 2017.

We enthusiastically concur with the Caltrans Alameda Creek Bridge Replacement Project letter.

Thank you,

Donna Olsen  
Tri-City ecology Center  
PO Box 674  
Fremont, CA 94537

CG-6.1

## **Response to Comment Letter CG-6: Tri-City Ecology Center**

### *Response to CG-6.1*

Caltrans acknowledges the support for the comment letter submitted by the Alameda Creek Alliance, Citizens Committee to Complete the Refuge, and Ohlone Audubon Society.

# Alameda Creek Bridge Replacement Project Comment Card



Comments on the Alameda Creek Bridge Replacement Project Revised Draft Environmental Impact Report/Environmental Assessment (EIR/EA) can be submitted at the public open-forum hearings, submitted via email to [nilescanyonprojects@dot.ca.gov](mailto:nilescanyonprojects@dot.ca.gov), or mailed to the address listed below.

Caltrans District 4, Office of Environmental Analysis  
Attn: Elizabeth White  
111 Grand Avenue MS 8B  
Oakland, CA 94612

**Please submit comments on the Revised Draft EIR/EA by Friday, March 3, 2017.**

Name: ROSEMARY CHANG  
Email or Mailing Address: RECHANG@COMCAST.NET  
Organization (if applicable): SCA C

**Comments:**

I think the Alameda County Parks, Recreation and Historical Commission should comment on the historical nature of the Alameda Creek Bridge. Perhaps Caltrans should make a presentation to this Commission. The selection of the piers could be discussed at this Commission.

I-1.1

## **Response to Comment Letter I-1: Rosemary Chang**

### *Response to I-1.1*

Alameda County Parks, Recreation, and Historical Commission was included on the distribution list of the Revised Draft EIR/EA. Although the bridge is not considered a State historic structure, Caltrans invites any guidance or recommendations made by the Alameda County Park Recreation and Historical Commission on the railing type.



# Alameda Creek Bridge Replacement Project Comment Card



Comments on the Alameda Creek Bridge Replacement Project Revised Draft Environmental Impact Report/Environmental Assessment (EIR/EA) can be submitted at the public open-forum hearings, submitted via email to [nilescanyonprojects@dot.ca.gov](mailto:nilescanyonprojects@dot.ca.gov), or mailed to the address listed below.

Caltrans District 4, Office of Environmental Analysis  
Attn: Elizabeth White  
111 Grand Avenue MS 8B  
Oakland, CA 94612

**Please submit comments on the Revised Draft EIR/EA by Friday, March 3, 2017.**

Name: Nancy Goumou

Email or Mailing Address: END@PACBell.net

Organization (if applicable):

## Comments:

Please ensure That the concrete portions of the bridge are treated to resist graffiti. This will be money well spent and a gift to the community for years to come.

I-2.1

Also, please do not select an option with a retaining wall. Hate it! The nets are much better.

I-2.2



## **Response to Comment Letter I-2: Nancy Coumou**

### *Response to I-2.1*

Caltrans proposes to apply aesthetic treatments of texture and/or color to the bridge. A sacrificial anti-graffiti coating may not be feasible due to proximity to the creek and habitats.

### *Response to I-2.2*

Alternative 3B would not include construction of a retaining wall. Please see Section 1.4.5 and Table 4 for more information.

# Alameda Creek Bridge Replacement Project Comment Card Letter I-3



Comments on the Alameda Creek Bridge Replacement Project Revised Draft Environmental Impact Report/Environmental Assessment (EIR/EA) can be submitted at the public open-forum hearings, submitted via email to [nilescanyonprojects@dot.ca.gov](mailto:nilescanyonprojects@dot.ca.gov), or mailed to the address listed below.

Caltrans District 4, Office of Environmental Analysis  
Attn: Elizabeth White  
111 Grand Avenue MS 8B  
Oakland, CA 94612

**Please submit comments on the Revised Draft EIR/EA by Friday, March 3, 2017.**

Name: Connie DeGrange

Email or Mailing Address: cdegrange@comcast.net

Organization (if applicable): Sono 1 resident

## Comments:

The EIR evaluates the cultural impacts and concludes they are significant. It lists 2 mitigations, Cultural-3 and Cultural-4. These are not mitigations. A sign and a photographic record do not mitigate the loss of the historic bridge railing.

Caltrans has the ability to install railings consistent with the cultural and resources and the environmental setting.

The railing should be consistent with the historic cultural setting. It should replicate the look of the existing bridge railing or the stone rail wall that fits in with the environment.

In addition, the proposed railing sends a message to drivers to drive fast over this modern new bridge.

I-3.1

I-3.2

## **Response to Comment Letter I-3: Connie DeGrange**

### *Response to I-3.1*

Previously, Caltrans had proposed to use Texas concrete rail in the project as it is a modern rail that mimics the existing rail's design. However, the Texas concrete rail was removed from consideration due to the lack of performance and safety data available necessary to approve its use. The currently proposed railing resembles the existing steel rail on the nearby Alameda Creek Bridge and Overhead. As described in Section 2.1.4.3, the proposed ST-70 metal rail type would have a more modern character, but would have great visual transparency, allowing better views through the railing to the creek. VISUAL-2 would be implemented to treat the new metal rail with a flat brown color to reduce glare and blend into the surrounding setting.



# Alameda Creek Bridge Replacement Project Comment C: Letter I-4



Comments on the Alameda Creek Bridge Replacement Project Revised Draft Environmental Impact Report/Environmental Assessment (EIR/EA) can be submitted at the public open-forum hearings, submitted via email to [nilescanyonprojects@dot.ca.gov](mailto:nilescanyonprojects@dot.ca.gov), or mailed to the address listed below.

Caltrans District 4, Office of Environmental Analysis  
Attn: Elizabeth White  
111 Grand Avenue MS 8B  
Oakland, CA 94612

Please submit comments on the Revised Draft EIR/EA by Friday, March 3, 2017.

Name: ROBERT FOSTER

Email or Mailing Address: robertfofoster@gmail.com

Organization (if applicable): \_\_\_\_\_

## Comments:

If the speed of traffic through the completed bridge chronically violates the posted limits, what else can be done to calm the traffic. Structures jutting out from the railing area would reasonably be considered "dangerous."

I-4.1

Can we be creative here? Trees planted outside the railings could be pruned to hang over the turnout, <sup>lane</sup> narrowing the "perspective" of the roadway leading to drivers accommodating their speed to the apparently narrowing of the road.

I-4.2

Or something else? *RF*

N.B: Any design that minimizes the need for retaining walls is good. 3B seems to do that along with other positive characteristics.

I-4.3

## **Response to Comment Letter I-4: Robert Foster (1)**

### *Response to I-4.1*

California Highway Patrol enforces speed limits on State Highways. Please see Section 1.4.1 for a description of the project's features. The project would include 35 mph advisory signs. The project does not propose to install any features that would jut out from the railing area.

### *Response to I-4.2*

If tree limbs are allowed to encroach too far into the traveled way, vehicles could impact the limbs, breaking them, and creating potential hazards. Also, maintaining the limbs such that they don't intrude into the traveled way would subject maintenance crews to unsafe conditions or require partial lane closures. Trees planted adjacent to the roadway are required to conform to safety setback standards for both public and maintenance safety Statewide.

### *Response to I-4.3*

Thank you for your comment.



PINK CARD

COMMENT CARD

Name (Please Print)

Robert Foster

Address (Home)

PO Box 6

city

SUNOL

state

CA

zip code

94586

Authorized Representative (Name of organization or agency)

Address (Business)

The "Retaining"

city

state

zip code

Comments:

The "Retaining" wall in 3B. Can the wire cover once installed be hydroseeded & be "irrigated" to promote faster growth? Can trees grow through the wire if holes are cut randomly giving them room?



For more comments use reverse side.

## **Response to Comment Letter I-5: Robert Foster (2)**

### *Response to I-5.1*

VISUAL-3 would be implemented to revegetate disturbed areas with permanent erosion-control grasses. Due to the angle of the new slope, tree and shrub plantings are not recommended.



**From:** Mick Hanou [mailto:mhanou@comcast.net]  
**Sent:** Wednesday, January 25, 2017 1:57 PM  
**To:** NilesCanyonProjects@DOT <NilesCanyonProjects@dot.ca.gov>  
**Subject:** Niles canyon center divider

Hello,

In response to the Wouden article in a recent Pleasanton Weekly – I disagree with him and am contacting you.

I travel Niles Canyon.

In my opinion a center divider in 84 is not worth the expense and would actually make it more dangerous.

The center divider might not allow a driver to avoid a hazard, or in doing so could deflect one off the road and down the bank. The idiots that now speed through Niles Canyon would likely start doing dumber things like passing on the shoulder, making it more dangerous for bikers.

Traffic speed cameras would be more effective for the cost. (or police presence).

My opinion is that you spend the money on more necessary improvements on 580 or 680.

Regards,

Mick Hanou

607 Blossom Ct.

Pleasanton, Ca 94566

925-425-3220

I-6.1

I-6.2

I-6.3

## **Response to Comment Letter I-6: Mike Hanou**

### *Response to I-6.1*

Installing a center divider on SR-84 is not part of the scope of the Alameda Creek Bridge Replacement Project.

### *Response to I-6.2*

Caltrans acknowledges the comment for the installation of cameras and police presence, however, the California Highway Patrol is responsible for traffic enforcement at the project location.

### *Response to I-6.3*

Thank you for your comment regarding improvements to I-580 and I-680.

# Alameda Creek Bridge Replacement Project Comment C Letter I-7



Comments on the Alameda Creek Bridge Replacement Project Revised Draft Environmental Impact Report/Environmental Assessment (EIR/EA) can be submitted at the public open-forum hearings, submitted via email to [nilescanyonprojects@dot.ca.gov](mailto:nilescanyonprojects@dot.ca.gov), or mailed to the address listed below.

Caltrans District 4, Office of Environmental Analysis  
Attn: Elizabeth White  
111 Grand Avenue MS 8B  
Oakland, CA 94612

**Please submit comments on the Revised Draft EIR/EA by Friday, March 3, 2017.**

**Name:** Nzingha Johnson

**Email or Mailing Address:** Nzingha.j@gmail.com

**Organization (if applicable):** SCA

## Comments:

like Vasco road from Livermore to Antioch

- Do you plan to put (flexible plastic stands) in the middle of the road like on Vasco road. So when two cars are driving ~~from~~ from two opposite directions, if one car goes over ~~the~~ into on-coming traffic, they will hit those flexible plastic stands 1st. Almost like a line of defense for cars on the other side of the road. I-7.1
- How high will the bridge ~~be~~ be from the creek? Increase the water rises really high. I-7.2
- How long will this project take? I-7.3
- Will there be barriers all along 84, so that individuals can't drive into other cars, the creek, etc. I-7.4
- Will you help make blind driveways + the small entrance onto 84 safer for all cars? I-7.5
- Will you provide fire hydrants or other safety equipment (help button for 911 if stranded) on 84 for police, ~~fire~~ firefighters, ~~common~~ common people? I-7.6
- I don't use 84 really. Many 2 every 5 years but how will you make it safer for all (bikes, cars + trucks)? I-7.7

➔  
Back

• How will you control the ~~the~~ traffic from 84 thru school (main st.)?

• Will you add a 84 east entrance from 680 south to go to Livermore without turning around on Calaveras + going back on ~~the~~ 680 North to get on ~~the~~ 84 east?

1-7.9

1-7.8

## **Response to Comment Letter I-7: Nzingha Johnson**

### *Response to I-7.1*

The project does not propose to install plastic channelizers in the middle of the road.

### *Response to I-7.2*

The new bridge would be approximately 18 feet above Alameda Creek.

### *Response to I-7.3*

The project is anticipated to begin in 2020 and would take three construction seasons over three years to build. To reduce impacts to steelhead and California red-legged frog, all work within aquatic habitat would occur within between June 1 and October 15. To reduce impacts to California red-legged frog and Alameda whipsnake, all work within suitable upland habitat would occur between March 1 and November 30.

### *Response to I-7.4*

The project limits are specific to the Alameda Creek Bridge and its approaches. Barriers along SR-84 is outside of the project scope. This information will be passed on to the appropriate Caltrans units.

### *Response to I-7.5*

The project limits are specific to Alameda Creek Bridge and its approaches. Improvements to blind driveways are outside the scope of this project. This information will be passed on to the appropriate Caltrans units.

### *Response to I-7.6*

No fire hydrants or call boxes are proposed for this project.

### *Response to I-7.7*

The scope of this project is specifically at Alameda Creek Bridge and its approaches. Caltrans recently completed the Niles Canyon Short-term Improvements Project and is currently developing the Niles Canyon Safety Improvements Project (Medium-Term Improvements) which are safety improvement projects.

### *Response to I-7.8*

The SR-84 and Main Street intersection is outside the scope of this project.

### *Response to I-7.9*

Improvements to SR-84 and I-680 interchange is outside the scope of this project.



-----Original Message-----

From: historian@nilesfilmmuseum.org [mailto:historian@nilesfilmmuseum.org]

Sent: Friday, March 03, 2017 10:53 PM

To: NilesCanyonProjects@DOT <NilesCanyonProjects@dot.ca.gov>

Subject: Alameda Creek Bridge Replacement Project

To Elizabeth White,

I realize my comments don't pertain directly to the project, but a CalTrans member at the Vallejo Mills School meeting stated that the stand of Eucalyptus trees south of the project would be cut down for safety reasons. I believe this would be a mistake. The trees have a calming effect as one drives by them. Without the trees, the road there is just a straightaway with blind curves on each end, not a safe thing with resulting speedups and slowdowns, something the staff said it wants to minimize. At previous meetings, accident reports show there have been no accidents directly by the trees, indicating their removal would not be necessary. The staff is purposely avoiding any harm to the aqueduct on the other side of the road opposite the trees because of its historic value.

The trees also have historic value. They were the location for dozens of films made by the Essanay Film Company from 1912 to 1916. Attached is a photo from Broncho Billy's Squareness, released in 1913, showing the trees. Their films show the trees from both directions along the road over 100 years ago. They were shown because of their scenic value, which is another point for keeping them. The view along this stretch of Scenic Highway would be profoundly changed without them, and might even be a distraction to motorists without them. I've heard of statements in the past to say Eucalyptus trees are a non-native species, and therefore could be cut down. I think trees that have been there for more than 100 years deserve Permanent Residency status. They may even help in erosion control, probably why they were planted there in the first place, because winter storms turn Alameda Creek into a raging river. As I said, cutting down these trees would be a mistake. I hope you consider this in future actions.

David Kiehn  
historian, Niles Essanay Silent Film Museum  
37417 Niles Blvd.  
Fremont, CA 94536  
510 494-1411

I-8.1



## **Response to Comment Letter I-8: David Kiehn**

### *Response to I-8.1*

Impacts to the proposed eucalyptus trees south of the Alameda Creek Bridge are not included in the scope of the Alameda Creek Bridge Replacement Project. Caltrans notes that the commenter is submitting a comment on the proposed Niles Canyon Safety Improvements Project (Medium-Term Improvements), a separate project in which the 45-day CEQA comment period ended on December 2, 2016. Your comment has been forward the proper functional units working on the Niles Canyon Safety Improvements Project.

# Alameda Creek Bridge Replacement Project Comment C Letter I-9



Comments on the Alameda Creek Bridge Replacement Project Revised Draft Environmental Impact Report/Environmental Assessment (EIR/EA) can be submitted at the public open-forum hearings, submitted via email to [nilescanyonprojects@dot.ca.gov](mailto:nilescanyonprojects@dot.ca.gov), or mailed to the address listed below.

Caltrans District 4, Office of Environmental Analysis  
Attn: Elizabeth White "Liz"  
111 Grand Avenue MS 8B  
Oakland, CA 94612

**Please submit comments on the Revised Draft EIR/EA by Friday, March 3, 2017.**

Name: Leonard Lloyd

Email or Mailing Address: leonardlloyd@me.com

Organization (if applicable): \_\_\_\_\_

## Comments:

It is important to minimize alterations to this scenic corridor, our local treasure, Niles Canyon Road, CA 84. Existing proposals to replace bridge over Alameda Creek cause immense damage to the scenic canyon. The simulated rock is so harsh compared to gentle vegetated slope of present.

I-9.1

Appreciate shoulder expansion for cyclists, as this is a popular cycling route.

I-9.2

I am concerned based on experience that drivers will speed more on the long arc with increased radius than they do now with two shorter radius turns that discourage speeding. There is nothing unexpected about the current curves. They are obvious to all.

I-9.3

## Response to Comment Letter I-9: Leonard Lloyd

### *Response to I-9.1*

Caltrans has made numerous changes to the project to reduce visual impacts and meet the project's purpose and need. The simulated rocks shown on Figure 22 is a feature of Alternative 1, which was not the selected alternative. Please see Figure 27, which shows the simulated view of the selected alternative after 15 years of vegetation growth.

### *Response to I-9.2*

Caltrans acknowledges the commenter's support.

### *Response to I-9.3*

In addition to what is described in Section 1.4.8, the following explanation addresses your comment in more specific detail.

Federal Highway Studies (Ref. 1 below) indicate that a 35 mph curve in conjunction with advanced warning measures cannot fully address the risk associated with speed differentials. The studies indicate that there is insignificant reduction in 85th percentile speeds as a result of most of these countermeasures. When "Adding Flashers to Existing Curve Warning Signs", the 85th percentile speeds go up by 1%. The "Advisory Speed Limit Sign as Supplemented to Horizontal Curve Warning Sign" would reduce the driver expected 45 mph speed to 38 mph (15% reduction), which exceeds the 35 mph design Alternative. In other words, as relevant to the Niles Canyon corridor and the Alameda Creek Bridge approaches, these advanced warning measures are not fully effective in reducing speeds as they run contrary to the motorist's expectation of a uniform speed in the corridor.

Furthermore, the majority type of accidents that have occurred in the Alameda Creek Bridge and its approaches are run-off-road, "hit object", head-on, and sideswipe type collisions. Primary collision factors were identified as unsafe speeding for prevailing geometric conditions and improper turns within the tight curve radius at the bridge approaches with limited horizontal sight distance. Crashes have occurred because motorists do not have enough time to adjust to this geometric constraint despite the posted advisory curve warning signs. The Federal Highway Studies (Ref. 1) indicate that even though some of these mitigation measures are found to provide partial safety effectiveness in terms of some crash mitigation, they are not fully effective in reducing speeding related crashes that currently exist within the Alameda Creek Bridge and its approaches. Similar type of collisions would continue to occur with the existing bridge approach alignment.

Studies reported by Zegeer et. al. (Ref. 2) have shown that increasing the radius of a horizontal curve can be very effective in improving the safety performance of a curve by reducing total curve-related crashes by up to 80 percent. These are documented in the National Cooperative Highway Research Report (Ref. 3). A bigger radius design curve presented as the preferred Alternative, that is both consistent with the corridor speed and has improved horizontal sight distance, would provide better safety performance by significantly reducing run-off-road, head-on, "hit-object", and sideswipe type collisions.

- 1.) Factors Influencing Operating Speeds and safety on Rural and Suburban Roads, FHWA Publication No. FHWA-HRT-15-030, May 2015.
- 2.) Zegeer, C., Stewart, R., Safety Effects of geometric improvements on horizontal curves. 17 Transportation Research Board. No. 1356. Washington D.C, 1992. pp.11-19.
- 3.) National Cooperative Highway Research Program (NCHRP), Report 500, Volume 7: A Guide for Reducing Collisions on Horizontal Curves.



**From:** Martha Matthiesen [mailto:mmattjj@gmail.com]  
**Sent:** Sunday, February 26, 2017 10:19 AM  
**To:** NilesCanyonProjects@DOT <NilesCanyonProjects@dot.ca.gov>  
**Subject:** Alameda Creek Bridge Replacement Project

Hi Elizabeth - it was nice meeting you at the meeting in Niles the other night and thank you for explaining everything so clearly to me.

I will just reiterate my top concerns and wishes:

I am stating my support for option 3B as it is described as the least impactful on the environment and does not involve any fake rock/concrete type hillside replacements to the beautiful trees and greenery that is there.

I-10.1

I want to know who holds Caltrans accountable for the tree replacement promise of 3-1 as was discussed in the meeting. Seems like this could get dragged on for years and people will forget and trees would end up not being replaced.

I-10.2

Very important to protect the creek and wildlife that depends on it. The creek is one of the things that makes Niles so beautiful. We want to keep it healthy.

I-10.3

By the way - your explanations of the plans and the information in the EIR were very easily understood. Thank you for taking the time to talk with me about it. Seems like you know that EIR inside and out. You were very articulate at the meeting. I hope your supervisor can read this email.

Martha Matthiesen

## **Response to Comment Letter I-10: Martha Matthiesen**

### *Response to I-10.1*

Caltrans acknowledges the commenter's support for Alternative 3B.

### *Response to I-10.2*

Caltrans is required by the regulatory agencies, such as CDFW and RWQCB, to mitigate for trees. The permit is a binding contract ensuring that mitigation occurs. These permits require Caltrans to submit the restoration and mitigation plans for approval, as well as monitoring plans for the planting activity.

Measure VISUAL-6. Niles Canyon Tree Planting Plan has been added to Section 2.1.4.4 to describe how UPLANDS-1 and RIPARIAN TREES-1 would be implemented. The plan would be completed during final design when a more precise project footprint is defined. The plan would follow the general framework below and would be further developed as the project design becomes more refined and jurisdictional agency permits are applied for and received.

- Description of Existing Conditions / Environmental Setting
- Objectives of Planting Plan
- Rationale for Expecting Implementation Success
- Responsible Parties
- Identification of Potential Planting Sites
- Site Preparation, Irrigation, and Planting Plans
- Maintenance Activities and Schedule
- Performance Standards & Reporting

### *Response to I-10.3*

Caltrans is making every feasible effort to minimize impacts to Alameda Creek and its surrounding habitat and will continue to work with project stakeholders to maintain its beauty.



# Alameda Creek Bridge Replacement Project Comment (Letter I-11)



Comments on the Alameda Creek Bridge Replacement Project Revised Draft Environmental Impact Report/Environmental Assessment (EIR/EA) can be submitted at the public open-forum hearings, submitted via email to [nilescanyonprojects@dot.ca.gov](mailto:nilescanyonprojects@dot.ca.gov), or mailed to the address listed below.

Caltrans District 4, Office of Environmental Analysis  
Attn: Elizabeth White  
111 Grand Avenue MS 8B  
Oakland, CA 94612

Please submit comments on the Revised Draft EIR/EA by Friday, March 3, 2017.

Name: Jim O'Laughlin

Email or Mailing Address: jto pol 3 @ comcast . NET

Organization (if applicable): Sono! Resident

## Comments:

The proposed bridge railing design is totally different from what exists. The current design has become a part of the Sono! & Niles Canyon cultural heritage. The proposed design changes the whole visual environment of the site and the Niles Canyon drive experience. Any mitigation at the site would be difficult, as is the case in many locations. Appropriate mitigation for this project, and many other improvement projects, could be achieved by implementing a project at the Four Corners in Sono!, that would restore the historic architectural features of the intersection. Half of the original are existing at the entrance to the Sono! Water Temple. This would be a way of mitigating the negative impacts on the visual and cultural elements in Niles Canyon. All who pass through the Canyon on Hwy. 84 would experience the restoration of the historical Four Corners as mitigation for all of the new visual distractions and the loss of the cultural significance of the Niles Canyon experience. Even when the project does not directly impact the cultural element, they are impacted in terms of visual impact and negatively impact the driving experience through the Canyon.

I-11.1

## **Response to Comment Letter I-11: Jim O’Laughlin**

### *Response to I-11.1*

Caltrans has made numerous changes to the project to reduce visual impacts and meet the project’s purpose and need. The proposed ST-70 metal rail type, while not made of concrete as the existing railing, does have a similar look to the Alameda Creek Bridge and Overhead that is located approximately 1 mile east of Alameda Creek Bridge. As described in Section 2.1.4.3, the proposed ST-70 metal rail type would have a more modern character, but would have great visual transparency, allowing better views through the railing to the creek. VISUAL-2 would be implemented to treat the new metal rail with a flat brown color to reduce glare and blend into the surrounding setting. In addition, the project would minimize visual impacts by constructing the roadway as a sidehill viaduct on columns and reducing rock cut. The changes to the visual character would remain subordinate in scale and dominance to the surrounding natural setting.

Please see Section 2.1.5.4, the project would implement CULTURAL-4 through 5 to document the Alameda Creek Bridge structure prior to demolition and place an interpretative panel at Vallejo Mill Park. The panel would discuss the history of transportation in Niles Canyon and the Alameda Creek Bridge’s role in transportation.

March 02, 2017

Caltrans District 4,  
Office of Environmental Analysis  
111 Grand Avenue, MS 8B  
Oakland, CA 94612  
Attn: Elizabeth White

via email to [nilescanyonprojects@dot.ca.gov](mailto:nilescanyonprojects@dot.ca.gov)

SUBJECT: Comments on Revised Draft EIR for SCH # 2010082001  
Alameda County, CA - District 4  
Proposed Replacement of the Alameda Creek Bridge

Dear Ms. White,

I provide the following comments to the Revised Draft EIR/EA for the Alameda Creek Bridge Replacement Project ("DEIR"):

1. The California Department of Transportation has designated the long, narrow historic road between Mission Blvd and I-680 an official state **scenic highway**.
  - a. As such, the priority shall be to preserve the road in its current form. Any mismatch between the design speed and driver expectations for operating speed shall be addressed by adjusting driver expectations rather than converting this scenic road into a high speed expressway. For example, the approach to the existing Alameda Creek Bridge should be modified to encourage slower driving. The priority has to be to discourage unsafe driving behavior, not to accommodate it. Insufficient effort was made to influence driver behavior. I-12.1
  - b. As in many years before, the 2016/17 winter season resulted in many closings of Niles Canyon Rd due to mudslides and flooding of the Alameda Creek. Niles Canyon Rd is inherently unreliable as a commuter artery and is naturally a recreational roadway that should be enjoyed leisurely when weather conditions permit. Unfortunately, the focus appears to be on converting Niles Canyon Rd into a routine high speed commuter artery, an effort that will require many more drastic changes to the existing roadway and surroundings and will lead to the piecemeal destruction of its historic and scenic features. This is not reflected in the narrow scope of this DEIR. I-12.2
2. The safety improvements promised as a result of the new bridge are projected using incorrect assumptions. Since the new bridge will have a higher design speed than the old bridge, operating speeds will increase, not just for the segment under consideration but overall expectations for operating speed for Niles Canyon Rd as a whole. I-12.3

- a. Even if the rate of accidents decreases modestly for the new bridge, the severity of collisions that do occur will increase due to the higher speeds enabled by the new bridge.
- b. Similarly, the rate as well as severity of collisions may increase in other parts of Niles Canyon due to the impact on overall driver expectation for operating speed.

I-12.3

- 3. The DEIR fails to accurately account for the full extent of induced demand by ignoring other projects along SR-84 that will cause significant cumulative effects. Many commuters use Niles Canyon Rd as a shortcut from I-680 to peninsula job centers via the Dumbarton Bridge. Since the new Alameda Creek bridge will increase design speed, it will attract more drivers to use Niles Canyon as a shortcut. This shortcut is made considerably more attractive by the East West Connector that is planned between Mission Blvd and I-880. Therefore, **the cumulative impact from all projects along Niles Canyon Rd that increase design speed, as well as the planned East West Connector in Union City and Fremont needs to be studied collectively to adequately project induced demand and its impact on Vehicle Miles Travelled and Greenhouse Gas Emissions.**

I-12.4

Best Regards,

Flavio Poehlmann



## **Response to Comment Letter I-12: Flavio Poehlmann**

### *Response to I-12.1*

Please see Section 1.2 for the project's purpose and need. In addition to addressing the driver expectations of SR-84 operating speed limit, the project is also needed to address deficiencies of the Alameda Creek Bridge and safety deficiencies.

### *Response to I-12.2*

This project is specific to the replacement of the Alameda Creek Bridge and would not have an effect on the corridor as a whole regarding commuter volume.

### *Response to I-12.3*

This project is not going to increase the design speed of the Niles Canyon roadway, which is 45 mph, except at a few spot locations. Despite the existing posted 30 mph and 35 mph advisory curve warning signs at the Alameda Creek bridge approaches, speed surveys show that drivers are not slowing down and continue to drive at speeds exceeding 35 mph. As a result, there continues to be curve related crashes at the bridge approaches. This project would further enhance traffic safety by increasing the eastern approach alignment to 40 mph design speed, which is closer to the 45 mph posted speed in the Niles Canyon corridor. For the western approach, the replacement project proposes to realign the bridge approach to 35 mph design speed from the existing 30 mph.

The improvement to the bridge approach curves, along with standard roadway width and standard shoulders would reduce the number and severity of crashes on the bridge and its approaches. The operating speed in the Niles Canyon corridor would remain at 45 mph and would not be impacted by the Alameda Creek Bridge Replacement Project.

### *Response to I-12.4*

The Alameda County Transportation Commission East-West Corridor Project has been added to Table 38. As stated in Section 1.2 which address the project's purpose and need, this project is not intended to affect regional transportation patterns nor is it increasing capacity for more vehicles along SR-84.



**From:** Michelle Powell [mailto:map117@comcast.net]  
**Sent:** Friday, March 03, 2017 6:30 AM  
**To:** NilesCanyonProjects@DOT <NilesCanyonProjects@dot.ca.gov>  
**Subject:** Comments on RDEIR for Alameda Creek Bridge Replacement Project

Sent via email to [nilescanyonprojects@dot.ca.gov](mailto:nilescanyonprojects@dot.ca.gov)

Caltrans District 4  
Office of Environmental Analysis

Attn: Elizabeth White  
111 Grand Avenue, MS 8B Oakland, CA 94612

RE: Comments on RDEIR for Alameda Creek Bridge Replacement Project

Ms. White:

Although I am sure that other citizens and community groups can best articulate the many, many concerns about this project, I would like to communicate my largest concerns:

### **Piecemealing**

This project is one of many planned for the Canyon. Caltrans insists that it is not piecemealing these projects, but this is indeed what is happening when it looks as though the agency is avoiding consideration of and communication to the public about the cumulative impacts of these projects on the canyon as a whole. It looks as if the plan is to make this roadway and higher-speed, higher-volume commuter route through these multiple projects, and the public deserves to know the impacts of all of these projects when considered together.

I-13.1

### **Public Perception - discarding original comments**

This RDEIR for the project replaces a January 2015 Draft Environmental Impact Report ("DEIR") for which Caltrans received numerous scoping comments and formal public comments from the public, the Alameda Creek Alliance, other community groups, regulatory agencies, and traffic and wildlife experts, expressing concerns about the lack of meaningful alternatives and severe environmental impacts from the project. As noted in the RDEIR, recirculation of the DEIR means that Caltrans now will not respond to any formal comments made on the January 2015 DEIR, but that the comments are "considered to be part of the project record and are kept within the project's file."

I-13.2

Given that the RDEIR fails to summarize the supposed new information that necessitated recirculation, and that the project appears to be substantially similar to the original project, the perception is that Caltrans is using the recirculation of the RDEIR in an attempt to ignore the extensive and significant comments on the project and requests for information made by the public, rather than to fully inform the public about the impacts of the project. Many of the comments raised by the Alameda Creek Alliance and members of the public in scoping



comments and comments on the 2015 DEIR remain unaddressed by the RDEIR. I am concerned that this seems to be an attempt to circumvent the public process and discard public comment and inquiry that Caltrans would rather not have to address.

I-13.2

Sincerely,  
Michelle Powell  
36966 Niles Blvd.  
Fremont, CA 94536

## **Response to Comment Letter I-13: Michelle Powell**

### *Response to I-13.1*

Caltrans currently has the following project planned along this section of SR-84: the Niles Canyon Safety Improvements Project (Medium-Term Improvements), the Arroyo de la Laguna Bridge Scour Project, and the Alameda Creek Bridge Replacement Project. All of these projects have independent utility, logical termini, and none propose an increase to posted speed limits. Each of these projects would undergo its own separate environmental process. These projects were taken into consideration in the Cumulative Impact Analysis, please see Section 2.4.2 for that discussion.

### *Response to I-13.2*

Due to the substantial amount of changes between the two documents, as referenced in the Preface at the beginning of the Revised Draft EIR/EA, the readers were directed to the numerous sections where those changes occurred. These substantial changes were a result of adding an Environmental Assessment under NEPA, clarifying the purpose and need, and expanding the alternatives considered, but eliminated section. With the addition of the Environmental Assessment, all of the individual resource sections were substantially revised to also include the compliance of federal laws and regulations. As a result, Caltrans recirculated the Draft Environmental Document per CEQA Guideline 15088.5.

Caltrans took into consideration the comments that were received in the original Draft EIR when preparing the Revised Draft EIR/EA in its best attempt to cover topic areas that were important to the public. The Final EIR/EA includes all comments received during the public review period for the Revised Draft EIR/EA with Caltrans' responses.



# Alameda Creek Bridge Replacement Project Comment C Letter I-14



Comments on the Alameda Creek Bridge Replacement Project Revised Draft Environmental Impact Report/Environmental Assessment (EIR/EA) can be submitted at the public open-forum hearings, submitted via email to [nilescanyonprojects@dot.ca.gov](mailto:nilescanyonprojects@dot.ca.gov), or mailed to the address listed below.

Caltrans District 4, Office of Environmental Analysis  
Attn: Elizabeth White  
111 Grand Avenue MS 8B  
Oakland, CA 94612

**Please submit comments on the Revised Draft EIR/EA by Friday, March 3, 2017.**

Name: DAN REASOR

Email or Mailing Address: CHALANDUR @ ATT.NET

Organization (if applicable): ALA CRK ALLIANCE SAVE OUR SUNOL

## Comments:

OFF SUBJECT?  
★ CONCERNING A ROUNDABOUT AT 84X  
SUNOL-PLEASANTON ROAD

★ CALTRANS INTERNAL DOCUMENTS STRONGLY  
FAVOR ROUNDABOUT INTERSECTIONS!

★ IF YOU MOVE THE ABOVE INTERSECTION  
APPROXIMATELY 150 YARDS TO THE EAST, MANY  
ISSUES WILL BE RESOLVED - TEMPLE GATES  
OUT OF MAJOR TRAFFIC - SFWD PLUMBING  
LESS DISTURBED... ALL FLAT GROUND

ALL SURROUNDING PROPERTY IS SFWD GROUND

★ THE CORRESPONDING INTERSECTION: 84X MONIST  
IS SURROUNDED BY SFWD LANDS - "EASILY"  
ACQUIRED... THE PUBLISHED CLAIM THAT THIS  
INTERSECTION WOULD BE "TOO DIFFICULT" TO  
CONSTRUCT AS A ROUNDABOUT IS NOT  
ACCURATE!

I-14.1

★ THE COMBINED ROUNDABOUTS WOULD INCREASE  
TRAFFIC FLOW, REDUCE SERIOUS ACCIDENTS  
AND FOLLOW YOUR INTERNAL GUIDELINES  
FOR NEW PROJECTS, AND SAFETY IMPROVEMENTS

## **Response to Comment Letter I-14: Dan Reasor**

### *Response to I-14.1*

Improvements at the Pleasanton-Sunol and SR-84 intersection are not included in the scope of the Alameda Creek Bridge Replacement Project. Caltrans notes that the commenter is submitting a comment on the proposed Niles Canyon Safety Improvements Project (Medium-Term Improvements), a separate project in which the 45-day CEQA comment period ended on December 2, 2016.



# Alameda Creek Bridge Replacement Project Comment Card



Comments on the Alameda Creek Bridge Replacement Project Revised Draft Environmental Impact Report/Environmental Assessment (EIR/EA) can be submitted at the public open-forum hearings, submitted via email to [nilescanyonprojects@dot.ca.gov](mailto:nilescanyonprojects@dot.ca.gov), or mailed to the address listed below.

Caltrans District 4, Office of Environmental Analysis  
Attn: Elizabeth White  
111 Grand Avenue MS 8B  
Oakland, CA 94612

**Please submit comments on the Revised Draft EIR/EA by Friday, March 3, 2017.**

Name: JOHN WEED

Email or Mailing Address: JHWEED@AOL.COM

Organization (if applicable): \_\_\_\_\_

## Comments:

REQUEST THE EIR/EA SPECIFICALLY ADDRESS THE  
AQUEDUCT ON THE SOUTH SIDE OF ALAMEDA  
CREEK.

IS THE AQUEDUCT IDENTIFIED AS AN HISTORICAL  
RESOURCE? CONSTRUCTED BY SPRING VALLEY  
WATER COMPANY IN THE EARLY 1900'S, LATER  
ACQUIRED BY SAN FRANCISCO (CURRENTLY THE  
AQUEDUCT AND ASSOCIATED RIGHT OF WAY ARE ~~THE~~  
ASSETS OF SAN FRANCISCO PUBLIC UTILITIES COMMISSION.

THE AQUEDUCT WAS IN FULL OPERATION UNTIL  
1996, AND IN LIMITED OPERATION UNTIL 2004.

THIS AQUEDUCT HAS A POTENTIAL USE FOR  
WATER SUPPLY TO THE ALAMEDA COUNTY WATER DISTRICT  
(FREMONT-NEWARK-UNION CITY) CONVEYING WATER  
VIA A NEW PIPELINE LAID IN THE EXISTING  
APPROXIMATE 7-FEET HIGH - 6- FEET WIDE BOX  
AQUEDUCT WOULD BE A COST EFFECTIVE MEANS  
TO DELIVER SOUTH BAY AQUEDUCT WATERS (CALIFORNIA  
DEPT OF WATER RESOURCES) SFPUC WATERS, AND  
LOCAL RUNOFF (ALAMEDA CREEK WATERSHED TO  
THE GROUND WATER PERCOLATION PITS, KNOWN AS  
~~THE~~ BUNTING PIT & QUAND LAKES.

(COVER)

I-15.1



# Alameda Creek Bridge Replacement Project Comment Card

Letter I-15



Comments on the Alameda Creek Bridge Replacement Project Revised Draft Environmental Impact Report/Environmental Assessment (EIR/EA) can be submitted at the public open-forum hearings, submitted via email to [nilescanyonprojects@dot.ca.gov](mailto:nilescanyonprojects@dot.ca.gov), or mailed to the address listed below.

Caltrans District 4, Office of Environmental Analysis  
Attn: Elizabeth White  
111 Grand Avenue MS 8B  
Oakland, CA 94612

**Please submit comments on the Revised Draft EIR/EA by Friday, March 3, 2017.**

Name: JOHN WEED

Email or Mailing Address: JHWEED@AOL.COM

Organization (if applicable): \_\_\_\_\_

## Comments:

THE DOCUMENT DOES NOT APPEAR TO IDENTIFY ~~THE~~ POTENTIAL ROUTINGS FOR THE NILES CANYON TRAIL. THE "TRAIL" STUDY IS ON-GOING AND POTENTIAL ROUTES HAVE BEEN INCLUDED IN STUDIES.

I-15.2

THE EAST BAY REGIONAL PARK DISTRICT IS THE LEAD AGENCY, WITH SUPPORT FROM ALAMEDA COUNTY, MR CHRIS MILEY, OFFICE OF ~~THE~~ SUPERVISOR RICHARD VALLE, DISTRICT 2, ALAMEDA COUNTY BOARD OF SUPERVISORS IS A CONTACT PERSON.



## **Response to Comment Letter I-15: John Weed**

### *Response to I-15.1*

Please see Section 2.1.5.2 for the description of the Sunol Aqueduct and Section 2.1.5.3 for the project's impact to the aqueduct. The State Historic Preservation Office concurred with Caltrans' determination that the project would have no adverse effect on the Sunol Aqueduct on June 18, 2015.

### *Response to I-15.2*

Caltrans has been in coordination with the Niles Canyon Trail sponsors, has attended the technical advisory committee meetings, and will continue to participate in this important regional multi-modal enhancement project. Although the Niles Canyon Trail is early in the project development process, the Alameda Creek Bridge Replacement Project will not conflict with or preclude the future trail.



# Alameda Creek Bridge Replacement Project Comment Card



Comments on the Alameda Creek Bridge Replacement Project Revised Draft Environmental Impact Report/Environmental Assessment (EIR/EA) can be submitted at the public open-forum hearings, submitted via email to [nilescanyonprojects@dot.ca.gov](mailto:nilescanyonprojects@dot.ca.gov), or mailed to the address listed below.

Caltrans District 4, Office of Environmental Analysis  
Attn: Elizabeth White  
111 Grand Avenue MS 8B  
Oakland, CA 94612

**Please submit comments on the Revised Draft EIR/EA by Friday, March 3, 2017.**

**Name:** Laura Winter

**Email or Mailing Address:** \_\_\_\_\_

**Organization (if applicable):** \_\_\_\_\_

**Comments:**

Changing the bridge alignment to one single smooth curve is a very good improvement. It improves safety. It also still allows traffic to flow on a road that is intended to, and is needed to, carry cars.

I-16.1

## **Response to Comment Letter I-16: Laura Winter**

### *Response to I-16.1*

Caltrans acknowledges the commenter's support for the Alameda Creek Bridge Replacement Project.

Caltrans District 4, Office of Environmental Analysis  
Attn: Elizabeth White  
111 Grand Avenue MS 8B  
Oakland, CA 94612

February 16, 2017

Dear Caltrans,

How many more people have to die in order to make critical safety changes in Niles Canyon? One more is too many. Driving through Niles Canyon is a harrowing and dangerous experience. The main issue is narrow width of the road and lack of an adequate safety shoulder in the majority of the drive. This means that if a driver traveling the opposite direction crosses the midline, you have no direction in which to escape. In this situation, you would be forced to choose between taking the head-on collision, running into the rock wall on one side, or potentially going off a cliff on the other side. In my opinion, this is a major factor leading to the high injury and fatality rate on this road. The danger is exacerbated by several tight turns in the canyon which predispose to drivers crossing the midline.

Action has to be taken before any more tragedy takes place on this road. The ultimate solution to the danger in Niles Canyon is to add a divider barrier in the center of the road. This would separate the oncoming traffic in either direction. This would dramatically increase the safety of driving through the canyon and dramatically reduce the fatalities.

I grew up near a canyon that shares some features with Niles Canyon, called Sardine Canyon. This connects Brigham City to Logan in Utah. We would frequently hear of deaths in Sardine Canyon from head-on collisions. In fact, during senior year of high school, one of my classmates died in a head-on collision in the canyon. Eventually, Utah transportation added a center divider in Sardine Canyon to separate the oncoming traffic. Since they have done this, the fatality rate in the canyon has plummeted. Similarly, Highway 17 in California became MUCH safer with the addition of the center divider. This means lives are being saved in both locations.

Niles Canyon certainly warrants a similar center divider as well as widening of the safety shoulders. This would lead directly to the preservation of life by preventing head-on collisions.

A neurosurgeon at Washington Hospital turned into one of the "statistics" for Niles Canyon. He was involved in a major motor vehicle accident in Niles Canyon, ended up in the intensive care unit for an extended period of time, and eventually died. This happened before I began working at Washington Hospital and has been relayed to me by my colleagues.

Other colleagues of mine who must drive through the canyon to reach Washington Hospital tell me of their daily fear driving through the canyon, and several of them refuse to drive through the canyon at night for fear of their safety. In addition, one of my ultrasound technologists at Washington Hospital lives in Pleasanton and is an avid biker. Some of her biking takes her through Niles Canyon, but she tells me that it is an extremely scary proposition due to the narrow character of the road and lack of shoulder

I-17.1



space for a biker. One of my partner physicians at Washington Hospital, Dr. Jason Cheng, grew up in Livermore. He tells me that when he was younger, he used to drive through Niles Canyon frequently. Now, however, he avoids the canyon at all costs. The tragic event with his neurosurgeon colleague helped him realize the gravity of the danger.

I know that certain citizen groups voice concern over plans to upgrade Niles Canyon. I understand their environmental concerns. However, I feel that they are a vocal minority. Some of them are likely not forced to drive through Niles Canyon on a daily basis, like many of us who live in the Tri-Valley area do.

Even with widening of the road and removal of trees immediately adjacent to the road, many beautiful trees will remain in Niles Canyon. The drive will remain scenic. We do not need the trees that are so close to the road that they prevent widening for safety.

If we choose a few trees over safety widening of the road, this means that we are choosing trees over people's lives. As a physician, I am acutely aware of this, as I am involved every day in the effort to preserve life. We must ask ourselves: Which has more value, the tree immediately adjacent to the road, or the person who will die because the road is too narrow and is unable to escape a head-on collision?

I urge you to consider adding a center divider to Niles Canyon and widen the road. You will be saving lives.

Please feel free to contact me if you would like any further discussion or clarification. You can reach me at my Washington Hospital direct number 510-608-6187, cell phone 925-699-5097, or email [jwouden@post.harvard.edu](mailto:jwouden@post.harvard.edu).

Sincerely,



Jacob Wouden, MD  
Washington Hospital  
2000 Mowry Ave, Fremont, CA 94538  
925-699-5097 (cell)  
510-608-6187 (work)  
510-578-5266 (fax)  
[jwouden@post.harvard.edu](mailto:jwouden@post.harvard.edu)

I-17.1

## **Response to Comment Letter I-17: Jacob Wouden**

### *Response to I-17.1*

Impacts to the proposed eucalyptus trees south of the Alameda Creek Bridge are not included in the scope of the Alameda Creek Bridge Replacement Project. Caltrans notes that the commenter is submitting a comment on the proposed Niles Canyon Safety Improvements Project (Medium-Term Improvements), a separate project in which the 45-day CEQA comment period ended on December 2, 2016. Your comment has been forward the proper functional units working on the Niles Canyon Safety Improvements Project.



## **CHAPTER 5. LIST OF PREPARERS**

### *California Department of Transportation*

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Jimmy Chao, Transportation Engineer, Office of Design - East

Stefan Galvez-Abadia, Office Chief, Office of Environmental Analysis

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Elizabeth White, Associate Environmental Planner, Office of Environmental Analysis

Emily Chen, Associate Environmental Planner, Office of Environmental Analysis

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Elizabeth Krase Greene, Senior Environmental Planner (Architectural History), Office of Cultural Resource Studies

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Kathryn Rose, Senior Environmental Planner (Archeology), Office of Cultural Resource Studies

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Lydia Mac, Senior Landscape Architect, Office of Landscape Architecture

Keith Suzuki, Landscape Associate, Office of Landscape Architecture

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Chris Wilson, Senior Transportation Engineer, Office of Environmental Engineering

Keith Fang, Transportation Engineer, Office of Environmental Engineering

Saif Mamoon, Transportation Engineer, Office of Traffic Systems

*Garcia & Associates*

Jason Minton, Wildlife Biologist

Alex Pries, Wildlife Biologist

*William Kanemoto & Associates*

William Kanemoto, Principal Landscape Architect

*WRECO*

Grant Wilcox, Senior Engineer/Project Manager

## CHAPTER 6. DISTRIBUTION LIST

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75 Hawthorne Street  
San Francisco, CA 94105-3901

Natural Resources Conservation Service  
Area I  
1345 Main Street  
Red Bluff, CA 96080

National Marine Fisheries Service  
Attn: Darren Howe  
777 Sonoma Avenue Room 325  
Santa Rosa, CA 95404

U.S. Army Corps of Engineers  
Division Chief, Regulatory Branch  
Attn: Katerina Galacatos  
1455 Market Street, 16<sup>th</sup> Floor  
San Francisco, CA 94103-1398

U.S. Fish and Wildlife Service  
2800 Cottage Way W-2605  
Sacramento, CA 95825

### *State Agencies*

California Transportation Commission  
1120 N. Street, Room 2221 (MS-52)  
Sacramento, CA 95814

State Clearinghouse, Executive Officer  
1400 Tenth Street, Room 156  
P.O. Box 3044  
Sacramento, CA 95812-3044

Bay Area Air Quality Management District  
Attn: Alison Kirk  
375 Beale Street, Suite 600  
San Francisco, CA 94105

California Air Resources Board  
Attn: Richard Corey  
1001 I Street  
P.O. Box 2815  
Sacramento, CA 95812

California Department of Conservation  
Attn: John Laird  
801 K Street, MS 24-01  
Sacramento, CA 95814

California Department of Fish & Wildlife  
Region 3  
Attn: Regional Manager Scott Wilson  
7329 Silverado Trail  
Napa, CA 94558

California Highway Patrol,  
Attn: Special Projects Section  
4999 Gleason Drive  
Dublin, CA 94568

California Office of Historic Preservation  
Attn: Julianne Polanco  
1416 Ninth Street, Room 1442  
Sacramento, CA 95814

California Public Utilities Commission  
Attn: Paul Clanon  
505 Van Ness Avenue  
San Francisco, CA 94102

Department of Toxic Substances Control  
1001 I Street  
Sacramento, CA 95814-2828  
P.O. Box 806  
Sacramento, CA 95812

Native American Heritage Commission  
Attn: Cynthia Gomez  
1550 Harbor Blvd, Suite 100  
West Sacramento, CA 95691

Regional Water Quality Control Board  
District 2  
Attn: Dale Bowyer  
1515 Clay Street, Suite 1400  
Oakland, CA 94612

State Mining & Geology Board  
801 K Street, Suite 2015  
Sacramento, CA 95814

San Francisco Public Utilities Commission  
Attn: Tim Ramirez  
525 Golden Gate Avenue, 10<sup>th</sup> Floor  
San Francisco, CA 94102

San Francisco Public Utilities Commission  
Attn: Joanne Wilson  
1657 Rollins Road  
Burlingame, CA 94010

California Office of Emergency Services  
3650 Schriever Avenue  
Mather, CA 95655

*Regional Agencies*

Association of Bay Area Governments  
Attn: Julie Pierce  
375 Beale Street, Suite 700  
San Francisco, CA 94105

Metropolitan Transportation Commission  
Steve Heminger, Executive Director  
375 Beale Street, Suite 800  
San Francisco, CA 94105

*County Agencies*

Alameda County  
Attn: Clerk of the Board of Supervisors  
1221 Oak Street, Suite 536  
Oakland, CA 94612

Alameda County Public Works Agency  
Attn: Kwablah Attiogbe  
399 Elmhurst Street  
Hayward, CA 94544

Alameda County Planning Commission  
Attn: Albert Lopez  
224 West Winton, Room 111  
Hayward, CA 94544

Alameda County Planning Commission  
Attn: Alameda County Parks, Recreation,  
and Historic Commission  
224 West Winton, Room 111  
Hayward, CA 94544

Alameda County Planning Commission  
Attn: Sunol Citizens Advisory Committee  
224 West Winton, Room 111  
Hayward, CA 94544

Alameda County Water District  
Attn: Douglas Chun  
43885 South Grimmer Boulevard  
Fremont, CA 94538

*Other*

City of Fremont Public Works Department  
Attn: Hans F. Larsen  
39550 Liberty Street, P.O. Box 5006  
Fremont, CA 94537-5006

East Bay Regional Park District  
Attn: Suzanne Wilson  
2950 Peralta Oaks Court  
Oakland, CA 94605

Pacific Locomotive Association  
Attn: Donna Alexander  
P.O. Box 515  
Sunol, CA 94586

*Elected Officials*

The Honorable Ro Khanna  
United States Congress, District 17  
900 Lafayette Street, Suite 206  
Santa Clara, CA 95050

The Honorable Kamala Harris  
United States Senate  
50 Nations Plaza, Rooms 5584& 5598  
San Francisco, CA 94102

The Honorable Dianne Feinstein  
United States Senate  
One Post Street, Suite 2450  
San Francisco, CA 94104

The Honorable Bob Wieckowski  
California State Senate, District 1  
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The Honorable Catherine Baker  
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The Honorable Kansen Chu  
California State Assembly, 25<sup>th</sup> District  
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California State Assembly, 20<sup>th</sup> District  
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3300 Capital Avenue  
Fremont, CA 94538

Mr. Rick Jones  
Vice Mayor, City of Fremont  
3300 Capital Avenue  
Fremont, CA 94538

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Councilmember, City of Fremont  
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Fremont, CA 94538

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Councilmember, City of Fremont  
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Fremont, CA 94538

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Councilmember, City of Fremont  
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Mr. Scott Haggerty  
Alameda County Board of Supervisors  
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Attn: Marianne Payne  
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Mr. Richard Valle  
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Mrs. Wilma Chan  
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Mr. Keith Carson  
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## CHAPTER 7. REFERENCES

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# **APPENDICES**



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## **Appendix A: CEQA Checklist**

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**CEQA Environmental Checklist****04-ALA-84****13.0/13.6****16030**

Dist.-Co.-Rte.

P.M/P.M.

E.A.

This checklist identifies physical, biological, social and economic factors that might be affected by the proposed project. In many cases, background studies performed in connection with the projects indicate no impacts. A NO IMPACT answer in the last column reflects this determination. Where there is a need for clarifying discussion, the discussion is included either following the applicable section of the checklist or is within the body of the environmental document itself. The words "significant" and "significance" used throughout the following checklist are related to CEQA, not NEPA, impacts. The questions in this form are intended to encourage the thoughtful assessment of impacts and do not represent thresholds of significance.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less-than- significant impact	No Impact
<b>I. AESTHETICS:</b> Would the project:				
a) Have a substantial adverse effect on a scenic vista	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>II. AGRICULTURE AND FOREST RESOURCES:</b> In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and the forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<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"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less-than- significant impact	No Impact
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"/>

**III. AIR QUALITY:** Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:

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"/>

**IV. BIOLOGICAL RESOURCES:** Would the project:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less-than- significant impact	No Impact
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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**V. CULTURAL RESOURCES:** Would the project:

a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input 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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input 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"/>

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

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 checked="" type="checkbox"/>	<input 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 checked="" type="checkbox"/>	<input type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less-than- significant impact	No Impact
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input 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 checked="" type="checkbox"/>	<input type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**VII. GREENHOUSE GAS EMISSIONS:** Would the project:

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

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

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.

**VIII. HAZARDS AND HAZARDOUS MATERIALS:** Would the project:

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>



	Potentially Significant Impact	Less Than Significant with Mitigation	Less-than- significant impact	No Impact
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 type="checkbox"/>	<input checked="" 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"/>
<b>IX. HYDROLOGY AND WATER QUALITY:</b> Would the project:				
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 checked="" type="checkbox"/>	<input 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 checked="" type="checkbox"/>	<input 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 checked="" type="checkbox"/>	<input type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less-than- significant impact	No Impact
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 checked="" type="checkbox"/>	<input 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"/>
<b>X. LAND USE AND PLANNING:</b> Would the project:				
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 checked="" type="checkbox"/>	<input type="checkbox"/>
<b>XI. MINERAL RESOURCES:</b> Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<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"/>
<b>XII. NOISE:</b> Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less-than- significant impact	No Impact
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"/>

**XIII. POPULATION AND HOUSING:** Would the project:

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"/>

**XIV. PUBLIC SERVICES:**

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input 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"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less-than- significant impact	No Impact
<b>XV. RECREATION:</b>				
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"/>
<b>XVI. TRANSPORTATION/TRAFFIC:</b> Would the project:				
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 type="checkbox"/>	<input checked="" type="checkbox"/>
<b>XVII. TRIBAL CULTURAL RESOURCES:</b> Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less-than- significant impact	No Impact
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"/>

**XVIII. UTILITIES AND SERVICE SYSTEMS:** Would the project:

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 storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input 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 checked="" type="checkbox"/>	<input type="checkbox"/>

**XIX. MANDATORY FINDINGS OF SIGNIFICANCE**

a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>



## **Appendix B: Section 4(f) *De Minimis* Determination**



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## Section 4(f)

### Introduction

Section 4(f) of the Department of Transportation Act of 1966, codified in federal law at 49 United States Code (USC) 303, declares that “it is the policy of the United States Government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites.”

Section 4(f) specifies that the Secretary [of Transportation] may approve a transportation program or project requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance, or land of an historic site of national, state, or local significance (as determined by the federal, state, or local officials having jurisdiction over the park, area, refuge, or site) only if:

- there is no prudent and feasible alternative to using that land; and
- the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use.

Section 4(f) further requires consultation with the Department of the Interior and, as appropriate, the involved offices of the Department of Agriculture and the Department of Housing and Urban Development in developing transportation projects and programs that use lands protected by Section 4(f). If historic sites are involved, then coordination with the State Historic Preservation Officer (SHPO) is also needed.

The environmental review, consultation, and any other action required in accordance with applicable federal laws for this project is being, or has been, carried out by Caltrans under its assumption of responsibility pursuant to 23 USC 327.

### Description of Proposed Project

The California Department of Transportation (Caltrans) is proposing to replace the Alameda Creek Bridge and realign the bridge approaches on State Route 84 (SR-84) from postmile 13.0 to 13.6 in southern Alameda County. The Alameda Creek Bridge Replacement Project would address the structural deficiencies of the Alameda Creek Bridge while improving safety by replacing the bridge and realigning the approaches. The purpose of the proposed Alameda Creek Bridge Replacement Project is to correct structural deficiencies of the Alameda Creek Bridge and its approaches while providing a facility that meets driver expectations of SR-84’s operating speed, all of which improve safety. The new bridge would be constructed approximately 75 feet north of the existing Alameda Creek Bridge. Detailed project descriptions of all four proposed Alternatives are located in Chapter 1 of the Revised Draft Environmental Impact Report/Environmental Assessment for the Alameda Creek Bridge Replacement Project.

### List and Description of Section 4(f) Properties

Five resources within 0.5 miles of the Alameda Creek Bridge Replacement Project limits, including the Alameda Creek Bridge itself, were evaluated relative to the requirements of Section 4(f). Table B-1 lists the name of the resource evaluated relative to 4(f) requirements and whether or not the resource was determined to be a 4(f) resource.

**Table B-1. Resources Evaluated Relative to the Requirements of Section 4(f)**

Name	Potential 4(f) Type of Property	Determined to be a 4(f) Resource?
Niles Canyon Railway	Parks and Recreation Property	Yes
Stonybrook Park	Parks and Recreation Property	No
Sunol Aqueduct	Historic Site	Yes
Niles Canyon Transcontinental Historic District	Historic Site	Yes
Alameda Creek Bridge	Historic Site	No

Out of the five resources listed above, Section 4(f) does apply to the Niles Canyon Transcontinental Historic District as all Alternatives of the proposed Alameda Creek Bridge Replacement Project constitute a “use” of this Section 4(f) resource (see detailed discussion below under Section 4(f) *de minimis* Determination heading). The remaining potential 4(f) resources (Stonybrook Park, Niles Canyon Railway<sup>73</sup>, the Sunol Aqueduct, and the Alameda Creek Bridge) are evaluated under the “Resources Evaluated Relative to the Requirements of Section 4(f)” heading further below.

### **Section 4(f) *de minimis* Determination**

Section 6009(a) of SAFETEA-LU amended Section 4(f) legislation at 23 United States Code (USC) 138 and 49 USC 303 to simplify the processing and approval of projects that have only *de minimis* impacts on lands protected by Section 4(f). This revision provides that once the U.S. Department of Transportation (USDOT) determines that a transportation use of Section 4(f) property, after consideration of any impact avoidance, minimization, and mitigation or enhancement measures, results in a *de minimis* impact on that property, an analysis of avoidance alternatives is not required and the Section 4(f) evaluation process is complete. FHWA’s final rule on Section 4(f) *de minimis* findings is codified in 23 Code of Federal Regulations (CFR) 774.3 and CFR 774.17.

Responsibility for compliance with Section 4(f) has been assigned to Caltrans pursuant to 23 USC 326 and 327, including determinations and approval of Section 4(f) evaluations, as well as coordination with those agencies that have jurisdiction over a Section 4(f) resource that may be affected by a project action.

### *Niles Canyon Transcontinental Railroad Historic District*

As identified in Table B-2, all Alameda Creek Bridge Replacement Project Alternatives require right-of-way from Alameda County for modifications to existing SR-84 facilities and construction of new facilities for the project. The boundaries of the NCTR Historic District vary in width from 100 feet to 400 feet along the length of the Niles Canyon Railway (National Register of Historic Places, 2010). The boundaries are located within property that is owned by the County of Alameda and leased to the non-profit Pacific Locomotive Association for its preservation and use as an operating railroad museum (National Register of Historic Places, 2010).

<sup>73</sup> The Niles Canyon Railway operates within the Niles Canyon Transcontinental Historic District as a living history museum to increase public education, enjoyment, and appreciation of the American railroad (Niles Canyon Railway, 2014). While the trains operating on the Niles Canyon Railway are not eligible for the NRHP, the Niles Canyon Railway is evaluated as recreational facility per the requirements of Section 4(f).

**Table B-2. Right-of-Way Requirements**

Alternative	Alameda County Railway (square feet)	
	Fee	Temporary Construction Easement
1	97,140	None
2	54,006	None
3A	75,099	4,108
3B	75,099	3,782

While the project requires right-of-way that is considered part of the Niles Canyon Transcontinental Railroad (NCTR)'s Historic District, it will not directly affect any man-made element of the NCTR. The integrity of the setting for 0.5 miles of the NCTR's 11.6 mile length (4% of the total) would be minimally affected during construction of the Alameda Creek Bridge.

Indirect visual impacts during construction are expected to be negligible given the limited exposure of viewers to the proposed project area and the speed of the train through the project vicinity. Furthermore, the viewshed of the roadway and the new bridge from the railroad would remain substantially the same after the construction of the new Alameda Creek Bridge. Extensive, dense, mature riparian vegetation along Alameda Creek, west of the Niles Canyon Railway line, currently screens or strongly filters views to the existing bridge and this would continue to be true for the replacement bridge as seen from the Niles Canyon Railway. The vegetation that is removed to make way for the new western approach will be offset by the planting of new vegetation in the former's alignment. Following the completion of the project, there would still be plentiful vegetation situated between the roadway and the railroad obscuring the view of any changes to the setting both within and without the NCTR Historic District.

There would be indirect visual impacts on the eastern approach. For Alternative 1, a Type 1 concrete retaining wall, up to 36 feet in height, facing the creek and railroad, would support the roadway and would be intermittently visible through intervening tree canopy. Alternative 2 would have 470 feet of uphill rock cut with anchored wire mesh and erosion control netting. Like Alternative 1, the roadway would also be supported in this section by a concrete Type 1 retaining wall of similar length (1,150 feet) and maximum height of approximately 23 feet. As discussed above, rock cuts would be less visually intrusive than soil-nail walls, particularly in the long term after revegetation begins to establish. The downhill wall would be substantially similar to Alternative 1, and would be largely screened by creek-side vegetation. Alternatives 2, 3A, and 3B would appear similar in configuration from this viewpoint. The mostly momentary views of the project from the Niles Canyon Railway, seen through a substantial buffer of tree canopy east and west of the creek, are not anticipated to dominate Niles Canyon Railway viewers' attention or substantially alter their experience of the overall setting for any of the Alternatives.

Impacts associated with temporary noise levels during construction are anticipated to be negligible as passengers on the train would have limited exposure to the area due to the speed of the train. Similar to noise impacts, air quality impacts associated with the project are also anticipated to be negligible given passengers lack of exposure to the project vicinity. No substantial long-term air quality effects would result from the proposed project nor would any sensitive receptors be affected by emissions given their limited exposure.

The scenic and rugged setting outside the historic district boundaries, largely unchanged from the period of the line's original construction in 1865-1869, contribute to the eligibility of the NCTR Historic District. A key concept, however, is that trees adjacent to the roadway and railroad have been cut down and regrown periodically such as during initial construction of the NCTR and during construction and realignments or alterations of the highway. Alameda Creek Bridge was constructed in 1928 and does not contribute to the significance of the NCTR Historic District, and there are no other built resources outside the district's boundaries identified as contributing features of the NCTR's setting. The Alameda Creek Bridge Replacement Project would not substantially change or alter the scenic, rural, and rugged nature of the setting nor would the project permanently diminish the integrity of the property's location, feeling, design, materials, workmanship, or association. Once remediation of the work area is completed through hydroseeding and regrading, the resulting setting will be almost indistinguishable from its original state (Caltrans, 2015d). Therefore, Caltrans' Office of Cultural Resource Studies found the project would have "No Adverse Effect" on the NCTR Historic District.

The agency with jurisdiction for the historic property is the State Historic Preservation Officer (SHPO). On May 29, 2014, the SHPO programmatically agreed in a letter to Caltrans that the Section 106 Programmatic Agreement (PA) requires written concurrence from the SHPO if there is a finding of "No Adverse Effect (without Standard Conditions)". The letter further states that Caltrans may make a *de minimis* determination with the above findings and that this letter serves as written concurrence for the purpose of Section 4(f) determinations.

To make a *de minimis* determination on historic sites, there must be a Section 106 finding of "No Adverse Effect". A Section 106 findings of "No Adverse Effect" was completed by Caltrans' Office of Cultural Resource Studies on May 11, 2015 and the SHPO concurred with this finding on June 18, 2015. The "use" of NCTR Historic District is considered minimal or *de minimis* because the viewshed of the roadway and the new bridge would remain substantially the same after construction and the project would not affect the features and attributes that qualify the resource to be eligible on the NRHP. Once remediation of the work area is completed through hydroseeding and regrading, the resulting setting will be almost indistinguishable from its original state (Caltrans, 2015d). Therefore, Caltrans determined that all Alameda Creek Bridge Replacement Project Alternatives would have a *de minimis* impact to the NCTR.

### **Measures to Minimize Harm to the Section 4(f) Property**

Implementation of the following measures will further minimize harm to the NCTR Historic District:

**UPLAND TREES-1.** During the design phase of the project, Caltrans' Office of Biological Science and Permits would work with the Caltrans Design team to avoid and minimize project impacts to upland trees. Efforts to preserve trees in place (by designating trees on plan sheets and marking trees with Environmentally Sensitive Area fencing) would be made to avoid or minimize project impacts to trees located in temporarily impacted areas. For upland trees that are removed, Caltrans would provide tree replacement on-site at a minimum 1:1 ratio in the existing SR-84 alignment, to maximize the given space available. Caltrans anticipates that no off-site planting would be needed for upland trees as of December 2015. However, in the event that off-site planting is determined necessary, potential planting locations would be identified working with local stakeholders, private landholders, and public agencies including, but not limited to, East Bay Regional Parks District, Alameda County, and San Francisco Public Utilities Commission. Upland trees would be planted within two years of completion of the Alameda Creek Bridge Replacement Project construction and would be monitored for three years following the planting to ensure that the mortality rate does not exceed 30% of all upland trees planted.

**RIPARIAN TREES-1.** During the design phase of the project, Caltrans' Office of Biological Science and Permits would work with the Caltrans Design team to avoid and minimize project impacts to riparian trees. Efforts to preserve trees in place (by designating trees on plan sheets and marking trees with Environmentally Sensitive Area fencing) would be made to avoid or minimize project impacts to trees located in temporarily impacted areas. Trees removed from the riparian zone would be replaced at a minimum 3:1 ratio on-site, to the maximum extent possible given space available. Caltrans anticipates a need for off-site riparian planting as of December 2015. Potential planting locations within the Alameda Creek watershed would be identified working with local stakeholders, private and/or public landholders, and public agencies including, but not limited to, East Bay Regional Parks District, Alameda County, and San Francisco Public Utilities Commission. On-site riparian trees would be planted within two years of completion of the Alameda Creek Bridge Replacement Project construction and would be monitored for three years following the planting to ensure that the mortality rate does not exceed 30% of all riparian trees planted. Details for off-site planting and riparian tree planting success criteria would be determined during the design and permitting phase of the project with CDFW (1602 Streambed Alteration Agreement) and RWQCB (401 Certification).

#### **Alternative 1**

**VISUAL-1.** The following upslope retaining wall measures would be implemented:

- Minimize the overall height of walls through coordination with the Caltrans' Office of Landscape Architecture.
- Use context-sensitive wall texture and/or color treatments on all upslope and downslope walls as identified in the visual impact assessment, to minimize contrast with the existing natural and historic settings. Concrete safety-shape barriers would receive color stain to lower contrast with the walls and reduce glare. Surface texture treatments would be developed in consultation with local agencies and Caltrans' Office of Landscape Architecture.



- Employ color staining of the concrete safety barrier of upslope retaining walls to reduce overall contrast between the walls and the barriers.
- Coordinate wall and concrete safety-shape barrier aesthetic treatments and carry consistent themes throughout the corridor.
- Where anchored or draped wire mesh slope protection is required:
  - Apply hydroseeded revegetation, including locally native species to blend with the surrounding setting.
  - Wire mesh would be selected to match color and value of the underlying soil substrate to minimize visual contrast: For example, light-colored mesh over light-colored substrate; dark-colored mesh over dark substrate.

#### All Alternatives

VISUAL-2. To address loss of existing aesthetic bridge design features, and to off-set potential corridor-wide cumulative visual impacts, context-sensitive design features would include:

- See-through bridge and viaduct barrier design, specifically metal ST-70 rail. The ST-70 metal rail would be treated with a flat brown color to reduce glare of metal finish and blend into surrounding setting.
- Metal guardrail would be treated with coating to turn bright metal surfaces to a dull brown color, to reduce glare and blend with surroundings.

VISUAL-3. The following tree and vegetation removal measures would be implemented:

#### a. Minimization or Avoidance of Tree/Vegetation Removal Due to Construction

- Minimize removal of large native riparian trees during the project' design phase through coordination with Caltrans' Office of Landscape Architecture and Office of Biological Sciences and Permits.
- Clear and grub only within excavation and embankment slope limits.
- Protect existing vegetation outside of clearing and grubbing limits from the contractor's operations, equipment, and materials storage.
- Limit tree trimming by the contractor to that required to provide a clear work area.
- Limit clearing and grubbing behind upslope retaining walls to a maximum of 5 feet from the back of the wall.
- Place Environmentally Sensitive Area fencing around trees or other desirable vegetation to be protected before roadway construction begins.
- Caltrans' Resident Engineer would ensure trees are field marked and would approve all trees to be removed prior to removal.
- Adjust slope lines wherever feasible to avoid the removal of trees and other desirable vegetation.
- Implement design exceptions to avoid removal of existing vegetation. Design exceptions may include reducing the width of the standard grading catch line to minimize vegetation removal; steepening of cut and fill slopes; installing guardrails around any trees classified as a scenic resource to allow retention at the shoulder; or other measures as recommended in the visual impact assessment or as determined during the project design or construction phases.
- Take particular care in revegetating and enhancing the area of superseded roadway south of the western bridge approach, to achieve a natural appearance in the Short-term and to enhance presence of oak woodland in the roadway foreground of this segment.

b. Minimize visibility of West Embankment Impacts to Niles Canyon Railway, Alternative 1

- Implement dense tree re-planting and re-vegetation on the north-facing berm of the western approach under Alternative 1 to provide screening and minimize visibility of project as seen by Niles Canyon Railway passengers where feasible

c. Tree Replacement at East Down-slope Retaining Wall under Alternatives 1 and 2

- If views of the retaining wall from the Niles Canyon Railway due to tree removal for wall construction are identified, visual screening shall be restored through replacement planting of trees within State right-of-way as needed to restore visual screening from Niles Canyon Railway.

d. Highway Planting

- Implement required planting per Chapter 29 (Highway Planting) of the Caltrans Project Development Procedures Manual and Chapter 900 (Landscape Architecture) of the Caltrans Highway Design Manual.
- Replace all disturbed areas of native vegetation in kind at a minimum ratio of 1:1. Following construction, all temporarily impacted areas would be restored and enhanced on-site and Caltrans would conduct on-site tree replacement for upland trees at a 1:1 ratio, to the extent practicable, in the existing SR-84 alignment.
- Fund required planting through the parent roadway contract, programmed and completed as a separate contract within two years of completion of all roadwork.
- Provide all disturbed areas with permanent erosion-control grasses.

e. Revegetation

- All disturbed areas shall be provided with permanent erosion-control grasses and appropriate, locally native revegetation. Trees removed as a result of construction operations shall be replaced at a minimum ratio of 1:1 at locations closest to the impacted area wherever feasible and, where in-place planting is not feasible, off-site in the corridor visual foreground and in kind. Details for off-site planting for permit requirements would be determined in coordination with CDFW and permitting requirements.

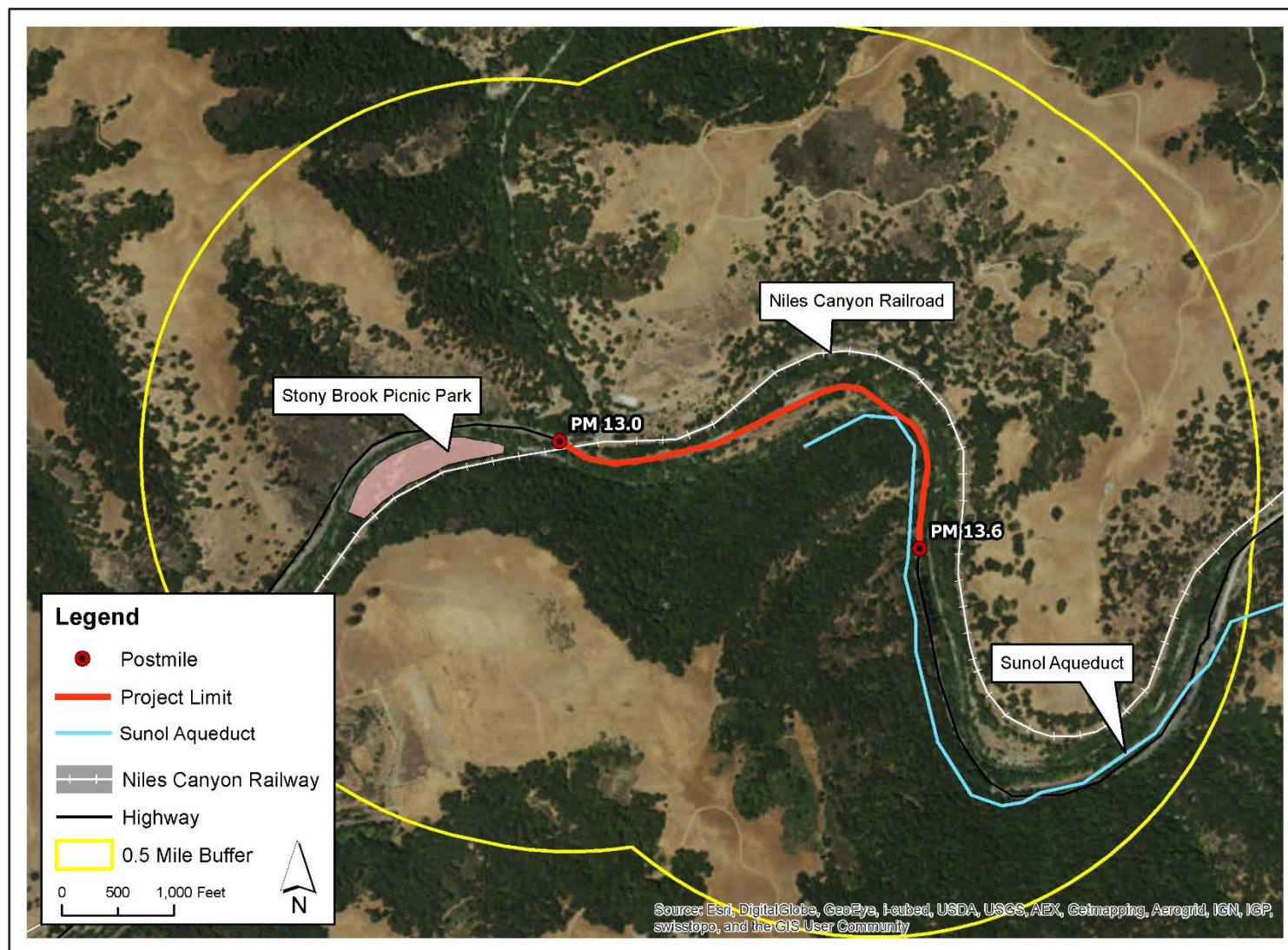
VISUAL-4. The following construction impact measures would be implemented:

- Place unsightly material, equipment storage and staging so that they are not visible within the foreground of the highway corridor to the extent feasible. Where such siting is unavoidable, material and equipment shall be visually screened to minimize visibility from the roadway and nearby sensitive off-road receptors.
- Screen construction, staging, and storage areas by visually opaque screening wherever they would be exposed to public view for extended periods of time.
- Phase construction activities to minimize the duration of disturbance to the shortest feasible time.
- Revegetate all areas disturbed by construction, staging, and storage per Measure VISUAL-3, above.
- Limit all construction lighting to within the area of work and avoid light trespass through directional lighting, shielding, and other measures as needed.
- Where the existing roadway is to be superseded, existing pavement and roadbed shall be removed and contour graded to provide a natural appearance and blend with the adjacent landform. Graded areas shall be revegetated as described under measure VISUAL-3, above.

- Equipment access and storage for retaining wall construction under Alternatives 1 and 2 shall be restricted to the west bank of the creek in the segment south of the bridge to the greatest feasible extent. Where such restriction is unavoidable, damage to the trees and forest canopy on the creek's east bank shall be minimized to the smallest feasible area of disturbance, and be revegetated with replacement native riparian trees immediately following project completion.

**Resources Evaluated Relative to the Requirements of Section 4(f)**

This section of the document discusses parks, recreational facilities, wildlife refuges and historic properties found within or next to the project limits that do not trigger Section 4(f) protection because either: 1) they are not publicly owned, 2) they are not open to the public, 3) they are not eligible historic properties, 4) the project does not permanently use the property and does not hinder the preservation of the property, or 5) the proximity impacts do not result in constructive use.

**Figure B-1. Map of Resources Evaluated Relative to the Requirements of Section 4(f)**

### **Parks and Recreation Properties**

There are two existing parks and recreational facilities within a half-mile from the proposed Alameda Creek Bridge Replacement Project: the Niles Canyon Railway and the Stonybrook Park.

The Stonybrook Park was evaluated for its potential as a 4(f) resource. However, it is not open to the public and therefore, is not considered a 4(f) property and is dismissed from further analysis.

The Niles Canyon Railway operates within the Niles Canyon Transcontinental Historic District as a living history museum to increase public education, enjoyment, and appreciation of the American railroad (Niles Canyon Railway, 2014). While the trains operating on the Niles Canyon Railway are not eligible for the NRHP, the Niles Canyon Railway is evaluated as recreational facility per the requirements of Section 4(f).

The proposed project would be far enough away from the Niles Canyon Railway that no permanent or temporary interruption in service would occur. Therefore, the proposed Alternatives would not impact any feature of the Niles Canyon Railway. Indirect impacts to the Niles Canyon Railway would include temporarily increase noise levels from project construction and demolition. Impacts associated with temporary noise levels are anticipated to be negligible as passengers on the train would have limited exposure to the area due to the speed of the train. Similarly, indirect visual impacts are expected to be negligible given the limited exposure of viewers to the proposed project area. Views of the project vicinity from the Niles Canyon Railway are seen at a distance and filtered by dense vegetation. Duration of the visual impact would be short due to the speed of the train through the project vicinity.

The duration of the project would not result in permanent, temporary, or constructive use of any park or recreation facilities requiring protection under Section 4(f). Therefore, the provisions of Section 4(f) are not triggered.

### **Archeological Resources**

An analysis of potential for buried sites, based on landform age and environmental characteristics, was conducted for the Area of Potential Effects (APE), which encompasses all areas that fall within the physical footprint of the proposed improvements for all Alternatives and areas that may either be directly or indirectly affected by project-related construction activities.

An archival records search and an archeological field survey for the APE were conducted as part of the Archeological Survey Report. No sites that are eligible for the NRHP are located within the APE. The proposed project would not result in a use or constructive use of any archeological sites eligible for the NRHP because no sites are located in the project vicinity.

### **Historic Sites**

Properties that are on or eligible for the NRHP include historic districts, buildings, structures, objects, and certain archeological sites qualify for Section 4(f) protection. A record search, review of historic and current maps, and field surveys were conducted to determine whether historical architectural resources were present within the APE. The Sunol Aqueduct and the Niles Canyon Transcontinental Railroad Historic District (discussed above) are the only two NRHP properties within the architectural APE.

### Sunol Aqueduct of Spring Valley Water Company's Alameda Creek System

All Alternatives would have no adverse effect on the Sunol Aqueduct. The Sunol Aqueduct lies mostly on the surface of the hillside, south of the Alameda Creek Bridge (Bridge #33-0036), along the western approach, with some portions buried two to three feet below ground. Alternatives 1 and 3A call for the placement of a soil-nail retaining wall, more or less parallel to the Sunol Aqueduct. The wall would vary in distance from the Aqueduct from between 41.9 feet and 16 feet. The nails which would be driven horizontally through the retaining wall and into the hillside are 25 feet long. The top of the retaining wall (and the highest point at which these nails would be driven) would be between 7.8 feet and 26.4 feet below the elevation at which the bottom of the Aqueduct resides. Therefore, the nails would not impact the Aqueduct. All surface work would take place on the roadway side of the retaining wall. The long term integrity of the undeveloped setting of the Aqueduct would not be affected, since the soil-nail wall would eventually revegetated and become substantially indistinguishable from the existing setting. There would be no effect to the Sunol Aqueduct by any of the Alameda Creek Bridge Replacement Project Alternatives. The SHPO concurred with Caltrans' determination that the proposed project would have a no adverse effect on the Sunol Aqueduct on June 18, 2015.

### Alameda Creek Bridge

All Alternatives would impact the existing Alameda Creek Bridge. The Alameda Creek Bridge (1928) is listed as Category 5 on the Caltrans Historic Bridge Inventory, meaning it is not eligible for the NRHP (federal). Additionally, the Alameda Creek Bridge does not meet the criteria for eligibility on the California Register of Historical Resources (state). However, the Alameda County Parks, Recreation & Historical Commission identified the bridge as eligible for inclusion on the Alameda County Register (Landmarks) in 2012, based on a windshield survey, although the bridge has not been formally listed on the County's Register.

After the County determined the bridge had local significance, a qualified Caltrans architectural historian evaluated the bridge a second time and found it still to be ineligible for the NRHP, nor meeting the criteria of the California Register. The SHPO concurred with Caltrans' NRHP eligibility finding on April 15, 2014.

With the available information, including the SHPO's concurrence, Caltrans determined that the Alameda Creek Bridge is not a 4(f) resource. There is no "use" and therefore, no Section 4(f) impacts associated with any proposed Alameda Creek Bridge Replacement Project Alternatives because the Alameda Creek Bridge is not a 4(f) resource.

### **Wildlife and Waterfowl Refuges**

There are no wildlife or waterfowl refuges within a half-mile from the proposed Alameda Creek Bridge Replacement Project. The closest federal wildlife refuge is the Don Edwards San Francisco Bay National Wildlife Refuge, located over ten miles west of the project limits. The closest state wildlife area is Point Edith Wildlife Area in the marshlands, approximately 2.5 miles east of Martinez in Contra Costa County. This wildlife area is over 30 miles north the project limits.

Given the substantial distance from the project limits to the closest wildlife/waterfowl refuge, the Alameda Creek Bridge Replacement Project would not have any reasonably foreseeable direct,

temporary, or constructive use of any wildlife or waterfowl refuge area. Therefore, the provisions of Section 4(f) are not triggered.



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## **Appendix C: Title VI Policy Statement**

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**DEPARTMENT OF TRANSPORTATION**

OFFICE OF THE DIRECTOR  
P.O. BOX 942873, MS-49  
SACRAMENTO, CA 94273-0001  
PHONE (916) 654-5266  
FAX (916) 654-6608  
TTY 711  
www.dot.ca.gov



*Flex your power!  
Be energy efficient!*

March 2013

**NON-DISCRIMINATION  
POLICY STATEMENT**

The California Department of Transportation, under Title VI of the Civil Rights Act of 1964 and related statutes, ensures that no person in the State of California shall, on the grounds of race, color, national origin, sex, disability, religion, sexual orientation, or age, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity it administers.

For information or guidance on how to file a complaint based on the grounds of race, color, national origin, sex, disability, religion, sexual orientation, or age, please visit the following web page: [http://www.dot.ca.gov/hq/bep/title\\_vi/t6\\_violated.htm](http://www.dot.ca.gov/hq/bep/title_vi/t6_violated.htm).

Additionally, if you need this information in an alternate format, such as in Braille or in a language other than English, please contact the California Department of Transportation, Office of Business and Economic Opportunity, 1823 14<sup>th</sup> Street, MS-79, Sacramento, CA 95811. Telephone: (916) 324-0449, TTY: 711, or via Fax: (916) 324-1949.

A blue ink signature of Malcolm Dougherty, written in a cursive style.

MALCOLM DOUGHERTY  
Director

*"Caltrans improves mobility across California"*



## **Appendix D: Environmental Commitments Record**

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# Environmental Commitments Record for EA 04-16030\_ / ID 0400000429

Last updated 8/9/2017

## NILES CANYON ALAMEDA CREEK BRIDGE

ALA-084-13/13.6

Current Project Phase: 0,2,9

EP: Emily Chen

CL: Thomas Kelley

RE:

Permits							
Permit	Agency	Date Submitted	Date Received	Expiration	Requirements Completed Name	Completed Date	Comments
1600	California Department of Fish & Wildlife						
2081 - Incidental Take Permit	California Department of Fish & Wildlife						
401	Regional Water Quality Control Board						
404 Nationwide	US Army Corps of Engineers						
BO (FWS)	US Fish and Wildlife	11/20/14	5/4/17				
BO (NMFS)	National Marine Fisheries Service						
JD- Preliminary	US Army Corps of Engineers	12/23/14	6/9/15				

<i>Commitments</i>						
Task and Brief Description	Source	SSP/ NSSP	Responsible Staff	Action to Comply	Task Completed Name Date	Remarks/Due Date

### PS&E/Before RTL

### Biology

THREATENED & ENDANGERED SPECIES-1. Permits.	BO	SSP	Caltrans Office of Biological Sciences and Permitting
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## NILES CANYON ALAMEDA CREEK BRIDGE

ALA-084-13/13.6

Current Project Phase: 0,2,9

EP: Emily Chen

CL: Thomas Kelley

RE:

Task and Brief Description	Source	SSP/ NSSP	Responsible Staff	Action to Comply	Task Completed Name Date	Remarks/Due Date
<b>Cultural Resources</b>						
CULTURAL-3. Interpretative Panels.	Env Doc	NSSP	Office of Cultural Resource Studies			
CULTURAL-4. Recordation documenting the Alameda Creek Bridge structure.	Env Doc	NSSP	Office of Cultural Resource Studies			
<b>Hazardous Waste</b>						
HAZ-1. Site investigation.	Env Doc	SSP	Caltrans Office of Environmental Engineering			
HAZ-2. Hazardous Waste Specifications.	Env Doc	SSP	Caltrans Office of Environmental Engineering			
HAZ-3. LBP and an ACM surveys.	Env Doc	SSP	Caltrans Office of Environmental Engineering			
<b>Visual Resources</b>						
VISUAL-2. Bridge Railing Treatment.	Env Doc	NSSP	Caltrans Design and Office of Landscape Architecture			
VISUAL-3. Tree and vegetation removal measures.	Env Doc	SSP	Caltrans Resident Engineer, Design, and Office of Landscape Architecture			
VISUAL-6. Niles Canyon Tree Planting Plan.						

**NILES CANYON ALAMEDA CREEK BRIDGE**

ALA-084-13/13.6

Current Project Phase: 0,2,9

EP: Emily Chen

CL: Thomas Kelley

RE:

Task and Brief Description	Source	SSP/ NSSP	Responsible Staff	Action to Comply	Task Completed Name Date	Remarks/Due Date
----------------------------	--------	--------------	----------------------	------------------	--------------------------------	------------------

VISUAL-7. Direct Seeding in Proposed Restoration Plan.

**Mitigation for Significant Impacts under CEQA**

Alternative 1  
VISUAL-1. Upslope retaining wall measures

Env Doc

NSSP

Caltrans  
Design and  
Office of  
Landscape  
Architecture

WATER-1. Temporary Sediment Retention and Release.

Env Doc

NSSP

Caltrans  
Design and  
Office of  
Stormwater  
Coordination

WATER-2. Staged Weir Removal.

Env Doc

NSSP

Caltrans  
Design and  
Office of  
Stormwater  
Coordination

WATER-3. Draw Down Rate.

Env Doc

NSSP

Caltrans  
Design and  
Office of  
Stormwater  
Coordination

WATER-4. Vegetative Stabilization.

Env Doc

NSSP

Caltrans  
Design and  
Office of  
Stormwater  
Coordination**Other**

GEOLOGY-1. For Alternatives 3A and 3B, examine top of the wall treatments.

Env Doc

n/a

Caltrans  
Design and  
Office of  
Geotechnical  
Design West

PARKS/REC-1. Participate on East Bay Regional Park  
District's multi-agency development team for the future Niles  
Canyon Class I bicycle trail.

Env Doc

n/a

Caltrans Office  
of  
Environmental  
Analysis and  
Caltrans

## NILES CANYON ALAMEDA CREEK BRIDGE

ALA-084-13/13.6

Current Project Phase: 0,2,9

EP: Emily Chen

CL: Thomas Kelley

RE:

Task and Brief Description	Source	SSP/ NSSP	Responsible Staff	Action to Comply	Task Completed Name Date	Remarks/Due Date
Project Management						
TRAFFIC-1. Traffic Management Plan.	SSP	SSP				
UTL-1. Relocate power lines.	SSP	SSP				
<b>Pre-Construction</b>						
<b>Biology</b>						
BIRDS-1. Work Window for Nesting Birds.	NES	SSP	Caltrans Resident Engineer and Office of Biological Science and Permitting			
BIRDS-2. Pre-construction Surveys for Nesting Birds.	NES	SSP	Caltrans Office of Biological Science and Permitting			
BIRDS-4. Bird exclusion plan.	NES	NSSP	Caltrans Resident Engineer and Office of Biological Sciences and Permitting			
INVASIVE-2. Construction equipment and imported material.	NES	NSSP	Caltrans Resident Engineer			
NATURAL COMMUNITIES-1.Worker Environmental Awareness Training.	NES	SSP	Caltrans Resident Engineer/ Office of Biological Science and Permitting			
NATURAL COMMUNITIES-14. Monofilament Erosion Control.	NES	SSP	Caltrans Resident Engineer			

## NILES CANYON ALAMEDA CREEK BRIDGE

ALA-084-13/13.6

Current Project Phase: 0,2,9

EP: Emily Chen

CL: Thomas Kelley

RE:

Task and Brief Description	Source	SSP/ NSSP	Responsible Staff	Action to Comply	Task Completed Name Date	Remarks/Due Date
NATURAL COMMUNITIES-17. Temporary High Visibility Fencing.						
NATURAL COMMUNITIES-2. Pre-construction Surveys.	NES	SSP	Caltrans Resident Engineer/ Office of Biological Science and Permitting			
NATURAL COMMUNITIES-4. Wildlife Exclusion Fencing.	NES	SSP	Caltrans Resident Engineer/ Office of Biological Science and Permitting			
NATURAL COMMUNITIES-5. Water Diversion Structures.	NES	SSP	Caltrans Resident Engineer and Office of Stormwater Coordination			
THREATENED & ENDANGERED SPECIES-2. Biological Monitor Approval.	NES	SSP	Caltrans Office of Biological Sciences and Permitting			
THREATENED & ENDANGERED SPECIES-6. Cover Boards.						
WETLANDS-2. Permits.	NES	SSP	Caltrans Design and Office of Biological Science and Permitting			
WOODRAT-1. Woodrat relocation plan.	NES	NSSP	Caltrans Design, Resident Engineer and Office of			

## NILES CANYON ALAMEDA CREEK BRIDGE

ALA-084-13/13.6

Current Project Phase: 0,2,9

EP: Emily Chen

CL: Thomas Kelley

RE:

Task and Brief Description	Source	SSP/ NSSP	Responsible Staff	Action to Comply	Task Completed Name Date	Remarks/Due Date
Biological Science and Permitting						
<b>Water Quality</b>						
WATER-5. Implement stream diversion.	Env Doc	SSP	Caltrans Design and Office of Stormwater Coordination			
WATER-7. Take water samples upstream and downstream of the Alameda Creek Bridge Replacement Project.	Env Doc	SSP	Caltrans Design and Office of Stormwater Coordination			
WATER-8. Stormwater Pollution Prevention Plan	Env Doc	SSP	Caltrans Design and Office of Stormwater Coordination			
<b>Mitigation for Significant Impacts under CEQA</b>						
BATS-1. Pre-construction survey for roosting bats.	NES	NSSP	Caltrans Resident Engineer and Office of Biological Science and Permitting			
BATS-2. Roosting bat exclusion plan.	NES	NSSP	Caltrans Office of Biological Science and Permitting			
PALEONTOLOGY-1. Paleontological Mitigation Plan.	Env Doc	NSSP	Caltrans Design and Office of Geotechnical Design - West			
<b>Construction</b>						

**NILES CANYON ALAMEDA CREEK BRIDGE**

ALA-084-13/13.6

Current Project Phase: 0,2,9

EP: Emily Chen

CL: Thomas Kelley

RE:

Task and Brief Description	Source	SSP/ NSSP	Responsible Staff	Action to Comply	Task Completed Name Date	Remarks/Due Date
<b>Air Quality</b>						
CLIMATE CHANGE-1. Contractor compliance with Bay Area Air Management District rules, ordinances, and regulations regarding air quality restrictions	Env Doc	SSP	Caltrans Resident Engineer			
CLIMATE CHANGE-2. Compliance with Title 13, California Code of Regulations.	Env Doc	SSP	Caltrans Resident Engineer			
<b>Biology</b>						
BIRDS-3. Non-Disturbance Buffer for Nesting Birds.	NES	SSP	Caltrans Resident Engineer			
INVASIVE-1. Remove invasive giant reed and pampas grass populations located within the project footprint and replace with native vegetation.	NES	NSSP	Caltrans Resident Engineer and Office of Biological Sciences and Permitting			
INVASIVE-3. Dtockpile topsoil removed during excavation and subsequently reuse the stockpiled soil for re-establishment of disturbed project areas.	NES	NSSP	Caltrans Resident Engineer			
NATURAL COMMUNITIES-10. Trash Control.	NES	SSP	Caltrans Resident Engineer			
NATURAL COMMUNITIES-11. No firearms at construction site.	NES	SSP	Caltrans Resident Engineer			
NATURAL COMMUNITIES-12. No pets at construction site.	NES	SSP	Caltrans Resident Engineer			
NATURAL COMMUNITIES-13. Caltrans standard water quality BMPs.	NES	SSP	Caltrans Resident Engineer			
NATURAL COMMUNITIES-15. Concrete Waste and Stockpiles.	NES	SSP	Caltrans Resident Engineer			



# Environmental Commitments Record for EA 04-16030\_ / ID 0400000429

Last updated 8/9/2017

## NILES CANYON ALAMEDA CREEK BRIDGE

ALA-084-13/13.6

Current Project Phase: 0,2,9

EP: Emily Chen

CL: Thomas Kelley

RE:

Task and Brief Description	Source	SSP/ NSSP	Responsible Staff	Action to Comply	Task Completed Name Date	Remarks/Due Date
NATURAL COMMUNITIES-18. Removal of Aquatic Exotic Wildlife Species.						
NATURAL COMMUNITIES-19. Weather Forecast Monitoring.						
NATURAL COMMUNITIES-20. No Work During Rain Event.						
NATURAL COMMUNITIES-21. USFWS Access.						
NATURAL COMMUNITIES-3. Prevention of Wildlife Entrapment.	NES	NSSP	Caltrans Resident Engineer and Project Contractor			
NATURAL COMMUNITIES-6. Water Quality Inspection.	NES	SSP	Caltrans Resident Engineer and Office of Stormwater Coordination			
NATURAL COMMUNITIES-7. Vehicle Use.	NES	SSP	Caltrans Resident Engineer			
NATURAL COMMUNITIES-8. Night Work.	NES	NSSP	Caltrans Resident Engineer and Office of Biological Sciences and Permitting			
NATURAL COMMUNITIES-9. Night Lighting.	NES	NSSP	Caltrans Resident Engineer and Office of Biological Sciences and Permitting			
PLANT-1. Inadvertent discovery of listed plant species.	NES	NSSP	Caltrans Office of Biological Science and			

## NILES CANYON ALAMEDA CREEK BRIDGE

ALA-084-13/13.6

Current Project Phase: 0,2,9

EP: Emily Chen

CL: Thomas Kelley

RE:

Task and Brief Description	Source	SSP/ NSSP	Responsible Staff	Action to Comply	Task Completed Name Date	Remarks/Due Date
Permitting						
STEELHEAD-1. Restoration of riparian, wetland, and riverine areas currently occupied by the existing Alameda Creek Bridge piers and abutments and the removal of invasive giant reed populations in the project area.	NES	NSSP	Caltrans Office of Biological Sciences and Permitting			
THREATENED & ENDANGERED SPECIES-3. Biological Monitoring.	NES	SSP	Caltrans Office of Biological Sciences and Permitting			
THREATENED & ENDANGERED SPECIES-4. Listed Species On Site.	NES	SSP	Caltrans Resident Engineer and Office of Biological Sciences and Permitting			
THREATENED & ENDANGERED SPECIES-5. Work Window.	NES	SSP	Caltrans Resident Engineer and Office of Biological Sciences and Permitting			
THREATENED & ENDANGERED SPECIES-7. Wire Mesh for Dewatering Pumps.						
<b>Cultural Resources</b>						
CULTURAL-1. Inadvertent discovery of cultural materials.	Env Doc	SSP	Caltrans Resident Engineer, Office of Cultural Resource Studies, and Project Contractor			
CULTURAL-2. Discovery of human remains.	Env Doc	SSP	Caltrans Resident Engineer, Office of			

## NILES CANYON ALAMEDA CREEK BRIDGE

ALA-084-13/13.6

Current Project Phase: 0,2,9

EP: Emily Chen

CL: Thomas Kelley

RE:

Task and Brief Description	Source	SSP/ NSSP	Responsible Staff	Action to Comply	Task Completed Name Date	Remarks/Due Date
			Cultural Resource Studies, and Project Contractor			
CULTURAL-5. Report any unintended discoveries of human remains or artifacts within SFPUC jurisdiction to SFPUC.	Env Doc	n/a	Resident Engineer/Office of Cultural Resource Studies			
<b>Visual Resources</b>						
VISUAL-4. Minimize visual/aesthetic impact during construction.	Env Doc	SSP	Caltrans Resident Engineer and Project Contractor			
<b>Water Quality</b>						
WATER-10. Caltrans Standard Water Quality BMPs	Env Doc	SSP	Caltrans Resident Engineer and Project Contractor			
WATER-6. Stormwater treatment systems.	Env Doc	SSP	Caltrans Design and Office of Stormwater Coordination			
WATER-9. Stockpile areas for construction materials, equipment, and debris would be minimized to avoid the removal of riparian and upland vegetation.	Env Doc	SSP	Caltrans Resident Engineer and Project Contractor			

## NILES CANYON ALAMEDA CREEK BRIDGE

ALA-084-13/13.6

Current Project Phase: 0,2,9

EP: Emily Chen

CL: Thomas Kelley

RE:

Task and Brief Description	Source	SSP/ NSSP	Responsible Staff	Action to Comply	Task Completed Name Date	Remarks/Due Date
<b>Mitigation for Significant Impacts under CEQA</b>						
BATS-3. Incorporate daytime crevice roosts and recessed night roosts constructed out of concrete into the underside of the new bridge structure.	NES	NSSP	Caltrans Design and Office of Biological Science and Permitting			
LAMPREY-1. Impacts to pacific lamprey would be reduced through the implementation of the following measures: NATURAL COMMUNITIES-1, NATURAL COMMUNITIES-2, NATURAL COMMUNITIES-5, NATURAL COMMUNITIES-6, THREATENED & ENDANGERED-SPECIES-3, THREATENED & ENDANGERED SPECIES-5, and WATER -6.	NES	NSSP	Caltrans Resident Engineer and Office of Biological Science and Permitting			
WESTERN POND TURTLE-1. Impacts to western pond turtle would be reduced through the implementation of the following measures: NATURAL COMMUNITIES-1, NATURAL COMMUNITIES-2, NATURAL COMMUNITIES-5, NATURAL COMMUNITIES-6, THREATENED & ENDANGERED-SPECIES-3, THREATENED & ENDANGERED SPECIES-5, and WATER-6.	NES	NSSP	Caltrans Resident Engineer and Office of Biological Science and Permitting			
<b>Other</b>						
CLIMATE CHANGE-3. To the extent that it is feasible for the project, the use of reclaimed water may be used to reduce GHG emissions produced during construction.	Env Doc	SSP	Caltrans Resident Engineer			
<b>Post-Construction</b>						
<b>Biology</b>						
CRLF-1. Compensatory compensation for California red-legged frog.	NES	NSSP	Caltrans Office of Biological Sciences and Permitting			
NATURAL COMMUNITIES-16. Revegetation Following Construction.	NES	SSP	Caltrans Resident Engineer and Office of Biological Sciences and Permitting			

## NILES CANYON ALAMEDA CREEK BRIDGE

ALA-084-13/13.6

Current Project Phase: 0,2,9

EP: Emily Chen

CL: Thomas Kelley

RE:

Task and Brief Description	Source	SSP/ NSSP	Responsible Staff	Action to Comply	Task Completed Name Date	Remarks/Due Date
WETLANDS-1. Compensatory mitigation under the CWA.	NES	SSP	Caltrans Office of Biological Science and Permitting			
<b>Visual Resources</b>						
VISUAL-5. Removal and Restoration of Geotechnical/Construction Access Roads	Env Doc	NSSP	Caltrans Resident Engineer and Project Contractor			
<b>Mitigation for Significant Impacts under CEQA</b>						
AWS-1. Compensatory compensation for Alameda whipsnake.	NES	NSSP	Caltrans Office of Biological Sciences and Permitting			
RIPARIAN TREES-1. Office of Biological Science and Permits to work with Design to minimize impacts to riparian trees during project design and Office of Biological Science and Permits to develop a riparian tree planting plan.	NES	NSSP	Caltrans Design, Office of Landscape Architecture and Caltrans Office of Biological Science and Permitting			
UPLAND TREES-1. Office of Biological Science and Permits to work with Design to minimize impacts to upland trees during project design and Office of Biological Science and Permits to develop an upland tree planting plan.	NES	NSSP	Caltrans Design, Office of Landscape Architecture and Caltrans Office of Biological Science and Permitting			

## **Appendix E: State Historic Preservation Officer Concurrence Letter**

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STATE OF CALIFORNIA – THE NATURAL RESOURCES AGENCY

EDMUND G. BROWN, JR., Governor

**OFFICE OF HISTORIC PRESERVATION  
DEPARTMENT OF PARKS AND RECREATION**

1725 23<sup>rd</sup> Street, Suite 100  
SACRAMENTO, CA 95816-7100  
(916) 445-7000 Fax: (916) 445-7053  
calshpo@parks.ca.gov  
www.chp.parks.ca.gov



June 18, 2015

Reply To: FHWA\_2014\_0320\_002

Kelly Hobbs, Chief  
Section 106 Coordination Branch  
Caltrans Division of Environmental Analysis  
PO Box 942874  
Sacramento, CA 94274-0001

Re: Finding of Effect for the Proposed Richmond (Alameda Creek) Bridge Project, Alameda County, CA

Dear Mr. Hobbs:

You are consulting with me about the subject undertaking in accordance with the January 2014 *First Amended Programmatic Agreement Among the Federal Highway Administration, the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, and the California Department of Transportation Regarding Compliance with Section 106 of the National Historic Preservation Act, as it Pertains to the Administration of the Federal-Aid Highway Program in California* (PA).

Caltrans has found that the proposed project will have no adverse effect on the Sunol Aqueduct and the Niles Canyon Transcontinental Railroad Historic District, properties previously determined eligible for the National Register of Historic Places.

In the case of the Sunol Aqueduct, a retaining wall will be placed parallel to the Aqueduct. The various proposed retaining walls will only impact the ground below the elevation at which the bottom of the Aqueduct resides. Therefore the project will have no adverse effect on the Sunol Aqueduct.

With regards to the Niles Canyon Transcontinental Railroad Historic District, Caltrans has determined that replacing the Alameda Creek Bridge would have no adverse effect on historic properties. In addition while the integrity of the setting for 0.5 miles of its 11.6 mile length will be slightly affected during construction, once remediation of the work area is completed through hydro seeding and re-grading, the resulting setting will be almost indistinguishable from its original state.

Based on my review of the submitted documentation, I concur that the project as proposed will have no adverse effect on historic properties.

Thank you for considering historic properties during project planning. If you have any questions, please contact Natalie Lindquist of my staff at (916) 445-7014 or email at [natalie.lindquist@parks.ca.gov](mailto:natalie.lindquist@parks.ca.gov).

Sincerely,

A handwritten signature in black ink that reads "Carol Roland-Nawi, Ph.D.".

Carol Roland-Nawi, Ph.D.  
State Historic Preservation Officer

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## **Appendix F: Notice of Preparation**

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SCH NO. 2010082001

## NOTICE OF PREPARATION

To: \_\_\_\_\_ From: California Dept. of Transportation, District 4  
\_\_\_\_\_  
111 Grand Avenue, MS 8B  
Oakland, CA 94612

Subject: **Notice of Preparation of a Draft Environmental Impact Report**  
Reference: California Code of Regulations, Title 14, (CEQA Guidelines) Sections 15082(a), 15103, 15375.

Project Title: Alameda Creek Bridge Replacement Project

Project Location: Alameda County

Project Description: The purpose of the proposed project is to correct Alameda Creek Bridge deficiencies and increase the safety of the traveling public by replacing the existing bridge over Alameda Creek with a new bridge structure.

This is to inform you that the California Department of Transportation will be the lead agency and will prepare an environmental impact report for the project described below. Your participation as a responsible agency is requested in the preparation and review of this document.

We need to know the views of your agency as to the scope and content of the environmental information that is germane to your agency's statutory responsibilities in connection with the proposed project. Your agency will need to use the EIR prepared by our agency when considering your permit or other approval for the project.

A more detailed project description, location map, and the potential environmental effects are contained in the attached materials.

A copy of the Initial Study (☐ is) (☒ is not) attached.

Due to the time limits mandated by State law, your response must be sent at the earliest possible date but not later than 30 days after receipt of this notice.

Please direct your response to Oliver Iberien, Branch Chief Telephone 510.622.0803 at the address shown above. Please supply us with the name for a contact person in your agency.

Date 2/18/14

Signature   
Title Branch Chief

Print Form

**Summary Form for Electronic Document Submittal****Form F**

Lead agencies may include 15 hardcopies of this document when submitting electronic copies of Environmental Impact Reports, Negative Declarations, Mitigated Negative Declarations, or Notices of Preparation to the State Clearinghouse (SCH). The SCH also accepts other summaries, such as EIR Executive Summaries prepared pursuant to CEQA Guidelines Section 15123. Please include one copy of the Notice of Completion Form (NOC) with your submission and attach the summary to each electronic copy of the document.

SCH #: 2010082001

Project Title: Alameda Creek Bridge Replacement Project

Lead Agency: Caltrans District 4

Contact Name: Stefan Galvez

Email: stefan\_galvez@dot.ca.gov

Phone Number: 510-286-5506

Project Location: Fremont and Union City  
City

Alameda  
County

**Project Description (Proposed actions, location, and/or consequences).**

The project proposes to address the operational deficiencies of the existing Alameda Creek Bridge (also called the Richmond Bridge) over Alameda Creek in Niles Canyon in the City of Fremont. These include: barrier rail that is less crashworthy and more snag-prone than current standard rail, an absence of shoulders allowing for motorists to perform corrective deviation to avoid collisions or to seek refuge to avoid blocking the roadway in case of stalls, and sharp curves that limit sight distance. All alternatives proposed by Caltrans assume that the existing bridge will be demolished and a new one constructed. All alternatives also assume the realignment of the roadway to the west of the bridge for a length of approximately 1200', in order to correct the sharp curve on the existing bridge approach. The various alternatives propose new bridges that will either be 410' or 1600' in length (the 1600' bridge incorporates a sidehill viaduct). The new roadway alignments on the eastern approach of the bridge will all require new embankments that will be one of four types: soil-nail wall, rock-anchor wall, Type 1 retaining wall, or Type 5 retaining wall. The western approach to the bridge for all of the alternatives will require embankment fill to raise the road level up 15 ft.

**Identify the project's significant or potentially significant effects and briefly describe any proposed mitigation measures that would reduce or avoid that effect.**

The existing bridge is locally listed as an historic resource, so its demolition would be a significant impact. Caltrans cannot fully mitigate for this impact, but possible minimization measures include recordation, interpretive plaques, and context-sensitive design modifications intended to evoke the existing bridge without imitating it. The project would also remove 100-200 native trees, for which replanting on site, including on the location of the old alignment, is proposed, and would impact a small amount of sycamore alluvial woodland, a scarce vegetation community. Bents for the new bridge would be placed outside of the main creek channel, which is an improvement over the existing condition.

*Revised September 2011*

continued

**If applicable, describe any of the project's areas of controversy known to the Lead Agency, including issues raised by agencies and the public.**

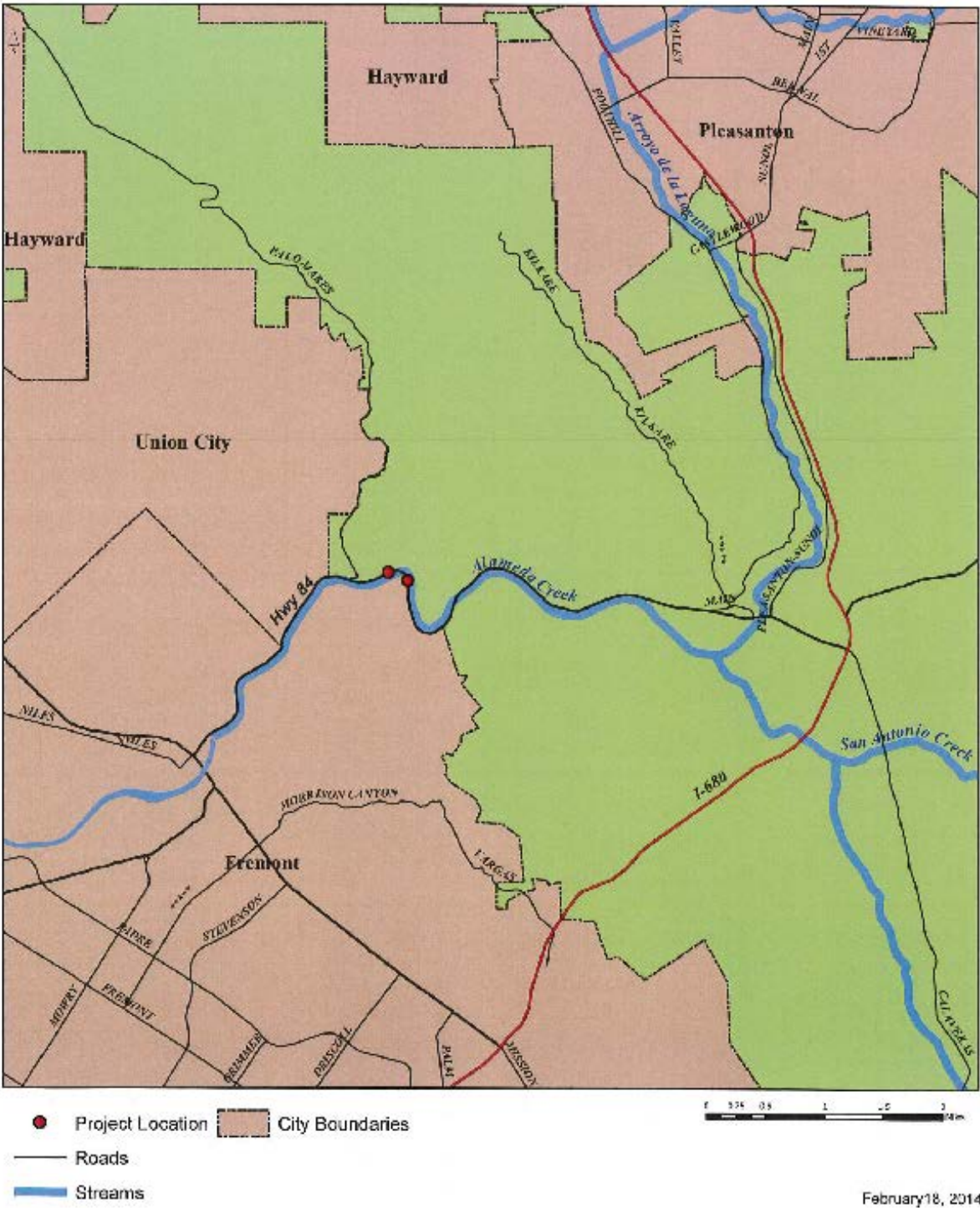
Recent Caltrans projects which have proposed extensive retaining walls, cutting of slopes, and removal of trees throughout Niles Canyon met with opposition from local governments, permitting agency, and members of the public, particularly in the Fremont community of Niles and in the unincorporated community of Sunol. Initial discussions with stakeholder groups formed following the cancellation of these previous projects have indicated that the bridge replacement is better received than the cancelled projects. Water quality in Alameda Creek is of particular concern to the Alameda County Water District, for which the creek is a backup water supply, and for organizations such as the Alameda Creek Alliance, which promotes the return of salmonid fish to the creek. The historic Niles Canyon Railway also runs through the canyon and its operators resisted Caltrans's previous proposals to encroach on its territory.

**Provide a list of the responsible or trustee agencies for the project.**

US Fish and Wildlife Service  
US Army Corps of Engineers  
Calif. Dept. of Fish and Wildlife  
Regional Water Quality Control Board District  
State Water Resources Control Board



# Alameda Bridge Replacement Project



## **Appendix G: Revised Draft EIR/EA Notification Advertisement in Fremont Argus and Pleasanton Independent**

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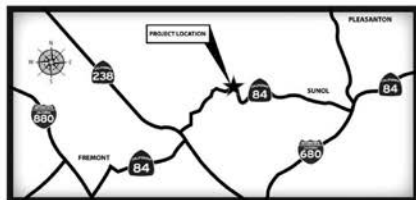
# Fremont Argus Newspaper Advertisement

16 BAY AREA NEWS GROUP 511

FRIDAY, FEBRUARY 17, 2017

## Caltrans PUBLIC NOTICE

REVISED DRAFT ENVIRONMENTAL IMPACT REPORT/ENVIRONMENTAL ASSESSMENT  
AVAILABLE FOR THE ALAMEDA CREEK BRIDGE REPLACEMENT PROJECT ON  
STATE ROUTE 84 AND NOTICE OF PUBLIC OPEN-FORUM HEARINGS



**WHAT IS BEING PLANNED?** The California Department of Transportation (Caltrans) is proposing to replace and realign the eastern and western approaches to the Alameda Creek Bridge on State Route 84 (SR-84). The Alameda Creek Bridge is located in Niles Canyon, between the City of Fremont's Niles District and the town of Sunol. The proposed work will encroach upon wetlands and the Alameda Creek floodplain. As part of the environmental studies, the project was evaluated to determine if there are any practical alternatives to minimize harm to wetlands and floodplains; the project proposes practical measures to minimize harm to the wetlands. The proposed work will have an effect on historic properties eligible for the National Register of Historic Places. The proposed project will have a potential de minimis use of a Section 4(f) property. Caltrans has evaluated whether adequate mitigation measures can be incorporated into the project plans.

**WHY THIS ADVERTISEMENT?** This notice is to tell you of the availability of the Revised Draft Environmental Impact Report/Environmental Assessment (EIR/EA) for the Alameda Creek Bridge Replacement Project. This document replaces and supersedes the previously circulated January 2015 Draft EIR for the Alameda Creek Bridge Replacement Project in its entirety. Therefore, Caltrans will not respond to comments submitted on the January 2015 Draft EIR. New comments must be submitted for this Revised Draft EIR/EA to receive a written response in the Final EIR/EA. You can look at or obtain the Revised Draft EIR/EA at the website listed below or at the Niles Library, Fremont Main Library, or Pleasanton Public Library.

**WHAT'S AVAILABLE?** The Draft EIR/EA is available at <http://www.dot.ca.gov/d4/nilescanyon/> and can also be reviewed at the following locations:

**Niles Library**  
150 I Street  
Fremont, CA 94536

**Fremont Main Library**  
2400 Stevenson Boulevard  
Fremont, CA 94538

**Pleasanton Public Library**  
400 Old Bernal Avenue  
Pleasanton, CA 94566

**WHERE YOU COME IN:** Caltrans is offering individuals and organizations the opportunity to comment on the Revised Draft EIR/EA. The most beneficial comments include specific alternatives or mitigation measures that would provide better ways to avoid or mitigate any potential environmental effects of the project, concerns not addressed in the Revised Draft EIR/EA, inaccuracies or missing information, and/or statistical data or facts to support your concern. Please submit written comments on the Draft EIR/EA by Friday, March 3, 2017 to Caltrans District 4, Office of Environmental Analysis, Attn: Elizabeth White, 111 Grand Avenue, MS 88, Oakland, CA 94612 or via email to [nilescanyonprojects@dot.ca.gov](mailto:nilescanyonprojects@dot.ca.gov).

**WHEN AND WHERE:** Two public open-forum hearings will be held to solicit comments on the Revised Draft EIR/EA:

**Tuesday, February 7, 2017**  
**from 6-8 PM**  
Sunol Glen Elementary School  
Cafeteria  
11601 Main Street  
Sunol, CA 94568

**Tuesday, February 21, 2017**  
**from 6-8 PM**  
Vallejo Mills Elementary School  
Multi-Purpose Room  
38569 Canyon Heights Drive  
Fremont, CA 94536

**CONTACT:** The meeting facilities are accessible to persons with disabilities. Requests for special accommodations at the meeting facilities or requests for the Draft EIR/EA in alternative formats should contact Elizabeth White (510) 286-6233, or use the California Relay Service TTY number, (800) 735-2929.

AR #5884755; Feb. 17, 2017



## EAST BAY

### HIPPIES

From page 13

"It's a large exhibit already, with hundreds of objects and ephemera," Rinder says. "But an exhibit about hippies coming to Berkeley? We had to add more things, like about People's Park, the Alcatraz occupation."

The accompanying film series focuses on the radical cinema of the 1960s and early 1970s with short films screened each afternoon during the run of the show, featuring works by filmmakers such as Jordan Belson, Bruce Conner, John Whitney

and others, plus a 1967 documentary about San Francisco's blossoming hippie scene.

There's a jailhouse interview with Black Panthers co-founder Bobby Seale, documentaries about the Rolling Stones and anti-Vietnam War films.

A forum/workshop series offers opportunities that range from exploring the connection between counterculture and cyberculture to a collage-making class for kids to an analog light show workshop.

"This exhibit is not just a walk down memory lane," Rinder says.

"We wanted to bring the visionaries from the past together with the younger generation working today on some of the same issues."

Another way to connect the periods is through today's technology. Indeed, while the revolution may not be televised, there's an app for it. The exhibit's accompanying "Free the Love" app from BAMPPFA and Adobe lets users float virtual balloon messages in the virtual air over the virtual Bay Area. Totally hip(pie).

Contact Angela Hill at 510-208-6493.



Dan Honda/Bay Area News Group

"Environment Transfer/Flyhead" (1968) is part of the exhibit, which takes a look at the art, design and architecture of the counterculture movement of the 1960s and '70s.

### SOLAR

From page 9

can partner with local companies that have unused or underutilized land to help us deliver on our goals" of building renewable energy projects and creating jobs, said Dawn Weisz, CEO of Marin Clean Energy.

Marin Clean Energy has faced criticism in the past for using unbundled renewable energy certificates, credits that allow companies to say they are using

renewable energy, even when that electricity comes from traditional sources.

The company says that while it has used the unbundled certificates in the past because of a scarcity of available alternative energy, they make up just 3 percent of its portfolio today.

Contra Costa County has enough solar arrays — mostly residential — to annually generate 39 megawatts of energy, enough to power nearly 12,000 homes each year, according to the

California Solar Initiative.

Alameda County has the capacity to generate 27 megawatts of solar each year, or enough to power 8,000 homes. Interest in alternative sources of energy generation has also recently led to the creation of the East Bay Community Energy, a consortium similar to Marin Clean Energy composed of numerous cities in Alameda County.

Contact Karina Ioffee at 510-262-2762.

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# Pleasanton Independent Newspaper Advertisement

2 The Independent • February 2, 2017

## Annual Martin Luther King Jr. Fellowship Breakfast

### Recognition Given to Those Who Have Impacted Education

By Carol Graham  
The 17th Annual Tri-Valley YMCA Martin Luther King Jr. Fellowship Breakfast took place on January 23, celebrating this year's theme, "Educating For the Future."

Especially during this time of political polarization in our country, at the Y we believe that everyone needs to work together to strengthen their community, regardless of their backgrounds or beliefs," said Tri-Valley YMCA Operations Director Kenny Alenbury. "We hope that the spirit of Dr. King came through, especially when it comes to unification, social justice and educational equity for all."

More than 230 community leaders attended the breakfast, including YMCA members and sponsors, business people, partner organization associates and area dignitaries.

"For more than 50 years, the Tri-Valley Y has helped people learn, grow and thrive," said Vice President and Regional Executive Director Kelly O'Leary Dufka. "As a charity committed to youth development, healthy living and social responsibility, our Y has built bridges between people, families and communities. Our community is facing new challenges that create a greater need than ever before for the work we do every day. Fortunately, where some see obstacles, we see opportunities."

The event was hosted by former Dublin mayor Tim Shanti, who is now Deputy Chief of Staff to Congresswoman Eric Swalwell. The keynote speech was delivered by Kenneth Cooper, executive director of the Las Positas College Foundation.

"I have always believed people cross paths for a reason, if only for a brief time. The Tri-Valley Y has brought this roomful of people together in this place, on this day, at this time - to recognize exceptional leaders in our own community and the legacy of Martin Luther King, Jr.," said Cooper. "Dr. King recognized that while an education can help an individual become a quick thinker, an effective thinker, and an efficient thinker, true education can and should empower one to think incisively and for one's self. In one of his most famous quotes, Dr. King said, 'The function of education is to teach one to think intensively and to think critically. Intelligence plus character - that is the goal of true education.'"

A key part of the Fellowship Breakfast is to honor deserving community members with Dr. Martin Luther King Jr. Legacy Awards.

"Since this year's event focused on educating for the future, we wanted to be sure that all three award winners have had a significant impact in the education of our youth in the Tri-Valley," said Alenbury. "Our leadership team at the Y worked with our board to discuss

a wide variety of potential winners, and concluded that the most deserving recipients were Jim Hansen, the Children's Emergency Food Bank, and the Livermore Valley Joint Unified School District Child Welfare and Attendance Specialists."

Jim Hansen started his teaching career in Pleasanton in 1978 as the first English teacher at Valley High School. His administrative career began in 1986 as vice principal at Dublin High School, and he subsequently served as principal at Valley Continuation High School, Wells Middle School, Harvest Park Middle School, and Amador Valley High School. He retired in 2013, but came out of retirement in 2015 to serve as Interim Superintendent.

The Children's Emergency Food Bank, started in 1969 and based in Dublin, provides food for families

in emergency situations. The nonprofit offers canned and packaged foods and gift certificates from local markets to feed the hungry for one week, up to six times a year.

The Livermore school district's Child Welfare Program serves as a link between the district, local social services, and county legal agencies. It assists in the compliance and enforcement of state child welfare and attendance laws, and promotes student success by working closely with the administration, teachers, support staff, students and parents and guardians.

Entertainment at the Fellowship Breakfast was provided by the Chera Nani Foundation, a Pleasanton-based nonprofit that aims to preserve and encourage the appreciation of African culture through a play-based approach involving community assemblies, drumming and dancing workshops, summer camps, and teacher training.

"It was an absolute honor to be able to participate this year with a recognition of people who do so much for our community," said Catherine Ndung'u, CEO of Chera Nani. "Dandua Du Hora is the lead vocalist for Samba's and principal artist for Chera Nani Foundation. Whether she is teaching, dancing, singing or playing an instrument, Dandua's art always reflects her passion for sharing Afro-Brazilian culture. She brings a message of hope, love, equality and freedom every time she performs."

The event, hosted at the Dublin Tree by Ulloa Hotel Pleasanton at the Club, also provided an opportunity for the community to learn more about all that the Tri-Valley YMCA offers.

"People are usually surprised by the range and extent of services and programs taking place in our community," said speaker and Y Ambassador Colin Proudfoot. "You folks are here because you know

what the Y does in our community, but most folks don't. I've lost count of the conversations I've had that went, 'Oh, you're from the Y. I didn't know we had one here. Where is the post?' So we talk about the programs, activities and services provided by our local Y."

The Tri-Valley YMCA opened its doors in 1965, and today provides a multitude of services designed to strengthen communities, including parenting classes, family therapy, divorce support groups, short-term crisis support, teen services, expressive arts therapy, stress-reduction workshops, after-school programs, summer day camps, a statewide Youth & Government (Y & G) program, and Y-Guides and Y-Princesses (father-son and father-daughter activities).

"My favorite moments have always been the annual father-daughter dances," said Proudfoot. "I still carry the pictures in my wallet."

Daughter Lucy Proudfoot, now 19, added, "The YMCA has been in my life for as long as I can remember. It has been a large contributor to my growth both as an individual and as a part of my community. I always recommend the Y to families. It is an amazing and versatile program that gives all it has to our community. I am forever grateful to the YMCA and will never forget the memories I made during my time as a part of their programs."

Noted Dufka, "The Y has always brought people together to achieve the extraordinary. We believe that together, we can achieve so much more."

To learn more, visit [www.ymcacsbay.org](http://www.ymcacsbay.org).

## Project Will Boost Water Recycling Capacity

Representatives of 11 public agencies and the Tri-Valley's state and Congressional legislators celebrated the start of an 18-month construction project that will boost local water recycling capacity by 70 percent.

Dublin San Ramon Services District (DSRS), East Bay Municipal Utility District (EBMUD), and the City of Pleasanton are partnering to expand the Jeffrey G. Hansen Water Recycling plant in Pleasanton. The plant has produced more than nine billion gallons of irrigation water from wastewater since 2006. Peak summer demand for the plant's recycled water is expected to keep growing, from 8.6 million gallons a day last year to 16.1 million gallons a day by 2020.

EBMUD Director Frank Mellon commented, "By investing further in water recycling, we're sending a message to the rest of California. The drought is never over; we just have brief interludes of rain between droughts."

Tim Shanti, local district director for Congresswoman Eric Swalwell, added, "This public-private partnership is an investment at its best." Shanti praised the Tri-Valley's leaders for having the vision to diversify the region's water supply.

DSRS and EBMUD partnered to build the water recycling plant and a backbone distribution system of purple pipes, pumps, and reservoirs. The City of Pleasanton joined the partnership in 2014. The three agencies are sharing the \$182 million cost of the expansion project in proportion to projected customer demand: DSRS 46 percent and EBMUD and Pleasanton 27 percent each. DSRS's

regional wastewater treatment plant next door to the water recycling plant supplies the effluent to make irrigation water.

The cities of Dublin and Pleasanton use recycled water from the plant at parks and other municipal sites. Livermore uses recycled water produced at its own facility. The majority of all three cities attended the ceremony, as well as several San Francisco-area members of its citizen Committee on Energy & the Environment.

Pleasanton Mayor Jerry Thome said, "This project is proof positive that when good people come together and collaborate over a

## Rally For Love Planned in Livermore

A Rally for Love will be held on Sunday, February 12, from 12:00 to 1:30 PM at the Bankhead Theater Plaza.

This event is planned as a peaceful, family-friendly, non-partisan gathering to honor and celebrate diversity and to demonstrate solidarity with those who feel vulnerable. There will be music, speakers, and opportunities to establish relationships. Many public officials have expressed interest in attending, including Livermore Mayor John Marchand and Congressman Eric Swalwell.

There will be space available at the rally for supportive non-profit groups to display information, flyers and signs. Each group will be asked to provide its own small table, and notify organizers of its need for space by Thursday, February 9.

This event was initiated by Embracing Diversity, an interfaith group started at Asbury United Methodist Church. The group's goal is to promote and celebrate diversity in the Tri-Valley, honoring the human and civil rights of all persons, irrespective of age, race, religion, gender, gender identity, sexual orientation, national origin, or economic status.

Information can be found at its Facebook page "Embracing Diversity—Tri Valley" or by sending an email to [RallyforLove@yahoo.com](mailto:RallyforLove@yahoo.com).

To learn more, visit [www.ymcacsbay.org](http://www.ymcacsbay.org).

shared vision, great things happen."

Elected board members of DSRS, EBMUD, DERS, WA, Zone 7 Water Agency, and Contra Costa Sanitary District also attended. Congressman Eric Swalwell, Assemblywoman Catherine Baker, and State Senator Steve Glazer were represented by their local field office staff. The statewide California Association of Sanitation Agencies is represented by its executive director. Two staff members of Delta Delta, a wastewater agency in Contra Costa County, represented the Western Recycled Water Coalition. About 70 elected officials, public agency staff, and members of the business community attended the event.

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**Caltrans PUBLIC NOTICE**

**REVISED DRAFT ENVIRONMENTAL IMPACT REPORT/ENVIRONMENTAL ASSESSMENT AVAILABLE FOR THE ALAMEDA CREEK BRIDGE REPLACEMENT PROJECT ON STATE ROUTE 84 AND NOTICE OF PUBLIC OPEN-FORUM HEARINGS**

**WHAT IS BEING PLANNED?** The California Department of Transportation (Caltrans) is preparing to replace and realign the eastern and western approaches to the Alameda Creek Bridge on State Route 84 (SR-84). The Alameda Creek Bridge is located in Niles Canyon, between the City of Fremont's Niles District and the Town of San Leandro. The proposed work will encompass upper wetlands and the Alameda Creek floodplain. As part of the environmental studies, the project was evaluated to determine if there are any practical alternatives to minimize impacts to wetlands and floodplains. The project proposes practical measures to minimize impacts to the wetlands. The proposed work will have an effect on historic properties eligible for the National Register of Historic Places. The proposed project will have a potential to minimize use of a Section 4(f) property. Caltrans has evaluated whether adequate mitigation measures can be incorporated into the project plans.

**WHY THIS ADVERTISEMENT?** This notice is to tell you of the availability of the Revised Draft Environmental Impact Report/Environmental Assessment (EIR/EA) for the Alameda Creek Bridge Replacement Project. This document replicates and supplements the previously circulated January 2015 Draft EIR for the Alameda Creek Bridge Replacement Project in its entirety. Therefore, Caltrans will not respond to comments submitted on the January 2015 Draft EIR. New comments must be submitted for this Revised Draft EIR/EA to receive a written response in the Final EIR/EA. You can look at or obtain the Revised Draft EIR/EA at the website listed below or at the Niles Library, Fremont Main Library or Pleasanton Public Library.

**WHAT'S AVAILABLE?** The Draft EIR/EA is available at <http://www.dot.ca.gov/44/infocenter/> and can also be viewed at the following locations:

Niles Library	Fremont Main Library	Pleasanton Public Library
1501 Street Fremont, CA 94536	2400 Stevenson Boulevard Fremont, CA 94538	400 Old Bernal Avenue Pleasanton, CA 94566

**WHERE YOU COME IN:** Caltrans is offering individuals and organizations the opportunity to comment on the Revised Draft EIR/EA. The most beneficial comments include specific alternatives or mitigation measures that would provide better ways to avoid or mitigate any potential environmental effects of the project, concerns not addressed in the Revised Draft EIR/EA, inaccuracies or missing information, and/or additional data or facts to support your concerns. Please submit written comments on the Draft EIR/EA by Friday, March 3, 2017 to Caltrans District 4, Office of Environmental Analysis, Attn: Elizabeth White, 111 Grand Avenue, MS 86, Oakland, CA 94612 or via email to [elizabethwhite@caltransdotd.ca.gov](mailto:elizabethwhite@caltransdotd.ca.gov).

**WHEN AND WHERE:** Two public open-forum hearings will be held to solicit comments on the Revised Draft EIR/EA:

Tuesday, February 7, 2017	Tuesday, February 21, 2017
Time 6:00 PM	Time 6:00 PM
San Jose Elementary School Cabrera 12511 Main Street San Jose, CA 95136	Valley Mills Elementary School Multi-Purpose Room 38560 Canyon Heights Drive Fremont, CA 94536

**CONTACT:** The meeting facilities are accessible to persons with disabilities. Requests for special accommodations at the meeting facilities or requests for the Draft EIR/EA in alternative formats should contact Elizabeth White (510) 285-6233, or use the California Relay Service TTY number, (800) 735-2595.

PCV 0000000-0000000

**SAINT RAYMOND SCHOOL**  
3 - 5 year old Preschool Kindergarten - 8th Grade

**Information Night / Open House**  
FEBRUARY 8 Preschool Info • 6:30 PM  
FEBRUARY 8 Kindergarten Info • 7 PM  
MARCH 22 Middle School Info • 7 PM

**Call for Appointment & Private Tour**  
(925) 828-4064 | [tsheids@csdo.org](mailto:tsheids@csdo.org)

11557 Shannon Avenue  
Dublin, CA 94568  
[sraymondsschool.org](http://sraymondsschool.org)

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## **Appendix H: Glossary of Key Terms**

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The following terms are used in the Section 1.2, Purpose and Need and Section 1.4.8, Alternatives Considered by Rejected and are defined here:

**Critical Speed:** The Critical Speed is used to establish the speed limit. The Critical Speed is defined as the 85<sup>th</sup> percentile speed.

**Design Speed:** The design speed is a selected speed used to determine the various geometric features of the roadway.

**85<sup>th</sup> percentile:** The 85<sup>th</sup> percentile is the speed at or below which 85% of vehicles travel.

**Operating Speed:** The speed at which vehicles are observed operating during free flow conditions. The 85<sup>th</sup> percentile of the distribution of observed speeds is the most frequently used measure of the operating speed.

**Speed limit:** The speed limit is the maximum lawful vehicle speed for a specific location.

**Advisory speed –** A speed below the speed limit that is recommended for a section of highway. The advisory speed is normally determined through an engineering study that considers highway design, operating characteristics and conditions. Advisory speeds are displayed on warning signs in speed values that are multiples of 5 miles per hour (mph). Advisory speeds cannot be enforced.

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## **Appendix I: U.S. Fish and Wildlife Service and National Marines Fisheries Service Species List and Effect Table**

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## United States Department of the Interior

### FISH AND WILDLIFE SERVICE

Sacramento Fish And Wildlife Office  
Federal Building  
2800 Cottage Way, Room W-2605  
Sacramento, CA 95825-1846  
Phone: (916) 414-6600 Fax: (916) 414-6713



In Reply Refer To:

June 08, 2017

Consultation Code: 08ESMF00-2017-SLI-2287

Event Code: 08ESMF00-2017-E-06208

Project Name: Alameda Creek Bridge Geotechnical Investigations

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

#### To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, under the jurisdiction of the U.S. Fish and Wildlife Service (Service) that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

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

[http://www.nwr.noaa.gov/protected\\_species/species\\_list/species\\_lists.html](http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html)

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

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



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

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

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

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

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

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

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

Attachment(s):

- Official Species List
-

## Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

**Sacramento Fish And Wildlife Office**

Federal Building

2800 Cottage Way, Room W-2605

Sacramento, CA 95825-1846

(916) 414-6600

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## Project Summary

Consultation Code: 08ESMF00-2017-SLI-2287

Event Code: 08ESMF00-2017-E-06208

Project Name: Alameda Creek Bridge Geotechnical Investigations

Project Type: BRIDGE CONSTRUCTION / MAINTENANCE

Project Description: Geotechnical boring will be conducted at 13 points within the project area proposed for a replacement structure for the existing Alameda Creek Bridge. The investigation is proposed to occur during August through October of 2017.

Project Location:

Approximate location of the project can be viewed in Google Maps:

<https://www.google.com/maps/place/37.597746257367845N121.93807824398918W>



Counties: Alameda, CA

## Endangered Species Act Species

There is a total of 14 threatened, endangered, or candidate species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area. Please contact the designated FWS office if you have questions.

---

## Mammals

NAME	STATUS
Salt Marsh Harvest Mouse ( <i>Reithrodontomys raviventris</i> ) No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/613">https://ecos.fws.gov/ecp/species/613</a>	Endangered
San Joaquin Kit Fox ( <i>Vulpes macrotis mutica</i> ) No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/2873">https://ecos.fws.gov/ecp/species/2873</a>	Endangered

## Birds

NAME	STATUS
California Least Tern ( <i>Sterna antillarum browni</i> ) No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/8104">https://ecos.fws.gov/ecp/species/8104</a>	Endangered

## Reptiles

NAME	STATUS
Alameda Whipsnake (=striped Racer) ( <i>Masticophis lateralis euryxanthus</i> ) There is a <b>final critical habitat</b> designated for this species. Your location overlaps the designated critical habitat. Species profile: <a href="https://ecos.fws.gov/ecp/species/5524">https://ecos.fws.gov/ecp/species/5524</a>	Threatened

## Amphibians

NAME	STATUS
California Red-legged Frog ( <i>Rana draytonii</i> ) There is a <b>final critical habitat</b> designated for this species. Your location is outside the designated critical habitat. Species profile: <a href="https://ecos.fws.gov/ecp/species/2891">https://ecos.fws.gov/ecp/species/2891</a>	Threatened
California Tiger Salamander ( <i>Ambystoma californiense</i> ) Population: U.S.A. (Central CA DPS) There is a <b>final critical habitat</b> designated for this species. Your location is outside the designated critical habitat. Species profile: <a href="https://ecos.fws.gov/ecp/species/2076">https://ecos.fws.gov/ecp/species/2076</a>	Threatened

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## Fishes

NAME	STATUS
<p>Delta Smelt (<i>Hypomesus transpacificus</i>)</p> <p>There is a <b>final critical habitat</b> designated for this species. Your location is outside the designated critical habitat.</p> <p>Species profile: <a href="https://ecos.fws.gov/ecp/species/321">https://ecos.fws.gov/ecp/species/321</a></p>	Threatened
<p>Steelhead (<i>Oncorhynchus</i> (= <i>Salmo</i>) <i>mykiss</i>)</p> <p>Population: Northern California DPS</p> <p>There is a <b>final critical habitat</b> designated for this species. Your location is outside the designated critical habitat.</p> <p>Species profile: <a href="https://ecos.fws.gov/ecp/species/1007">https://ecos.fws.gov/ecp/species/1007</a></p>	Threatened

## Insects

NAME	STATUS
<p>Bay Checkerspot Butterfly (<i>Euphydryas editha bayensis</i>)</p> <p>There is a <b>final critical habitat</b> designated for this species. Your location is outside the designated critical habitat.</p> <p>Species profile: <a href="https://ecos.fws.gov/ecp/species/2320">https://ecos.fws.gov/ecp/species/2320</a></p>	Threatened
<p>San Bruno Elfin Butterfly (<i>Callophrys mossii bayensis</i>)</p> <p>No critical habitat has been designated for this species.</p> <p>Species profile: <a href="https://ecos.fws.gov/ecp/species/3394">https://ecos.fws.gov/ecp/species/3394</a></p>	Endangered

## Crustaceans

NAME	STATUS
<p>Conservancy Fairy Shrimp (<i>Branchinecta conservatio</i>)</p> <p>There is a <b>final critical habitat</b> designated for this species. Your location is outside the designated critical habitat.</p> <p>Species profile: <a href="https://ecos.fws.gov/ecp/species/8246">https://ecos.fws.gov/ecp/species/8246</a></p>	Endangered
<p>Vernal Pool Fairy Shrimp (<i>Branchinecta lynchi</i>)</p> <p>There is a <b>final critical habitat</b> designated for this species. Your location is outside the designated critical habitat.</p> <p>Species profile: <a href="https://ecos.fws.gov/ecp/species/498">https://ecos.fws.gov/ecp/species/498</a></p>	Threatened
<p>Vernal Pool Tadpole Shrimp (<i>Lepidurus packardii</i>)</p> <p>There is a <b>final critical habitat</b> designated for this species. Your location is outside the designated critical habitat.</p> <p>Species profile: <a href="https://ecos.fws.gov/ecp/species/2246">https://ecos.fws.gov/ecp/species/2246</a></p>	Endangered

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## Flowering Plants

NAME

STATUS

Contra Costa Goldfields (*Lasthenia conjugens*)

Endangered

There is a **final** [critical habitat](#) designated for this species. Your location is outside the designated critical habitat.

Species profile: <https://ecos.fws.gov/ecp/species/7058>

## Critical habitats

There is 1 critical habitat wholly or partially within your project area.

NAME

STATUS

Alameda Whipsnake (=striped Racer) (*Masticophis lateralis euryxanthus*)Final  
designated

**Project Name:** Alameda Creek Bridge Replacement Project  
**Project EA:** 04-16030  
**Agency:** California Department of Transportation  
111 Grand Avenue Oakland, California 94612  
**Contact:** Denis Coghlan 510-541-3465  
**Email:** denis.coghlan@dot.ca.gov  
**Date:** 6-7-2017

Quad Name **Niles**  
Quad Number **37121-E8**

### **ESA Anadromous Fish**

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

### **ESA Anadromous Fish Critical Habitat**

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

### **ESA Marine Invertebrates**

Range Black Abalone (E) -  
Range White Abalone (E) -

### **ESA Marine Invertebrates Critical Habitat**



Black Abalone Critical Habitat -

### **ESA Sea Turtles**

East Pacific Green Sea Turtle (T) -  
Olive Ridley Sea Turtle (T/E) -  
Leatherback Sea Turtle (E) -  
North Pacific Loggerhead Sea Turtle (E) -

### **ESA Whales**

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

### **ESA Pinnipeds**

Guadalupe Fur Seal (T) -  
Steller Sea Lion Critical Habitat -

### **Essential Fish Habitat**

Coho EFH -	<b>X</b>
Chinook Salmon EFH -	<b>X</b>
Groundfish EFH -	
Coastal Pelagics EFH -	
Highly Migratory Species EFH -	

### **MMPA Species (See list at left)**

#### **ESA and MMPA Cetaceans/Pinnipeds**

**See list at left and consult the NMFS Long Beach office 562-980-4000**

MMPA Cetaceans –  
MMPA Pinnipeds -

## Special-status Plant & Wildlife Species with Potential to Occur within the BSA

### Plant Species

Common name <i>Scientific name</i> <sup>1</sup>	Listing Status <sup>2</sup>			Flowering Period	Habitat Preferences <sup>3</sup>	Potential to Occur in the BSA <sup>4</sup>	Effect Finding for Federally Listed Species
	Federal	State	RPR				
Large-flowered fiddleneck <i>Amsinckia grandiflora</i>	FE	SE	1B.1	Apr-May	Cismontane woodland and valley and foothill grassland. 900-1,800 feet	<b>Low.</b> Limited suitable grassland habitat in the BSA. Known from fewer than 5 natural occurrences. Only 2 current natural populations in Alameda County (Lawrence Livermore Labs and Corral Hollow), which are more than 10 miles from the project area.	<b>No Effect</b>
Bent-flowered fiddleneck <i>Amsinckia lunaris</i>	-	-	1B.2	Mar-Jun	Coastal bluff scrub, cismontane woodland, valley and foothill grassland. 10-1,500 feet	<b>Low.</b> A wide-ranging species. Nearest CNDDB occurrence record is greater than 10 miles north of the BSA at Rocky Ridge on EBMUD property.	<b>N/A</b>
Anderson's manzanita <i>Arctostaphylos andersonii</i>	-	-	1B.2	Nov-May	Openings, edges. Broadleafed upland forest, chaparral, and North Coast coniferous forest. 200-2,500 feet	<b>Low.</b> Nearest CNDDB occurrence record is greater than 20 miles southwest of the BSA on Skyline Blvd. on the peninsula.	<b>N/A</b>

Common name <i>Scientific name</i> <sup>1</sup>	Listing Status <sup>2</sup>			Flowering Period	Habitat Preferences <sup>3</sup>	Potential to Occur in the BSA <sup>4</sup>	Effect Finding for Federally Listed Species
	Federal	State	RPR				
Pallid manzanita <i>Arctostaphylos pallida</i>	FT	SE	1B.1	Dec-Mar	Siliceous shale, sandy or gravelly. Broadleafed upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, and coastal scrub. 610-1,535 feet	<b>Low.</b> Nearest CNDDDB occurrence record is 20 miles northeast of the BSA at Joaquin Miller Park in Oakland, CA.	<b>No Effect</b>
Alkali milk-vetch <i>Astragalus tener</i> var. <i>tener</i>	-	-	1B.2	Mar-June	Adobe clay. Playas, valley and foothill grassland, and vernal pools. 5-200 feet	<b>Low.</b> All Alameda County occurrences are historic (pre-1938). Nearest current CNDDDB occurrence record is more than 20 miles northeast of the BSA in Contra Costa County.	<b>N/A</b>
Big-scale balsamroot <i>Balsamorhiza macrolepis</i> var. <i>macrolepis</i>	-	-	1B.2	Mar-Jun	Sometimes serpentinite. Chaparral, cismontane woodland, and valley and foothill grassland. 295-5,100 feet	<b>Low.</b> Nearest current CNDDDB occurrence records are greater than 10 miles NW of the BSA, on Fairmont Ridge in East Bay Hills.	<b>N/A</b>
Chaparral harebell <i>Campanula exigua</i>	-	-	1B.2	May-Jun	Chaparral. Usually serpentinite. 900 – 4,100 feet.	<b>None.</b> One CNDDDB occurrence record within 5 miles of the BSA. No chaparral habitat within the BSA.	<b>N/A</b>
Congdon's tarplant <i>Centromadia parryi</i> ssp. <i>congdonii</i>	-	-	1B.2	May-Oct (Nov)	Valley and foothill grassland. 0-755 feet	<b>High.</b> A wide-ranging species; tolerates disturbed sites such as roadsides. Nearest CNDDDB occurrence record is approximately 4 miles southeast of BSA	<b>N/A</b>
Palmate-bracted bird's beak <i>Chloropyron palmatum</i>	FE	SE	1B.1	May-Oct	Alkaline scrub and valley/foothill grassland. 16-508 feet	<b>None.</b> No alkaline habitat in the BSA.	<b>No Effect</b>

Common name <i>Scientific name</i> <sup>1</sup>	Listing Status <sup>2</sup>			Flowering Period	Habitat Preferences <sup>3</sup>	Potential to Occur in the BSA <sup>4</sup>	Effect Finding for Federally Listed Species
	Federal	State	RPR				
Robust spineflower <i>Chorizanthe robusta</i> var. <i>robusta</i>	FE		1B.1	Apr-Sept	Sandy or gravelly. Chaparral (maritime), cismontane woodland (openings), coastal dunes, and coastal scrub. 30-330 feet	<b>Low.</b> Most populations extirpated, and now known from only six extended occurrences. Presumed extirpated in Alameda County.	<b>No Effect</b>
Santa Clara red ribbons <i>Clarkia concinna</i> ssp. <i>automixa</i>			4.3	Apr-Jul	Chaparral and cismontane woodland. 300-4,950 feet	<b>Low.</b> CNDDDB occurrence records within 20 miles are historic (pre-1938).	<b>N/A</b>
Presidio clarkia <i>Clarkia franciscana</i>	FE	SE	1B.1	May-Jul	Coastal scrub and valley and foothill grassland (serpentine). 80-1,105 feet	<b>None.</b> The species is restricted to serpentine soil outcrops in the San Francisco Bay Area, primarily on serpentine grasslands. Only known current CNDDDB occurrences within the Presidio and Redwood Regional Park. There is no serpentine habitat in the BSA.	<b>No Effect</b>
Hospital Canyon larkspur <i>Delphinium californicum</i> ssp. <i>interius</i>	-	-	1B.2	Apr-Jun	Mesic. Chaparral (openings) and cismontane woodland. 760-3,610 feet	<b>Low.</b> Nearest CNDDDB occurrences records are approximately 10 miles east of the BSA on SFPUC property.	<b>N/A</b>

Common name <i>Scientific name</i> <sup>1</sup>	Listing Status <sup>2</sup>			Flowering Period	Habitat Preferences <sup>3</sup>	Potential to Occur in the BSA <sup>4</sup>	Effect Finding for Federally Listed Species
	Federal	State	RPR				
Western leatherwood <i>Dirca occidentalis</i>	-	-	1B.2	Jan-Apr	Mesic Broadleaved upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, North Coast coniferous forest, riparian forest, and riparian woodland. 165-1,300 feet	<b>Low.</b> Nearest CNDDDB occurrences records are greater than 10 miles northeast of the BSA in East Bay hills, EBRPD.	N/A
Ben Lomond buckwheat <i>Eriogonum nudum</i> var. <i>decurrens</i>	-	-	1B.1	Jun-Oct	Sandy. Chaparral, cismontane woodland, and lower montane coniferous forest (maritime ponderosa pine sandhills). 165-2,640 feet	<b>Low.</b> Nearest current CNDDDB occurrence records are greater than 30 miles southwest of the BSA.	N/A
Hoover's button-celery <i>Eryngium aristulatum</i> var. <i>hooveri</i>	-	-	1B.1	Jul	Vernal pools. 10-150 feet	<b>None.</b> No vernal pool habitat in the BSA.	N/A
Fragrant fritillary <i>Fritillaria liliacea</i>	-	-	1B.2	Feb-Apr	Often serpentine. Cismontane woodland, coastal prairie, coastal scrub, and valley and foothill grassland. 10-1,345 feet	<b>Low.</b> A wide-ranging species. Nearest CNDDDB occurrence records are greater than 10 miles northwest of the BSA, in East Bay Hills, EBRPD.	N/A
Diablo helianthella <i>Helianthella castanea</i>	-	-	1B.2	Mar-Jun	Broadleaved upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, and valley and foothill grassland. 200-4,265 feet	<b>Low.</b> Nearest CNDDDB occurrence record is approximately 5.5 miles northwest of the BSA, in Dry Creek Regional Park (EBRPD).	N/A

Common name <i>Scientific name</i> <sup>1</sup>	Listing Status <sup>2</sup>			Flowering Period	Habitat Preferences <sup>3</sup>	Potential to Occur in the BSA <sup>4</sup>	Effect Finding for Federally Listed Species
	Federal	State	RPR				
Santa Cruz tarplant <i>Holocarpha macradenia</i>	FT	SE	1B.1	Jun-Oct	Often clay. Coastal prairie, coastal scrub, and valley and foothill grassland; 35-720 feet	<b>Very low.</b> Limited suitable grassland habitat in the BSA. Natural populations are restricted to coastal terrace prairie habitat within Santa Cruz and Monterey Counties. Experimentally seeded populations were grown within Wildcat Canyon Regional Park, Contra Costa County, from 1982-1986. Of these 22 experimental sites, all but one, Mezue, have failed. All Alameda County occurrences are historic (pre-1915). Considered extirpated in Alameda and Contra Costa Counties.	<b>No Effect</b>
Contra Costa goldfields <i>Lasthenia conjugens</i>	FE	-	1B.1	Mar-Jun	Mesic. Cismontane woodland, Playas (alkaline), valley and foothill grassland, and vernal pools. 0-1,550 feet	<b>Very low.</b> Nearest CNDDDB occurrence record is approximately 7 miles south of the BSA.	<b>No Effect</b>
Critical Habitat						No Critical Habitat within the BSA. Nearest Critical Habitat is approximately 15 miles to the SW.	

Common name <i>Scientific name</i> <sup>1</sup>	Listing Status <sup>2</sup>			Flowering Period	Habitat Preferences <sup>3</sup>	Potential to Occur in the BSA <sup>4</sup>	Effect Finding for Federally Listed Species
	Federal	State	RPR				
Beach layia <i>Layia carnosa</i>	FE	SE	1B.1	Mar-Jul	Coastal dunes and coastal scrub (sandy). 0-200 feet	<b>None.</b> No coastal dune or coastal habitat in the BSA.	<b>No Effect</b>
Woolly-headed lessingia <i>Lessingia hololeuca</i>	-	-	3	Jun-Oct	Clay, serpentine. Broadleaved upland forest, coastal scrub, lower montane coniferous forest, and valley and foothill grassland. 50-1,010 feet	<b>None.</b> No serpentine habitat in the BSA.	<b>N/A</b>
Arcuate bush mallow <i>Malacothamnus arcuatus</i>	-	-	1B.2	Apr-Sept	Chaparral and cismontane woodland. 50-1,170 feet	<b>Very low.</b> Nearest current CNDDDB occurrence record is greater than 20 miles southwest of the BSA, on the peninsula.	<b>N/A</b>
Hall's bush mallow <i>Malacothamnus hallii</i>	-	-	1B.2	May-Sept	Chaparral, coastal scrub. 35-2,510 feet	<b>Very low.</b> Nearest current CNDDDB occurrence record is greater than 20 miles south of the BSA.	<b>N/A</b>
San Antonio Hills monardella <i>Monardella antonina</i> ssp. <i>antonina</i>	-	-	3	Jun-Aug	Chaparral and cismontane woodland. 1,060-3,300 feet	<b>Low.</b> Nearest current CNPS occurrence records are in the Sunol Regional Wilderness (EBRP) greater than 5 miles southeast of the BSA. All other Alameda County records are historic (pre-1935).	<b>N/A</b>
Prostrate vernal pool navarretia <i>Navarretia prostrata</i>	-	-	1B.1	Apr-Jul	Mesic. Coastal scrub, meadows and seeps, valley and foothill grassland (alkaline), and vernal pools. 50-3,990 feet	<b>Very low.</b> Nearest current CNDDDB occurrence record is approximately 5 miles south of the BSA.	<b>N/A</b>



Common name <i>Scientific name</i> <sup>1</sup>	Listing Status <sup>2</sup>			Flowering Period	Habitat Preferences <sup>3</sup>	Potential to Occur in the BSA <sup>4</sup>	Effect Finding for Federally Listed Species
	Federal	State	RPR				
Hairless popcorn-flower <i>Plagiobothrys glaber</i>	-	-	1A	Mar-May	Meadows and seeps (alkaline) and marshes and swamps (coastal salt). 50-595 feet	<b>None.</b> No alkaline or coastal salt habitat in the BSA. Considered extirpated.	N/A
Oregon polemonium <i>Polemonium carneum</i>	-	-	2B.2	Apr-Sep	Coastal prairie, coastal scrub, and lower montane coniferous forest. 0-6,040 feet	<b>Very low.</b> Not known to occur in the Niles Quadrangle. All CNDDB occurrence records within 35 miles of the BSA are historic.	N/A
Chaparral ragwort <i>Senecio aphanactis</i>	-	-	2B.2	Jan-Apr	Sometimes alkaline. Chaparral, cismontane woodland and coastal scrub. 50-2,640 feet	<b>Low.</b> Nearest current CNDDB occurrence record is greater than 10 miles east of the BSA in Corall Hollow area.	N/A
Most beautiful jewel-flower <i>Streptanthus albidus</i> ssp. <i>peramoenus</i>	-	-	1B.2	Mar-Oct	Serpentine. Chaparral, cismontane woodland, valley and foothill grassland. 365-3,300 feet	<b>Low.</b> No serpentine habitat in the BSA. CNDDB and CNPS occurrence records in Garin/Dry Creek Regional Park (EBRPD) less than 2 miles west of the BSA.	N/A
Slender-leaved pondweed <i>Stuckenia filiformis</i> ssp. <i>alpina</i>	-	-	2B.2	May-Jul	Marshes and swamps (assorted shallow freshwater). 660-7,095 feet	<b>Low.</b> Nearest current CNDDB occurrence record is greater than 3 miles southwest of the BSA.	N/A
California seablite <i>Suaeda californica</i>	FE	-	1B.1	Jul-Oct	Marshes and swamps (coastal salt) 0-50 feet	<b>None.</b> No coastal salt habitat in the BSA.	<b>No Effect</b>

Common name <i>Scientific name</i> <sup>1</sup>	Listing Status <sup>2</sup>			Flowering Period	Habitat Preferences <sup>3</sup>	Potential to Occur in the BSA <sup>4</sup>	Effect Finding for Federally Listed Species
	Federal	State	RPR				
Saline clover <i>Trifolium hydrophilum</i>	-	-	1B.2	Apr-Jun	Marshes and swamps, valley and foothill grassland (mesic, alkaline), and vernal pools. 0-990 feet	<b>Low.</b> Nearest current CNDDDB occurrence is about 8 miles southwest of the BSA.	N/A

1. Scientific nomenclature based on Baldwin et al. (2012) and Jepson Online Interchange (2014); common names from Baldwin et al. (2012), CalFlora (2014) and other sources.

2. Conservation status definitions are as follows:

U.S. Fish and Wildlife Service designations:

- FE      Endangered: Any species in danger of extinction throughout all or a significant portion of its range.  
 FT      Threatened: Any species likely to become endangered within the foreseeable future.

California Department of Fish and Game designations:

- SE      Endangered: Any species in danger of extinction throughout all or a significant portion of its range.

California Native Plant Society designations:

- 1B      Plants rare, threatened or endangered in California and elsewhere.  
 2      Plants rare, threatened or endangered in California, but more common elsewhere.  
 3      Plants for which more information is needed – a review list.  
 4      Plants of limited distribution – a watch list.

California Native Plant Society threat categories:

- .1      Seriously endangered in California.  
 .2      Fairly endangered in California.  
 .3      Not very endangered in California.

3. Habitat information from CNPS (2014).

4. **Low:** Habitat within the BSA and/or project vicinity satisfies very few of the species' requirements and/or the range of the species overlaps with the vicinity of the BSA, but not with the BSA itself. The species' presence within the study area is unlikely.

## Wildlife Species

Common Name	Scientific Name	Status (Federal/State)	Habitat Requirements	Potential to Occur in the BSA	Effect Finding for Federally Listed Species
<b>Invertebrates</b>					
Conservancy fairy shrimp	<i>Branchinecta conservatio</i>	FE / SA	Vernal pools in a variety of soil types, including clays and playas. Often found in pools that are relatively large and turbid.	Not Expected - No vernal pool habitat in BSA.	<b>No Effect</b>
Longhorn fairy shrimp	<i>Branchinecta longiantenna</i>	FE / SA	Clear to turbid vernal pools in varying habitat types, including grasslands, sandstone outcrops, and playas.	Not Expected - No vernal pool habitat in BSA.	<b>No Effect</b>
Vernal pool fairy shrimp	<i>Branchinecta lynchi</i>	FT / SA	Wide variety of vernal pool habitats, most commonly in grass or mud bottomed swales, or basalt flow depression pools in unplowed grasslands.	Not Expected - No vernal pool habitat in BSA.	<b>No Effect</b>
		Critical Habitat		No Critical Habitat in BSA. Nearest Critical Habitat is approximately 20 miles to the NE.	
San Bruno elfin butterfly	<i>Callophrys mossii bayensis</i>	FE / –	Occurs in coastal grassy mountainous areas near San Francisco Bay. Located on steep northfacing slopes above 500' elevation that contain populations of host plant; <i>Sedum spathulifolium</i> . Uses a variety of nectar plants occurring in upper elevation grasslands and scrub.	Not Expected – Host plant was not observed within the BSA during plant surveys.	<b>No Effect</b>
Monarch butterfly (winter roosting)	<i>Danaus plexippus</i>	– / SA	Winter roosting sites extend along the coast from northern Mendocino County south to San Diego County. Roosts are typically located in wind-protected tree groves within a half mile of the coast. Commonly found in eucalyptus, Monterey pine and/or cypress groves, with nectar and water sources in the vicinity. Larvae develop on milkweed ( <i>Asclepias</i> spp.) throughout California.	Low – Marginal wintering habitat, no historic presence recorded in this area.	<b>N/A</b>
Bay checkerspot butterfly	<i>Euphydryas editha bayensis</i>	FT / SA	Serpentine areas in Santa Clara and San Mateo Counties where its hostplant, dwarf plantain ( <i>Plantago erecta</i> ) is present.	Not Expected - No serpentine habitat in BSA.	<b>No Effect</b>
Vernal pool tadpole shrimp	<i>Lepidurus packardi</i>	FE / SA	Vernal pools and swales containing clear to highly turbid water. Pools commonly found in grass bottomed swales of unplowed grasslands. Some pools are mud-bottomed and highly turbid.	Not Expected - No vernal pool habitat in BSA.	<b>No Effect</b>
		Critical Habitat		No Critical Habitat in BSA - Nearest Critical Habitat is approximately 15 miles to the SW.	

Common Name	Scientific Name	Status (Federal/State)	Habitat Requirements	Potential to Occur in the BSA	Effect Finding for Federally Listed Species
California linderiella	<i>Linderiella occidentalis</i>	– / SA	Wide variety of vernal pool and other seasonal wetland habitats, often in deeper pools.	Not Expected - No vernal pool habitat in BSA.	N/A
Lum's micro-blind harvestman	<i>Microcina lumi</i>	– / SA	Found under rocks in serpentine grasslands. Known only from serpentine hillsides near San Leandro, Alameda County.	Not Expected - No serpentine habitat in BSA.	N/A
Mimic tryonia (=California brackish water snail)	<i>Tryonia imitator</i>	– / SA	Inhabits coastal lagoons, estuaries and salt marshes, from Sonoma County south to San Diego County.	Not Expected - No lagoon, estuary, or salt marsh in BSA.	N/A
<b>Fish</b>					
Green sturgeon - southern DPS	<i>Acipenser medirostris</i>	FT / SSC	Spawn in deep pools or "holes" in large, turbulent, freshwater river main-stems. Adults live in oceanic waters, bays, and estuaries when not spawning.	Not Expected - No suitable habitat in BSA.	No Effect
Pacific lamprey	<i>Entosphenus tridentatus</i>	-- / SA	Anadromous. Adults spawn in gravel substrates within low gradient stream reaches, generally near pools or riffles. Larvae float downstream to silty areas where they filter feed for 4-7 years, before metamorphosing into adults and leaving streams for oceanic waters.	Moderate - Suitable habitat present, lamprey species have been observed within the watershed.	N/A
Delta smelt	<i>Hypomesus transpacificus</i>	FT/ SE	Found in the Sacramento-San Joaquin delta, seasonally in Suisun Bay, Carquinez Strait and San Pablo Bay. Seldom found at salinities > 10 ppt. Most often occurs at salinities < 2ppt.	Not Expected - Outside species' range, no suitable habitat in BSA.	No Effect
River lamprey	<i>Lampetra ayresii</i>	- / SSC	Anadromous. Oceanic adults enter river systems to spawn in clean, gravelly riffles. Filter-feeding larvae bury themselves in sandy backwaters or stream edges.	Moderate - Suitable habitat present, lamprey species have been observed within the watershed.	N/A
Coho salmon - central California coast ESU	<i>Oncorhynchus kisutch</i>	FE / SE	Spawning habitat is small streams with stable gravel substrates. The remainder of the life cycle is spent foraging in estuarine and marine waters of the Pacific Ocean.	Not Expected – Outside of species' current range, marginally suitable habitat in BSA.	No Effect

Common Name	Scientific Name	Status (Federal/State)	Habitat Requirements	Potential to Occur in the BSA	Effect Finding for Federally Listed Species
Steelhead - central California coast DPS	<i>Oncorhynchus mykiss irideus</i>	FT / SA	Freshwater spawning sites with water quantity and quality conditions and substrate supporting spawning, incubation and larval development. Natural cover such as shade, submerged and overhanging large wood, log jams and beaver dams, aquatic vegetation, large rocks and boulders, side channels, and undercut banks. This DPS includes spawning populations from the Russian River to Aptos Creek, including San Francisco Bay.	High - Suitable habitat in Alameda Creek, and resident rainbow trout form is present in watershed. Currently, anadromous form is excluded by downstream passage barriers; but is likely to occur if passage is restored as planned in 2016.	<b>No Effect</b>
		Critical Habitat		No Critical Habitat in BSA - Nearest Critical Habitat is approximately 20 miles to the West (SF Bay).	
Steelhead - Central Valley DPS	<i>Oncorhynchus mykiss irideus</i>	FT / SA	Freshwater spawning sites with water quantity and quality conditions and substrate supporting spawning, incubation and larval development. Natural cover such as shade, submerged and overhanging large wood, log jams and beaver dams, aquatic vegetation, large rocks and boulders, side channels, and undercut banks. This DPS includes spawning populations from the Sacramento and San Joaquin River systems.	Not Expected - Outside species' range.	<b>No Effect</b>
Chinook salmon - Central Valley spring- run ESU	<i>Oncorhynchus tshawytscha</i>	FT / ST	Prefer streams that are deeper and larger than those used by other Pacific salmon species.	Not Expected - Outside species' range.	<b>No Effect</b>
Chinook salmon - Sacramento River winter-run ESU	<i>Oncorhynchus tshawytscha</i>	FE / SE	Prefer streams that are deeper and larger than those used by other Pacific salmon species.	Not Expected - Outside species' range.	<b>No Effect</b>
Longfin smelt	<i>Spirinchus thaleichthys</i>	FC / ST	Occurs in bays and estuaries from Monterey Bay to the Smith River. Enters lower tidal portions of larger streams to spawn, not typically found in non-tidal sections of small streams.	Not Expected – No suitable habitat within BSA.	<b>N/A</b>

Common Name	Scientific Name	Status (Federal/State)	Habitat Requirements	Potential to Occur in the BSA	Effect Finding for Federally Listed Species
Amphibians					
California tiger salamander	Ambystoma californiense	FT / ST	Vernal pools and/or seasonal water sources; requires underground refuges in adjacent upland areas, especially ground squirrel burrows.	Not Expected – No suitable breeding or upland habitat within the BSA. The steep, densely shaded walls of Niles Canyon are not suitable dispersal habitat for the species and likely represent a dispersal barrier.	No Effect
		Critical Habitat		No Critical Habitat in BSA - Nearest Critical Habitat is approximately 15 miles to the NE and SE.	
Foothill yellow-legged frog	Rana boylli	-- / SSC	Breeds and forages in rocky or cobble-bottomed streams. Found in a variety of forest, woodland, scrub, riparian, and meadow habitats where suitable streams are present.	Low – Marginally suitable habitat present in Alameda Creek within the BSA.	N/A
California red-legged frog	Rana draytonii	FT / SSC	Breeds in ponds and pools in slow-moving streams with emergent vegetation; adjacen upland habitats are often used for temporary refuges or dispersal movements.	Moderate – Marginally suitable aquatic habitat within Alameda Creek, suitable upland habitat throughout BSA.	The proposed project may affect, likely to adversely affect this species.
		Critical Habitat		No Critical Habitat in BSA - Nearest Critical Habitat is approximately 5 miles to the SE.	
Reptiles					
Western pond turtle	Emys marmorata	-- / SSC	Occurs in both permanent and seasonal waters, including marshes, streams, rivers, ponds, and lakes. Also found in agricultural irrigation and drainage canals. They favor habitats with large amounts of emergent logs or boulders, where several individuals may congregate to bask.	Moderate – Suitable aquatic habitat in sun-exposed portions of Alameda Creek, and suitable breeding habitat in south-facing upland grasslands within BSA.	N/A

Common Name	Scientific Name	Status (Federal/State)	Habitat Requirements	Potential to Occur in the BSA	Effect Finding for Federally Listed Species
Alameda whipsnake	<i>Masticophis lateralis euryxanthus</i>	FT / ST	Typically found in chaparral and scrub habitats, but will also use adjacent grassland, oak savanna, and woodland habitats. Often found on south-facing slopes and ravines with rock outcrops, deep crevices, or abundant rodent burrows.	High – BSA is partially located within designated critical habitat, suitable foraging and dispersal habitat present.	<b>The proposed project may affect, likely to adversely affect this species.</b>
		Critical Habitat		Critical Habitat in BSA - Approximately 3.55 acres of the BSA occurs within Critical Habitat 3.	
Giant garter snake	<i>Thamnophis gigas</i>	FT / ST	Prefers freshwater marsh and low gradient streams. Has adapted to drainage canals & irrigation ditches. Can also inhabit swamp, riparian scrub, and wetland habitats.	Not Expected – The BSA is outside of this species' range.	<b>No Effect</b>
<b>Birds</b>					
Cooper's hawk	<i>Accipiter cooperii</i>	-- / SA	Found in woodland, chiefly of open, interrupted or marginal type. Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river flood-plains; also, live oaks.	Moderate - Suitable nesting and foraging habitat within BSA.	<b>N/A</b>
Sharp-shinned hawk	<i>Accipiter striatus</i>	-- / SA	Found in ponderosa pine, black oak, riparian deciduous, mixed conifer and Jeffrey pine habitats. Prefers riparian areas. Nest sites with plucking perches on north-facing slopes are critical requirements. Nests usually within 275 feet of water.	Low - Suitable nesting and foraging habitat within BSA, but it is uncommon for this species to nest in the Bay Area.	<b>N/A</b>
Tricolored blackbird	<i>Agelaius tricolor</i>	-- / SSC	Highly colonial species that typically nests in freshwater marshes containing emergent vegetation such as cattail and bulrush, but will also use blackberry thickets and dense patches of ruderal vegetation such as thistles and mustard adjacent to marshes or wetlands.	Low – Marginal nesting habitat within the BSA, may forage or migrate through.	<b>N/A</b>
Golden eagle	<i>Aquila chrysaetos</i>	BGEPA / FP	Rolling foothills, mountain areas, sage-juniper flats, and desert. Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas provide good nesting sites.	Low – Golden eagles were observed in flight high above the BSA during the habitat assessment, but are unlikely to use trees in the canyon bottom for nesting. May forage or migrate through.	<b>N/A</b>

Common Name	Scientific Name	Status (Federal/State)	Habitat Requirements	Potential to Occur in the BSA	Effect Finding for Federally Listed Species
Great egret (rookery)	<i>Ardea alba</i>	-- / SA	Nests colonially in trees and tall vegetation in a wide variety of habitats near open water foraging habitats.	Moderate - Suitable rookery habitat in large trees within the BSA. Individuals likely to forage within the BSA.	N/A
Great blue heron (rookery)	<i>Ardea herodias</i>	-- / SA	Variety of habitats close to bodies of water including fresh and saltwater marshes, wet meadows, lake edges and shorelines. Nests colonially in tall trees, cliffsides, and sequestered spots on marshes.	Moderate - Suitable rookery habitat in large trees within the BSA. Individuals likely to forage within the BSA.	N/A
Western burrowing owl	<i>Athene cunicularia hypugaea</i>	-- / SSC	Nests in burrows (often constructed by ground squirrels) and forages in low-growing grasslands and other open, semi-arid habitats.	Not Expected – No suitable short, open grassland habitat within the BSA.	N/A
Ferruginous hawk (wintering)	<i>Buteo regalis</i>	-- / SA	Forages over open grasslands, sagebrush flats, desert scrub, low foothills and fringes of pinyon-juniper habitats. Does not nest in California.	Low - Does not nest in California, but may occur within BSA while foraging or during migration.	N/A
Western snowy plover	<i>Charadrius alexandrinus nivosus</i>	FT / SSC	Found on sandy beaches, salt pond levees & shores of large alkali lakes. Requires sandy, gravelly or friable soils for nesting.	Not Expected - No suitable sandy beach or shoreline habitat in the BSA.	No Effect
		Critical Habitat		No Critical Habitat within the BSA – Nearest critical habitat is approximately 8.5 miles to the west.	
Northern harrier (nesting)	<i>Circus cyaneus</i>	-- / SSC	Wet and dry open country such as marshes and grasslands with good ground cover. Nests on the ground among tall vegetation.	Not Expected – No suitable nesting or foraging habitat present.	N/A
Yellow-billed cuckoo	<i>Coccyzus americanus</i>	FT / CE	Riparian forest along the broad, lower flood-bottoms of larger river systems. Nests in riparian jungles of willow, often mixed with cottonwoods with lower story of blackberry, nettles, or wild grape.	Not expected – Species occurrences are sporadic and limited. The closest occurrence is from Milpitas in 1899, where development has eliminated habitat.	No Effect
Yellow warbler	<i>Dendroica petechia brewsteri</i>	-- / SSC	Nest and forage in riparian woodlands, often associated with willows and, though specific vegetation varies by locality.	Moderate - Suitable nesting habitat in riparian area, may also forage or occur as a migrant within the BSA.	N/A



Common Name	Scientific Name	Status (Federal/State)	Habitat Requirements	Potential to Occur in the BSA	Effect Finding for Federally Listed Species
Snowy egret (rookery)	<i>Egretta thula</i>	-- / SA	Nests colonially, with nest sites situated in trees and protected beds of dense bulrush. Rookery sites situated close to foraging areas: marshes, tidal-flats, streams, wet meadows, and borders of lakes.	Moderate - Suitable rookery habitat in large trees within the BSA. Individuals likely to forage within the BSA.	N/A
White-tailed kite	<i>Elanus leucurus</i>	-- / FP	Nests in oak, willow or other trees and forages over open grasslands.	Moderate - Suitable nesting habitat in trees within and adjacent to BSA. Limited foraging habitat due to small amount of open grassland.	N/A
California horned lark	<i>Eremophila alpestris actia</i>	-- / SA	Grasslands and other open habitats that lack trees or brushy areas. Nests on the ground, usually near grass clumps or earth clods.	Not expected – No suitable nesting habitat within the BSA.	N/A
Prairie falcon	<i>Falco mexicanus</i>	-- / SA	Found in dry, open terrain, either level or hilly. Breeding sites are located on cliffs. Forages far afield, even to marshlands and ocean shores.	Low - No suitable nesting habitat present, but individuals may occasionally forage or occur as a migrant within the BSA.	N/A
American peregrine falcon	<i>Falco peregrinus anatum</i>	FD / SD, FP	Nests on cliffs, banks, dunes, mounds, large bridges, and tall buildings, typically near wetlands, lakes, rivers, or other water bodies. Nest consists of a scrape or a depression or ledge in an open site.	Low - No suitable nesting habitat present, but individuals may occasionally forage or occur as a migrant within the BSA.	N/A
Saltmarsh common yellowthroat	<i>Geothlypis trichas sinuosa</i>	-- / SSC	Resident of fresh and salt water marshes fringing the San Francisco Bay region. Requires thick, continuous cover down to water's surface for foraging, and tall grasses, bulrush patches, or willows for nesting.	Not Expected - No salt or freshwater marshes with thick, continuous cover in the BSA.	N/A
California black rail	<i>Laterallus jamaicensis coturniculus</i>	-- / ST, FP	Found in freshwater marshes, wet meadows and shallow margins of saltwater marshes bordering larger bays. Requires water depths of about one inch that does not fluctuate during the year & dense vegetation for nesting habitat.	Not Expected - No suitable marsh or tidal slough habitats in BSA.	N/A
Alameda song sparrow	<i>Melospiza melodia pusillula</i>	-- / SSC	Resident of salt marshes bordering south arm of San Francisco Bay. Inhabits pickleweed ( <i>Salicornia</i> spp.) marshes; nests low in pickleweed and gumweed ( <i>Grindelia</i> spp.) bushes, but high enough to escape high tides.	Not Expected - No suitable salt marsh habitat in the BSA.	N/A

Common Name	Scientific Name	Status (Federal/State)	Habitat Requirements	Potential to Occur in the BSA	Effect Finding for Federally Listed Species
Black-crowned night heron	<i>Nycticorax nycticorax</i>	-- / SA	Nests in trees and vegetation near a wide variety of open water habitats, including streams, canals, lakes, shorelines, and marshes.	Moderate - Suitable rookery habitat in large trees within the BSA. Individuals likely to forage within the BSA.	N/A
California brown pelican	<i>Pelecanus occidentalis californicus</i>	FD / SD, FP	Nest on the Channel Islands in southern California and islands off the coast of Baja California. Roost during the winter on near-shore rocks and undisturbed human-made structures such as breakwaters and abandoned piers.	Not Expected - No shoreline habitat in BSA.	N/A
California clapper rail	<i>Rallus longirostris obsoletus</i>	FE / SE, FP	Salt-water & brackish marshes traversed by tidal sloughs in the vicinity of San Francisco Bay.	Not Expected - No suitable marsh or tidal slough habitats in BSA.	No Effect
Bank swallow	<i>Riparia riparia</i>	-- / ST	Nests colonially in vertical banks of sand or dirt along rivers, lake shores, road cuts, or similar sites. Nests primarily in riparian and other lowland habitats in central and northern California. Has not been confirmed breeding in Alameda County since 1929.	Not Expected - No suitable habitat for nesting colonies within the BSA.	N/A
California least tern	<i>Sternula antillarum browni</i>	FE / SE, FP	Nest colonially on the ground in sandy or gravelly beaches. Forage over open water in coastal regions, including within San Francisco Bay.	Not Expected - No sandy or gravelly beach habitat in the BSA.	No Effect
<b>Mammals</b>					
Pallid bat	<i>Antrozous pallidus</i>	-- / SSC	Occurs throughout California and most abundant in grasslands, shrublands, and woodlands. Roosts in crevices and cavities of buildings, bridges, tunnels, rocks, cliffs, and trees.	High – Confirmed to be using Alameda Creek Bridge as a night roost	N/A
Ringtail	<i>Bassariscus astutus</i>	-- / FP	Found throughout much of California in riparian areas, rocky slopes, and woodlands near water. Builds dens in tree hollows and crevices among rocks.	Not Expected – Rare in the region, no documented observations and limited suitable habitat in Niles Canyon.	N/A
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	-- / SSC	Found throughout California in a wide variety of habitats; most commonly associated with mesic sites. Usually roosts in caves, mines, bridges, trees, and structures in or near woodlands and forests, often near water. Extremely sensitive to human disturbance.	Moderate – Roosting habitat within the BSA is marginal. Species is known to occur within the region and the Niles Canyon corridor provides suitable foraging habitat.	N/A

Common Name	Scientific Name	Status (Federal/State)	Habitat Requirements	Potential to Occur in the BSA	Effect Finding for Federally Listed Species
Berkeley kangaroo rat	<i>Dipodomys heermanni berkeleyensis</i>	-- / SA	Species was considered extinct for several decades until recent rediscovery. Habitat requirements not fully understood, but likely to be found in open grassy hilltops and open spaces in chaparral and blue oak/California foothill pine woodlands. Requires fine, deep, well-drained soil for burrowing.	Low - Marginal habitat present based on the information available.	N/A
Western mastiff bat	<i>Eumops perotis californicus</i>	-- / SSC	Found in open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, and chaparral. Roosts in crevices in cliff faces, high buildings, trees, and/or tunnels.	Low - No suitable roosting habitat present, but may forage in riparian and woodland habitat within the BSA.	N/A
Western red bat	<i>Lasiurus blossevillii</i>	-- / SA	Occurs throughout California primarily in riparian and woodland areas. Roosts singly or in small groups in shrub and tree foliage.	Moderate - Suitable riparian and woodland roosting habitat within BSA. Does not roost in bridges.	N/A
Hoary bat	<i>Lasiurus cinereus</i>	-- / SA	Occurs throughout California, primarily in habitat mosaics with cover and open areas or habitat edges for feeding. Roosts singly or in small groups in shrub and tree foliage of riparian, woodland, and forest habitats.	Moderate - Suitable riparian and woodland roosting habitat within BSA. Does not roost in bridges.	N/A
Long-eared myotis	<i>Myotis evotis</i>	-- / SA	Occurs throughout California in suitable habitat such as conifer and deciduous woodlands, coastal scrub, and chaparral. Roosts in crevices and cavities in buildings, bridges, trees, snags and stumps.	Moderate - Known to occur in the region. Suitable riparian and woodland habitats within the BSA; may roost in bridges.	N/A
Fringed myotis	<i>Myotis thysanodes</i>	-- / SA	Occurs throughout California in suitable habitat such as conifer and deciduous woodlands, coastal scrub, and chaparral. Roosts in crevices and cavities in buildings, bridges, trees, snags and stumps.	Moderate - Known to occur in the region. Suitable riparian and woodland habitats within the BSA; may roost in bridges.	N/A
Yuma myotis	<i>Myotis yumanensis</i>	-- / SA	Commonly throughout California especially near water features. Roosts in crevices and cavities of buildings, bridges, caves, tunnels, mines and trees. Forages primarily over open water such as reservoirs, lakes, streams, creeks, canals, and ponds.	High – Confirmed maternity colony present within Alameda Creek Bridge	N/A
San Francisco dusky-footed woodrat	<i>Neotoma fuscipes annectens</i>	-- / SSC	Found in forest habitats of moderate canopy and moderate to dense understory. May prefer chaparral and redwood habitats. Constructs nests of shredded grass, leaves, and other material. May be limited by availability of nest-building materials.	High - Woodrat nests observed at the bases of trees throughout the BSA.	N/A

Common Name	Scientific Name	Status (Federal/State)	Habitat Requirements	Potential to Occur in the BSA	Effect Finding for Federally Listed Species
Salt-marsh harvest mouse	<i>Reithrodontomys raviventris</i>	FE / SE, FP	Only in the saline emergent wetlands of San Francisco bay and its tributaries. Pickleweed ( <i>Salicornia</i> sp.) is primary habitat. Builds loosely organized nests and requires higher areas to escape high tides.	Not Expected - No suitable salt marsh or pickleweed habitat in BSA.	<b>No Effect</b>
Salt-marsh wandering shrew	<i>Sorex vagrans halicoetes</i>	-- / SSC	Found in salt marshes of the south arm of San Francisco Bay. Medium high marsh 6-8 feet above sea level where abundant driftwood is scattered among pickleweed.	Not Expected - No salt marsh or driftwood habitat in BSA.	<b>N/A</b>
American badger	<i>Taxidea taxus</i>	-- / SSC	Prefers dry open stages of most shrub, forest, and herbaceous habitats. Requires sufficient prey base (mostly burrowing rodents), friable soils, and open, uncultivated ground.	Low - Marginally suitable habitat present, may occasionally forage or disperse through the BSA.	<b>N/A</b>
San Joaquin kit fox	<i>Vulpes macrotis mutica</i>	FE / ST	Annual grassland or grassy open stages with scattered shrubby vegetation. Need loose-textured sandy soils for burrowing and suitable prey base.	Not expected – No suitable habitat within the BSA. Rare and sparsely distributed in the region.	<b>No Effect</b>

**Federal Status Designations:**

FE	Listed as Endangered under the federal Endangered Species Act
FT	Listed as Threatened under the federal Endangered Species Act
FC	Candidate for listing under the federal Endangered Species Act
FD	Delisted; was formerly listed as Threatened or Endangered
PE	Proposed for listing as Endangered
PT	Proposed for listing as Threatened
BGEPA	Protected under the Bald and Golden Eagle Protection Act
–	No federal status

**State of California Status Designations:**

SE	Listed as Endangered under the California Endangered Species Act
ST	Listed as Threatened under the California Endangered Species Act
SD	Delisted; was formerly listed as Threatened or Endangered
FP	Fully Protected Species under California Fish and Game Code
SSC	California Department of Fish and Wildlife Species of Special Concern
SA	Included on the California Department of Fish and Wildlife's Special Animals List
WL	California Department of Fish and Wildlife's Watch List
–	No state status



## **Appendix J: United Fish and Wildlife Service Biological Opinion**

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# United States Department of the Interior



In Reply Refer to:  
08ESMF00-  
2015-F-0073-2

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

**MAY 04 2017**

Ms. JoAnn Cullom  
California Department of Transportation  
Environmental Division, MS-8E  
111 Grand Avenue  
Oakland, California 94612

Subject: Formal Consultation on the State Route 84 Alameda Creek Bridge Replacement Project, Alameda County, California (Caltrans EA 16030)

Dear Ms. Cullom:

This letter is in response to California Department of Transportation's (Caltrans) November 20, 2014 request for consultation with the U.S. Fish and Wildlife Service (Service) on the proposed State Route (SR) 84 Alameda Creek Bridge Replacement Project in Alameda County, California. A draft Biological Opinion (BO) was issued on April 28, 2015 (Service File #08ESMF00-2015-F-0073-1). Caltrans requested that we suspend the consultation on June 11, 2015. Your request to proceed with the consultation was received by the Service on May 5, 2016. Progress on the consultation was put on hold on January 1, 2017, when Caltrans' NEPA assignment authority went into suspension. Work resumed after Caltrans regained their NEPA assignment authority on March 30, 2017. At issue are the proposed project's effects on the Federally California red-legged frog (*Rana draytonii*), threatened Alameda whipsnake (*Masticophis lateralis euryxanthus*), and critical habitat for the Alameda whipsnake. Critical habitat has been designated for the California red-legged frog but does not occur within the action area. This response is provided under the authority of the Endangered Species Act of 1973, as amended (16 U.S.C. § 1531 et seq.) (Act), and in accordance with the implementing regulations pertaining to interagency cooperation (50 CFR 402).

Fixing America's Surface Transportation Act (FAST Act) was signed into law on December 4, 2015. Providing funding from 2016 to 2020, the FAST Act includes provisions to promote streamlined and accelerated project delivery. Caltrans is approved to participate in the FAST Act project delivery program through the National Environmental Policy Act (NEPA) Assignment Memorandum of Understanding (MOU). The MOU allows Caltrans to assume the Federal Highway Administration's (FHWA) responsibilities under NEPA as well as FHWA's consultation and coordination responsibilities under Federal environmental laws for most highway projects in California. Caltrans is exercising this authority as the Federal nexus for section 7 consultation on this project.

The Federal action we are consulting on includes the replacement of a SR 84 Alameda Creek Bridge, west of the City of Sunol. Pursuant to 50 CFR 402.12(j), you submitted a Biological Assessment (BA) for our review and requested concurrence with the findings presented therein. Caltrans concluded that the proposed project may affect, and is likely to adversely affect the California red-legged frog and Alameda whipsnake, and was unlikely to result in an adverse modification to Alameda whipsnake critical habitat.



In their project description, Caltrans states that construction activities will occur during the typical nesting season for a variety of species protected under the Migratory Bird Treaty Act (MBTA). Caltrans has proposed conservation measures to identify active nests and create appropriate disturbance buffers around them. Breeding birds are often secretive near their nests and nest sites are often inconspicuous and difficult to find. Effective discovery and avoidance is difficult to assure even under the direction of an experienced and skilled field biologist. The Service notes that this biological opinion does not issue “take” for migratory birds for this project and we recommend Caltrans consult with the Region 8 Migratory Bird Program.

In considering your request, we based our evaluation on the following: (1) Caltrans’ November 2014, BA; (2) April 17, 2010, August 26, 2010, and March 24, 2014 site visits; (3) The April 28, 2015 draft BO (Service File #08ESMF00-2015-F-0073-1); (4) information provided by Caltrans on May 5, 2016; and (5) other information available to the Service.

The remainder of this document provides our biological opinion on the effects of the proposed project on the California red-legged frog, Alameda whipsnake, and Alameda whipsnake critical habitat.

### **Consultation History**

April 17, 2010:	The Service visited the proposed project site with Caltrans as part of the former project proposal.
August 26, 2010:	The Service visited the proposed project site with Caltrans and other agency representatives.
March 12, 2014:	The Service received Caltrans’ request for technical assistance.
March 24, 2014:	The Service visited the proposed project site with Caltrans and other agency representatives.
November 24, 2014:	The Service received Caltrans’ November 20, 2014, request to initiate formal consultation along with a November 2014 BA.
January 23, 2015:	The Service sent Caltrans’ an e-mail message regarding our review of the consultation request and November 2014 BA. The e-mail message provided the functional equivalent of a 30-day letter.
January 30, 2015:	The Service received Caltrans’ response to our January 23, 2015 e-mail message. The response provided the necessary information for the Service to begin our assessment.
March 2, 2015:	The Service received additional effects acreage information from Caltrans.
March 6, 2015:	The Service received additional mitigation information from Caltrans.
April 28, 2015:	The Service issued a draft BO for Caltrans’ review and comment (Service File #08ESMF00-2015-F-0073-1).
May 5, 2015:	The Service received Caltrans’ response regarding their review of the April 28, 2015 draft BO via an e-mail message.

June 11, 2015: Caltrans requested that the Service delay the issuance of the final BO.

May 5, 2016: The Service received Caltrans' May 2, 2016 edits to the April 28, 2015 draft BO along with a request to proceed with the consultation.

January 1, 2017: Caltrans' NEPA assignment authority went into suspension.

March 30, 2017: Caltrans resumed their NEPA assignment authority.

April 4, 2017: The Service received additional information from Caltrans regarding the project description.

## BIOLOGICAL OPINION

### Description of the Action

According to Caltrans, the existing SR 84 Alameda Creek Bridge is functionally obsolete and needs to be replaced to meet current design standards. The proposed project includes the bridge structure and the associated approaches between Post Miles 13.0 and 13.6.

The proposed project will include the following main components:

1. Geotechnical investigation for the new bridge structure;
2. New bridge construction;
3. Approach realignment/widening; and
4. Removal of the existing bridge structure, roadway approaches, and concrete weir.

These components are further described as follows:

#### *Geotechnical Investigations*

Caltrans plans to conduct geotechnical investigations at 11 locations. This will require borings that will be conducted at the locations for the two proposed bridge abutments (borings 3 and 6); two concrete support columns (borings 4 and 5); western bridge approach (borings 1, 2, and 3); and eastern bridge approach (borings 7-11).

The work at borings 1 through 7 will include establishing four access routes. Of these, borings 4 and 5 will be located below the ordinary high water mark (OHWM) of a secondary drainage to Alameda Creek. The constructed access routes will be approximately 12 feet wide. The access routes to borings 1 and 2 will be approximately 100 feet long and the route to borings 3, 4, and 5 will be approximately 640 feet long. Equipment will be lowered from SR 84 into boring 6 and a 100 foot long access route will be cleared between borings 6 and 7. The remaining boring locations, 8 through 11, will be directly accessed from the existing SR 84 roadway. All boring locations will include a 20 by 30 foot pad. Small bulldozers, backhoes, and loaders will likely be needed to construct these temporary access routes and work areas, which will include vegetation removal and laying down temporary geotextile mats and gravel pads.

Caltrans expects the establishment of the geotechnical boring access and work areas to take approximately two months to complete. Staging for the geotechnical boring will be limited to an existing pullout along SR 84. Active drilling at each bore is expected to take place over a 24-day period with approximately 2 to 4 days to complete.

Geotechnical drilling will involve drill rigs that use bentonite clay and Portland Type I-II cement. All drill cuttings and excess drilling mud will be placed in properly labeled storage drums, removed at the conclusion of the geotechnical drilling, and disposed at a proper waste facility. The contractor will be responsible for the proper disposal of this material.

#### *New Alameda Creek Bridge*

The new bridge structure will be 480 foot-long, 46-foot wide with realigned east and west approaches. The new bridge will be supported by an abutment foundation at the west approach on a spread footing, three 5.5 x 8 foot columns, and a sidehill viaduct on the eastern approach. The bridge columns will be located beyond the low-flow channel, though two of the columns will be located within the OHWM of Alameda Creek.

To replace bat habitat lost from the proposed demolition of the existing bridge, bridge elements and configurations that support night and day roosting will be installed where feasible on the new Alameda Creek Bridge.

Bridge construction will require access to the Alameda Creek channel. Diversion of the creek flow during construction is discussed later. Access will be provided by the routes established for the geotechnical borings. Construction will involve the use of falsework that will be supported on approximately 16 by 50 foot long pads. Falsework and equipment will be removed after construction is completed.

The abutments and columns will be installed using the cast-in-drilled-hole (CIDH) method, which will include drilling of pile holes into the alluvium deposits of Alameda Creek. The groundwater from dewatering during foundation construction will be placed into a settling tank before being released downstream. Rebar and concrete will be placed in the excavations to create the foundations.

The new approaches will be located approximately 75 feet north of the existing alignment. Approach construction will require clearing and grubbing followed by construction of the new roadway. The realignment construction will include approximately 1,400 feet of the roadway for the western approach and 300 feet for the eastern approach. The approaches will be 48 feet wide. Realignment of the western approach will include raising the road profile with imported fill; cutting into the hillside, creating a 4:1 embankment; and extending the roadway over the existing downslope, creating a 2:1 embankment.

Realignment of the eastern approach will include cutting into the rocky uphill surface and covering the new 300 foot long, 2 to 17 foot high rock face with wire mesh. The 250 foot long side hill viaduct that will support the new eastern bridge approach will also be constructed using the CIDH method. The existing concrete-covered slope between the eastern approach and Alameda Creek will remain in place except in areas where new support piers will be constructed. Two new culverts will be installed to replace the existing drainages under the eastern approach.

Bridge and approach construction will require a variety of construction equipment including a crane, drill rigs, forklifts, man lifts, soil compactor, and bulldozers.

*Utility Relocation*

Two existing utility poles will need to be relocated. The work associated with bringing the existing poles down and installing the new ones will be conducted from the SR 84 roadway.

*Drainage Structures*

Caltrans will be installing a variety of structures to properly direct stormwater off, away from, and under the new bridge and approaches. These structures will include drop-inlets, which are open inflows covered with grating; concrete or corrugated metal longitudinal drainage pipes up to 36 inches in diameter to convey water from the drop-inlets to cross-culverts and existing drainage; and concrete or corrugated metal cross culverts to convey water under SR 84 to Alameda Creek. Existing culverts will be replaced and cross-culvert installation may involve trenches up to 10 feet wide. Cross-culverts outfalls will empty out the side of the retaining walls or a constructed headwall. Rock slope protection will be placed at the outfalls to dissipate flow and control erosional forces.

*Creek Diversion*

Diversion of the active portions of the Alameda Creek channel will be needed for bridge construction and bridge demolition. These activities will occur during a June 1 to October 15 work window over three different years but the method to divert the creek flow from active construction areas will be similar. The diversion will include the installation of temporary gravel dams or aquadams upstream and downstream of the work area. The upstream dam will direct water to the diversion and the downstream dam will be intended to prevent backflow.

The diversion system will extend 54 feet upstream of the concrete weir (old bridge footings) and 54 feet downstream from the drip line of the existing Alameda Creek Bridge.

Berms will be created with plastic-wrapped gravel bags or aquadams. In addition, a cutoff wall will be used if necessary to reduce the flow of water through the substrate under the upstream dam and/or temporary berms. The cutoff wall will consist of a 2-foot deep by 2-foot wide trench, spanning the width of the creek, with impermeable material placed below grade to reduce seepage into the work area. The trenching and construction of the cut off wall will not occur in the active Alameda Creek channel.

The gravel dam or aquadam will be approximately 30 feet wide at the base and 6 feet tall, with 2:1 side slopes. Prior to placement of the dam, sharp objects, boulders, and cobbles will be removed from the dam area to create a smooth streambed and prevent channels by which water can pass beneath the dam after it is built; these objects will be removed by hand or, if necessary, by a grapple located on either side of the creek. The water will flow by gravity through the construction site in a single, 4 foot-diameter pipe; the pipe will run along the southern bank of the creek as to not impede access across the job site.

An additional area 12 feet upstream from the upstream base of the dam, and 12 feet downstream from the downstream base of the dam will be used for construction access.

A temporary roadway/ramp will be constructed in the dry creek bed for each creek diversion construction window. The temporary roadway/ramp will be constructed from native creek material. Heavy equipment, trucks, drill rigs, and other construction equipment will use this temporary roadway/ramp while working in the creek area.

Following the implementation of the creek diversion, any ponded water located in between the upstream berm and the downstream berm will be pumped out to create a dry working environment.

The temporary dewatering system will be removed by October 15 at the end of each construction season.

#### *Bridge and Approach Demolition*

Demolition of the replaced bridge and associated approaches will be conducted in the year following completion of the new structure. The bridge will be dismantled outward from the middle and falsework platforms will be installed in the Alameda Creek bed to catch falling debris. A ground cover consisting of plastic, sheets, tarp and/or plywood sheets will also be placed under the bridge to catch debris and cover the dewatering system. Demolition will include the use of saws, jack hammers, and ram hoes. A backhoe or excavator with a fitted ram will be used to break up the abutments. Then a loader will be used to collect the debris to be hauled away. A crane positioned on the former bridge approach will also be used to lift material out. Equipment will use the created access into the Alameda Creek bed to remove the bridge columns.

An excavator will be used to remove the abandoned bridge approaches down to their subbase. The road surface and road foundation materials from these stretches of SR 84 will be removed and disposed of off-site. After clearing and removal, the former road grade will be recontoured to match the surrounding area, restored, and planted with native vegetation.

#### *Weir Removal*

Caltrans will remove a weir located upstream of the existing Alameda Creek Bridge. The weir consists of two footings and a concrete wall between them that extends the width of the creek. The wall is a likely movement barrier to fish and other aquatic species. Caltrans has not completed their feasibility study regarding the removal or associated agency coordination. As an alternative, the final plan may be limited to strategically placed breaches of the structure.

Access to the weir would be gained by paths created to reach the Alameda Creek bed for the other project components. The weir work will be concurrent with bridge demolition. Therefore the creek diversion system will be in place. A backhoe or excavator with a fitted ram will be used to break up the weir wall and foundations. Then a loader will be used to collect debris to be hauled away.

#### *Arundo Removal*

Caltrans will remove a stand of non-native and invasive *Arundo donax* from the Alameda Creek riparian corridor. The Arundo is located on the north bank, adjacent to the northern end of the weir. The arundo will be accessed using the established paths. Caltrans will provide the plan and method of removal for Service approval prior to the action. The success of the removal will be assessed and addressed if needed during the post construction restoration success monitoring.

#### *Site Clean-Up and Restoration*

All construction-related materials including fencing will be removed after each construction season has been completed. Areas used for access and work areas will be restored following their use. These areas will be recontoured if appropriate and replacement native vegetation will be planted in areas where they would not affect roadway safety. The abandoned approaches will be remediated and replanted with appropriate native vegetation/trees. Specifications regarding vegetation and tree replacement will be provided to the Service during the design phase of the project (estimated to be completed in 2019). Permanent erosion control, including soil stabilization measures such as hydroseeding, coir netting and non-filament mesh, will be applied to all areas of ground disturbance

to minimize erosion following each construction phase. The coir netting and non-filament mesh will not be placed where they can be washed away during high flows in winter.

Caltrans will replace upland trees at 1:1 and trees within the riparian zone at 3:1. The priority will be to plant the replacement trees as part of the restoration of the project footprint. If the restoration area cannot accommodate the quantity of replacement trees, they will be planted elsewhere within the Alameda Creek watershed. If needed, Caltrans will determine the location and details of off-site replacement planting with the California Department of Fish and Wildlife (CDFW).

### *Schedule*

The proposed project activities are projected to begin in the summer of 2020 and be completed in 2024. Throughout this time period, ground activities in the Alameda Creek bed will only be conducted between June 1 and October 15, while ground work within upland habitat for the California red-legged frog and Alameda whipsnake will occur between March and November. Nighttime work will be needed for long-term operation and activities that conflict with the safety of daytime vehicle traffic. A summary of the project schedule is as follows:

Vegetation removal and geotechnical borings will be performed one season prior to the construction of the new bridge.

The construction of the new bridge and realigned approaches will take up to four seasons to complete.

Demolition of the old bridge, restoration of the abandoned approaches segments, weir removal/breach, and site restoration will occur during the last year of construction.

### *Conservation Measures*

Caltrans proposes to reduce adverse effects to the California red-legged frog and Alameda whipsnake by implementing the following measures:

1. Caltrans will include a copy of the all relevant permits within the construction bid package of the proposed project. The Resident Engineer or their designee will be responsible for implementing the *Conservation Measures and Terms and Conditions* of the BO, the CDFW Incidental Take Permit, and the CDFW 1602 Lake and Streambed Alteration Agreement.
2. Caltrans will provide compensation for Alameda whipsnake and California red-legged frog habitat loss with the purchase of mitigation credits from a Service-approved bank, on-site habitat restoration, and potential off-site habitat enhancement/plantings.

Ground disturbance to habitat within in the project footprint is suitable for both species. The loss and compensation ratios are shown in the Table 1.

**Table 1.** Summary of Alameda whipsnake and California red-legged frog habitat loss and proposed off-site compensation

Type of Loss	Acres	Ratio	Compensation
Temporary (< 1 year)	0.75	1:1	Satisfied onsite with restoration.
Prolonged Temporary (>1 year)	2.81	1.5:1	4.23
Permanent	1.66	3:1	4.98
<b>Total</b>	<b>4.47</b>	<b>N/A</b>	<b>9.21</b>

Caltrans will conserve 9.21 acres of California red-legged frog and 9.21 acres of Alameda whipsnake habitat with the purchase of species credits at a Service-approved bank that is accepted by the Service for projects in this area.

In the event that credits are not available or other options are considered, Caltrans will coordinate with the regulatory agencies to establish an appropriate mitigation strategy. In the event that the credits are not available at geographically appropriate bank, Caltrans will satisfy compensation through another means that meets Service approval.

Caltrans will implement restoration of temporary work areas at the conclusion of project construction. Areas will be restored to their particular baseline land cover and ecological functions.

3. Caltrans will compensate for tree loss through CDFW Lake and Stream Alteration Agreement and California Environmental Quality Act requirements. The loss of native riparian trees will be replaced at 3:1, while native upland trees will be replaced at 1:1. Tree replacement will take place within the temporary work areas during the restoration phase. If there is insufficient space, plantings will extend into other areas within the Alameda Creek watershed, to the maximum extent practicable given available opportunity.
4. At least 15 days prior to the onset of any construction-related activities covered in this consultation, Caltrans will submit to the Service, for approval, the name(s) and credentials of biologists it wishes to conduct activities specified for this project. Information included in a request for authorization will include, at a minimum: (1) relevant education; (2) relevant training concerning California red-legged frog and Alameda whipsnake identification, survey techniques, handling individuals of different age classes, and handling of different life stages by a permitted biologist or recognized species expert authorized for such activities by the Service; (3) a summary of field experience conducting requested activities (to include project/research information); (4) a summary of BOs under which they were authorized to work with the California red-legged frog and Alameda whipsnake and at what level (such as construction monitoring versus handling), this will also include the names and qualifications of persons under which the work was supervised as well as the amount of work experience on the actual project; (5) a list of Federal Recovery Permits [10(a)1(A)] held or under which they are authorized to work with the California red-legged frog and Alameda whipsnake (to include permit number, authorized activities, and name of permit holder); and (6) any relevant professional references with contact information. No project construction will begin until Caltrans has received written Service approval for biologists to conduct specified activities.
5. The Service-approved Biological Monitor(s) will be on-site during initial ground-disturbing activities, and thereafter as needed to fulfill the role of the approved biologist as specified in project permits. The biologist(s) will keep copies of applicable permits in their possession when on-site. Through the Resident Engineer or their designee, the Service-approved Biological Monitor(s) will be given the authority to communicate either verbally, by telephone, e-mail or hardcopy with all project personnel to ensure that take of listed species is minimized and permit requirements are fully implemented. Through the Resident Engineer or their designee, the Service-approved Biological Monitor will have the authority to stop project activities to minimize take of listed species or if they determine that any permit requirements are not fully implemented. If the Service-approved Biological Monitor exercises this authority, the Service will be notified by telephone and e-mail within 24 hours.

6. Pre-construction surveys for the Alameda whipsnake or California red-legged frog will be conducted by the Service-approved Biological Monitor no more than 20 calendar days prior to any initial ground disturbance within habitat identified for either species in the November 2014 BA. These efforts will consist of walking surveys of the project limits and, if possible, accessible adjacent areas within at least 50 feet of the project limits. The Service-approved Biological Monitor will investigate potential cover sites when it is feasible and safe to do so. This includes thorough investigation of mammal burrows, rocky outcrops, appropriately sized soil cracks, tree cavities, and debris. Native vertebrates found in the cover sites within the project limits will be documented and relocated to an adequate cover site in the vicinity.
7. The Service-approved Biological Monitor(s) will perform a California red-legged frog and Alameda whipsnake clearance survey immediately prior to the initial ground disturbance. Safety permitting, the Service-approved Biological Monitor(s) will investigate areas of disturbed soil for signs of the listed species within 30 minutes following the initial disturbance of that given area.
8. All construction personnel will attend an environmental education program delivered by a Service-approved Biological Monitor prior to working on the project site. The program will include a brief summary of the California red-legged frog's and Alameda whipsnake's life histories, identification, and the conservation measures relevant to their tasks. Personnel will be briefed on the animals' legal protection under the Act and the personal penalties and other consequences that could be associated with noncompliance. Attendees names will be logged on a sign-in sheet which will be kept on file and available to the Service upon request.
9. To prevent inadvertent entrapment of listed species during construction excavated holes or trenches more than one foot deep with walls steeper than 30 degrees will be covered at the close of each working day by plywood or similar materials. Alternatively, an additional 4-foot high vertical barrier, independent of exclusionary fences, will be used to further prevent the inadvertent entrapment of listed species. If it is not feasible to cover an excavation or provide an additional 4-foot high vertical barrier, independent of exclusionary fences, one or more escape ramps constructed of earth fill or wooden planks will be installed. Before such holes or trenches are filled, they will be thoroughly inspected for trapped animals. If at any time a trapped listed animal is discovered, the on-site biologist will immediately place escape ramps or other appropriate structures to allow the animal to escape or the Service will be contacted by telephone for guidance. The Service will be notified of the incident by telephone and e-mail within 24 hours.
10. Prior to the start of construction in individual construction areas, wildlife exclusion fencing will be installed along the project footprint in all areas where the California red-legged frog and Alameda whipsnake could enter the active site. The location and extent of wildlife exclusion fencing will be presented to the Service and CDFW for approval prior to project initiation. Caltrans will include the exclusion fencing specifications on the final project plans. Caltrans will include the exclusion fencing specifications, including installation and maintenance criteria, in the bid solicitation package special provisions. The fencing will remain in place throughout the duration of the construction activities within the individual work areas and will be regularly inspected and fully maintained. Repairs to the fence will be made within 24 hours of discovery. Upon completion of activities within the given area, the fence will be completely removed; the area cleaned of debris and trash, and returned to natural conditions.



11. Prior to ground disturbance, active areas within the project footprint will be delineated with temporary, high-visibility fencing to prevent the encroachment of construction personnel and equipment outside the described project footprint. The fencing will be removed after all construction equipment is removed from those segments of the project.
12. The Resident Engineer will immediately contact the Service-approved biologist in the event that a California red-legged frog or Alameda whipsnake is observed within a construction zone. The Resident Engineer will suspend construction activities within a 50-foot radius of the animal until the animal leaves the site voluntarily or a Service-approved protocol for removal has been established.
13. The Service-approved Biological Monitor(s) will permanently remove, from the project site, any aquatic exotic wildlife species, such as bullfrogs and crayfish, to the extent possible.
14. The Service-approved Biological Monitor will halt work immediately and contact the Service in the event that a California red-legged frog or Alameda whipsnake is found within the construction zone. The Biological Monitor will suspend all construction activities in the immediate construction zone until the animal leaves the site voluntarily or is removed by the biologist to a release site using Service-approved transportation techniques.
15. Adult and juvenile frogs captured by the Service-approved Biological Monitor will be relocated into appropriate habitat within the Alameda Creek riparian corridor but outside the work footprint. The priority will be to move the frog out of harm's way but as close to the capture location as possible.
16. The Service-approved Biological Monitor will place cover boards in strategic locations throughout the project footprint during the pre-construction surveys. During construction, these cover boards will be checked on a daily basis for the California red-legged frog and Alameda whipsnake when the Biological Monitor is onsite.
17. The Service will be notified within one (1) working day if a listed species is discovered within the action area.
18. A creek diversion plan will be developed and provided to the Service for review and comment in advance of its establishment.
19. If pumping is used for dewatering, intakes will be completely screened with wire mesh no larger than 0.2-inch to prevent California red-legged frogs from entering the pump.
20. Protective measures will be implemented to prevent material from falling into the creek.
21. To mitigate for potential discharges from rain, the project contractor and Caltrans staff will monitor the forecast for qualifying storm events. Caltrans has defined a qualifying rain event to be any storm that produces or is forecasted to produce at least 0.50 inch of precipitation at the time of discharge, with a 72-hour dry period between events. Before a qualifying storm event occurs, a qualified Caltrans stormwater practitioner will conduct a pre-event site inspection of the project erosion control and water quality BMPs to insure that the SWPPP measures are installed and adequately maintained. The inspector will provide recommendations for repair/replacement of or additional BMPs, which may include:

- a. Silt fence, fiber rolls, and gravel bags to capture sediment;
  - b. Tarps, straw or other cover for disturbed slopes; or
  - c. Tarps, fiber rolls or gravel bags to stabilize or contain stockpiled soils/fill materials.
  - d. Before a qualifying storm event, all materials and equipment will be removed from stream channels or waterways. If practicable, creek or stream diversions will be removed before the event. In addition, runoff will be monitored and sampled for sediment loads to determine if a discharge has occurred.
22. No work will occur within undisturbed special-status species habitat 48 hours before and during a forecasted rain event. Caltrans has defined a qualifying rain event to be any storm that produces or is forecasted to produce at least 0.50 inch of precipitation at the time of discharge, with a 72-hour dry period between events. These areas will be fully surveyed by a Service-approved Biologist for special-status species prior to the continuation of work. Work will be prohibited in areas where ponding in special-status species habitat has occurred as a result of a rain event.
  23. To the extent practicable, tree removal, vegetation removal, and clearing and grubbing activities will be conducted during the non-nesting season, between September 1 and February 14.
  24. All work within suitable aquatic habitat for steelhead and California red-legged frog will occur between June 1 and October 15. All work within suitable upland habitat for California red-legged frog and Alameda whipsnake will occur between March 1 and November 30.
  25. Pre-construction surveys for nesting birds will be conducted by a qualified biologist no more than 72 hours prior to the start of construction for activities occurring during the nesting season (February 15 to August 31).
  26. If work is to occur within 300 feet of active raptor nests or 50 feet of active passerine nests, a non-disturbance buffer will be established 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.
  27. Caltrans will implement a swallow exclusion plan to prevent the establishment of active nests in areas where disturbance during construction has the potential to result in nest failure.
  28. No more than two weeks prior to tree removal, a qualified biologist will conduct a pre-construction bat survey for crevice and cavity roosting habitat in trees within the action area that are 12 inches or greater in diameter at breast height. If active bat roosting habitat is identified, **minimization** measures will be identified through coordination with CDFW.
  29. Water quality inspector(s) will inspect the site after a rain event to ensure that the stormwater Best Management Practices (BMPs) are adequate.
  30. Project employees will be required to comply with guidance governing vehicle use, speed limits on unpaved roads, fire prevention, and other hazards.
  31. To the extent practicable, nighttime construction will be **minimized**.

32. The use of artificial lighting will be ~~minimized~~ to the maximum extent practicable. Artificial lighting will include shielding, bulbs with color ratings that ~~minimize~~ effects to wildlife, and be directed towards the active work area and away from surrounding habitat.
33. 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 a day from the work area.
34. No firearms will be allowed on the project site except for those carried by authorized security personnel, or local, State, or Federal law enforcement officials.
35. To prevent harassment, injury or mortality of sensitive species, no pets will be permitted on the project site.
36. The Caltrans Construction Support/Compliance Monitor(s) will inspect the project site within 48 hours prior to a forecasted rain event to ensure that adequate storm-water best management practices (BMPs) are properly installed. The Service-approved Biological Monitor(s) will also inspect the site during and/or within two (2) calendar days following the onset of a rain event to ensure that restarting activities would not result in the harm of the California red-legged frog and/or its habitat.
37. The potential for adverse effects to water quality will be avoided by implementing temporary and permanent BMPs outlined in Section 13 of the 2015 Caltrans Standard Specifications. Caltrans erosion control BMPs will be used to ~~minimize~~ any wind or water-related erosion. The State Water Resources Control Board has issued a National Pollution Discharge Elimination System Statewide Storm Water Permit to Caltrans to regulate storm water and non-storm water discharges from Caltrans facilities. A Storm Water Pollution Prevention Plan (SWPPP) will be developed for the project, as one is required for all projects that have at least 1.0 acre of soil disturbance. The SWPPP complies with the Caltrans Storm Water Management Plan (SWMP). The SWMP includes guidance for design staff to include provisions in construction contracts to include measures to protect sensitive areas and to prevent and ~~minimize~~ storm water and non-storm water discharges.

The SWPPP will reference the Caltrans Construction Site BMPs Manual. This manual is comprehensive and includes many other protective measures and guidance to prevent and ~~minimize~~ pollutant discharges and can be found at the following website:  
<http://www.dot.ca.gov/hq/construc/stormwater/manuals.htm>

Protective measures will be included in the contract, including, at a minimum:

- a. No discharge of pollutants from vehicle and equipment cleaning are allowed into the storm drain or water courses.
- b. Vehicle and equipment fueling and maintenance operations must be at least 50 feet away from water courses.
- c. Concrete wastes are collected in washouts and water from curing operations is collected and disposed of and not allowed into water courses.
- d. Dust control will be implemented, including use of water trucks and tackifiers to control dust in excavation and fill areas, rocking temporary access road entrances and exits, and covering temporary stockpiles when weather conditions require.

- e. Coir rolls will be installed along or at the base of slopes during construction to capture sediment and temporary organic hydromulching will be applied to all unfinished disturbed and graded areas.
  - f. Work areas where temporary disturbance has removed the pre-existing vegetation will be restored and re-seeded with a native seed mix.
  - g. Graded areas will be protected from erosion using a combination of silt fences, fiber rolls along toe of slopes or along edges of designated staging areas, and erosion-control netting (such as jute or coir) as appropriate.
38. Plastic monofilament netting (erosion control matting) or similar material will be prohibited from use on the project because California red-legged frog and Alameda whipsnake may become entangled or trapped in it. Acceptable substitutes include coconut coir matting or tackified hydroseeding compounds.
39. All grindings and asphaltic-concrete waste will be stored within previously disturbed areas absent of habitat and at a minimum of 150 feet from any aquatic habitat, culvert, or drainage feature.
40. All areas that are temporarily affected during construction will be revegetated with an assemblage of native grass, shrub, and trees as appropriate. Invasive, exotic plants will be controlled within the project footprint to the maximum extent practicable, pursuant to Executive Order 13112.
41. If requested, before, during, or upon completion of groundbreaking and construction activities, Caltrans will allow access by Service personnel into the project footprint to inspect the project and its activities.

### Action Area

An action area is defined in 50 CFR § 402.02, as “all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action.” For the purposes of the effects assessment, the action area for this project encompasses a 21-acre construction footprint and the Alameda Creek and associated riparian corridor at least 500 feet up and downstream of the existing bridge plus a 300 foot upland habitat buffer. The action area beyond the construction footprint has the potential to be affected by noise, artificial lighting, visual disturbance, hydrology changes, barrier effects, and water quality.

### Analytical Framework for the Jeopardy Determinations

Section 7(a)(2) of the Endangered Species Act requires that Federal agencies ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of listed species. “Jeopardize the continued existence of” means to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species (50 CFR § 402.02).

The jeopardy analysis in this biological opinion considers the effects of the proposed Federal action, and any cumulative effects, on the rangewide survival and recovery of the listed species. It relies on four components: (1) the *Status of the Species*, which describes the rangewide condition of the species,

the factors responsible for that condition, and its survival and recovery needs; (2) the *Environmental Baseline*, which analyzes the condition of the species in the action area, the factors responsible for that condition, and the relationship of the action area to the survival and recovery of the species; (3) the *Effects of the Action*, which determines the direct and indirect impacts of the proposed Federal action and the effects of any interrelated or interdependent activities on the species; and (4) the *Cumulative Effects*, which evaluates the effects of future, non-Federal activities in the action area on the species.

### **Analytical Framework for the Adverse Modification Determination**

Section 7(a)(2) of the Act requires that Federal agencies insure that any action they authorize, fund, or carry out is not likely to destroy or to adversely modify designated critical habitat. A final rule revising the regulatory definition of “destruction or adverse modification” (DAM) was published on February 11, 2016 (81 FR 7214). The final rule became effective on March 14, 2016. The revised definition states:

“Destruction or adverse modification means a direct or indirect alteration that appreciably diminishes the value of critical habitat for the conservation of a listed species. Such alterations may include, but are not limited to, those that alter the physical or biological features essential to the conservation of a species or that preclude or significantly delay development of such features.”

The DAM analysis in this BO relies on four components: (1) the *Status of Critical Habitat*, which describes the range-wide condition of the critical habitat in terms of the key components (i.e., essential habitat features, primary constituent elements, or physical and biological features) that provide for the conservation of the Alameda whipsnake, the factors responsible for that condition, and the intended value of the critical habitat overall for the conservation/recovery of the Alameda whipsnake; (2) the *Environmental Baseline*, which analyzes the condition of the critical habitat in the action area, the factors responsible for that condition, and the value of the critical habitat in the action area for the conservation/recovery of the Alameda whipsnake; (3) the *Effects of the Action*, which determines the direct and indirect impacts of the proposed Federal action and the effects of any interrelated and interdependent activities on the key components of critical habitat that provide for the conservation of the Alameda whipsnake, and how those impacts are likely to influence the conservation value of the affected critical habitat; and (4) *Cumulative Effects*, which evaluate the effects of future non-Federal activities that are reasonably certain to occur in the action area on the key components of critical habitat that provide for the conservation of the Alameda whipsnake and how those impacts are likely to influence the conservation value of the affected critical habitat.

For purposes of making the DAM determination, the Service evaluates if the effects of the proposed Federal action, taken together with cumulative effects, are likely to impair or preclude the capacity of critical habitat in the action area to serve its intended conservation function to an extent that appreciably diminishes the range-wide value of critical habitat for the conservation of the Alameda whipsnake. The key to making that finding is understanding the value (i.e., the role) of the critical habitat in the action area for the conservation/recovery of the Alameda whipsnake based on the *Environmental Baseline* analysis.

### **Status of the Species**

#### *California Red-Legged Frog*

#### Listing Status

The California red-legged frog was listed as a threatened species on May 23, 1996 (Service 1996).

Critical habitat was re-designated for this species on March 17, 2010 (Service 2010). A recovery plan was published for the California red-legged frog on September 12, 2002 (Service 2002).

### Description

The California red-legged frog is the largest native frog in the western United States (Wright and Wright 1949), ranging from 1.5 to 5.1 inches in length (Stebbins 2003). The abdomen and hind legs of adults are largely red, while the back is characterized by small black flecks and larger irregular dark blotches with indistinct outlines on a brown, gray, olive, or reddish background. Dorsal spots usually have light centers (Stebbins 2003), and dorsolateral folds are prominent on the back. California red-legged frogs have paired vocal sacs and vocalize in air (Hayes and Krempels 1986). Larvae (tadpoles) range from 0.6 to 3.1 inches in length, and the background color of the body is dark brown and yellow with darker spots (Storer 1925).

### Distribution

The historic range of the red-legged frog extended coastally from the vicinity of Elk Creek in Mendocino County, California, and inland from the vicinity of Redding, Shasta County, California, southward to northwestern Baja California, Mexico (Jennings and Hayes 1985; Hayes and Krempels 1986; Fellers 2005). The red-legged frog was historically documented in 46 California counties but the taxon now remains in 238 streams or drainages within 23 counties, representing a loss of 70 percent of its former range (Service 2002). California red-legged frogs are still locally abundant within portions of the San Francisco Bay area and the Central Coast. Within the remaining distribution of the species, only isolated populations have been documented in the Sierra Nevada, northern Coast Range, northern Transverse Ranges, southern Transverse Ranges, and Peninsular Ranges.

### Status and Natural History

California red-legged frogs predominately inhabit permanent water sources such as streams, lakes, marshes, natural and man-made ponds, and ephemeral drainages in valley bottoms and foothills up to 4,921 feet in elevation (Jennings and Hayes 1994, Bulger *et al.* 2003, Stebbins 2003). However, California red-legged frogs also have been found in ephemeral creeks and drainages and in ponds that may or may not have riparian vegetation. California red-legged frogs also can be found in disturbed areas such as channelized creeks and drainage ditches in urban and agricultural areas. For example, an adult California red-legged frog was observed in a shallow isolated pool on North Slough Creek in the American Canyon area of Napa County (C. Gaber, PG&E, pers. comm., 2008). This frog location was surrounded by vineyard development. Another adult California red-legged frog was observed under debris in an unpaved parking lot in a heavily industrial area of Burlingame (P. Kobernus, Coast Ridge Ecology, pers. comm., 2008). This frog was likely utilizing a nearby drainage ditch. Caltrans also has discovered California red-legged frog adults, tadpoles, and egg masses within a storm drainage system within a major cloverleaf intersection of Millbrae Avenue and SR 101 in a heavily developed area of San Mateo County (Caltrans 2007). California red-legged frog has the potential to persist in disturbed areas as long as those locations provide at least one or more of their life history requirements.

California red-legged frogs typically breed between November and April in still or slow-moving water at least 2.5 feet in depth with emergent vegetation, such as cattails, tules or overhanging willows (Hayes and Jennings 1988). There are earlier breeding records from the southern portion of their range (Storer 1925). Female frogs deposit egg masses on emergent vegetation so that the egg mass floats on or near the surface of the water (Hayes and Miyamoto 1984). Individuals occurring in coastal areas are active year-round (Jennings *et al.* 1992), whereas those found in interior sites are normally less active during the cold and dry seasons.

During other parts of the year, habitat includes nearly any area within 1-2 miles of a breeding site that stays moist and cool through the summer (Fellers 2005). According to Fellers (2005), this can include vegetated areas with coyote brush, California blackberry thickets, and root masses associated with willow and California bay trees. Sometimes the non-breeding habitat used by California red-legged frogs is extremely limited in size. For example, non-breeding California red-legged frogs have been found in a 6-foot wide coyote brush thicket growing along a small intermittent creek surrounded by heavily grazed grassland (Fellers 2005). Sheltering habitat for California red-legged frogs is potentially all aquatic, riparian, and upland areas within the range of the species and includes any landscape features that provide cover, such as existing animal burrows, boulders or rocks, organic debris such as downed trees or logs, and industrial debris. Agricultural features such as drains, watering troughs, spring boxes, abandoned structures, or hay stacks may also be used. Incised stream channels with portions narrower and depths greater than 18 inches also may provide important summer sheltering habitat. Accessibility to sheltering habitat is essential for the survival of California red-legged frogs within a watershed, and can be a factor limiting frog population numbers and survival.

California red-legged frogs do not have a distinct breeding migration (Fellers 2005). Adult frogs are often associated with permanent bodies of water. Some frogs remain at breeding sites all year while others disperse. Dispersal distances are typically less than 0.5 mile, with other individuals moving up to 1-2 miles (Fellers 2005). Movements are typically along riparian corridors, but some individuals, especially on rainy nights, move directly from one site to another through normally inhospitable habitats, such as heavily grazed pastures or oak-grassland savannas (Fellers 2005).

In a study of California red-legged frog terrestrial activity in a mesic area of the Santa Cruz Mountains, Bulger *et al.* (2003) categorized terrestrial use as migratory and non-migratory. The latter occurred over one to several days and was associated with precipitation events. Migratory movements were characterized as the movement between aquatic sites and were most often associated with breeding activities. Bulger *et al.* (2003) reported that non-migrating frogs typically stayed within 200 feet of aquatic habitat 90 percent of the time and were most often associated with dense vegetative cover, *i.e.* California blackberry, poison oak and coyote brush. Dispersing frogs in northern Santa Cruz County traveled distances from 0.25-mile to more than 2 miles without apparent regard to topography, vegetation type, or riparian corridors (Bulger *et al.* 2003).

In a study of California red-legged frog terrestrial activity in a xeric environment, Tatarian (2008) noted that 57 percent of frogs fitted with radio transmitters in the Round Valley study area in eastern Contra Costa County stayed at their breeding pools, whereas 43 percent moved into adjacent upland habitat or to other aquatic sites. This study reported a peak of seasonal terrestrial movement occurring in the fall months, with movement commencing with the first 0.2 inch of precipitation. Movements away from the source pools tapered off into spring. Upland movement activities ranged from 3 to 233 feet, averaging 80 feet, and were associated with a variety of refugia including grass thatch, crevices, cow hoof prints, ground squirrel burrows at the bases of trees or rocks, logs, and a downed barn door; others were associated with upland sites lacking refugia (Tatarian 2008). The majority of terrestrial movements lasted from one to four days; however, an adult female was reported to remain in upland habitat for 50 days (Tatarian 2008). Uplands closer to aquatic sites were used more often and frog refugia were more commonly associated with areas exhibiting higher object cover (*e.g.*, woody debris, rocks, and vegetative cover). Subterranean cover was not significantly different between occupied upland habitat and non-occupied upland habitat.

California red-legged frogs are often prolific breeders, laying their eggs during or shortly after large rainfall events in late winter and early spring (Hayes and Miyamoto 1984). Egg masses containing 2,000-5,000 eggs are attached to vegetation below the surface and hatch after six to fourteen days

(Storer 1925, Jennings and Hayes 1994). In coastal lagoons, the most significant mortality factor in the pre-hatching stage is water salinity (Jennings *et al.* 1992). Eggs exposed to salinity levels greater than 4.5 parts per thousand results in 100 percent mortality (Jennings and Hayes 1990). Increased siltation during the breeding season can cause asphyxiation of eggs and small larvae. Larvae undergo metamorphosis three and a half to seven months following hatching and reach sexual maturity at two to three years of age (Storer 1925; Wright and Wright 1949; Jennings and Hayes 1985, 1990, 1994). Of the various life stages, larvae probably experience the highest mortality rates, with less than 1 percent of eggs laid reaching metamorphosis (Jennings *et al.* 1992). Sexual maturity normally is reached at three to four years of age (Storer 1925; Jennings and Hayes 1985). California red-legged frogs may live eight to ten years (Jennings *et al.* 1992). Populations of California red-legged frogs fluctuate from year to year. When conditions are favorable California red-legged frogs can experience extremely high rates of reproduction and thus produce large numbers of dispersing young and a concomitant increase in the number of occupied sites. In contrast, California red-legged frogs may temporarily disappear from an area when conditions are stressful (*e.g.*, drought).

California red-legged frogs have a diverse diet which changes as they mature. The diet of larval California red-legged frogs is not well studied, but is likely similar to that of other ranid frogs, which feed on algae, diatoms, and detritus by grazing on the surfaces of rocks and vegetation (Fellers 2005; Kupferberg 1996a, 1996b, 1997). Hayes and Tennant (1985) analyzed the diets of California red-legged frogs from Cañada de la Gaviota in Santa Barbara County during the winter of 1981 and found invertebrates (comprising 42 taxa) to be the most common prey item consumed; however, they speculated that this was opportunistic and varied based on prey availability. They ascertained that larger frogs consumed larger prey and were recorded to have preyed on Pacific tree frogs, three-spined stickleback and to a limited extent, California mice, which were abundant at the study site (Hayes and Tennant 1985, Fellers 2005). Although larger vertebrate prey was consumed less frequently, it represented over half of the prey mass eaten by larger frogs suggesting that such prey may play an energetically important role in their diets (Hayes and Tennant 1985). Juvenile and subadult/adult frogs varied in their feeding activity periods; juveniles fed for longer periods throughout the day and night, while subadult/adults fed nocturnally (Hayes and Tennant 1985). Juveniles were significantly less successful at capturing prey and all life history stages exhibited poor prey discrimination; feeding on several inanimate objects that moved through their field of view (Hayes and Tennant 1985).

#### Metapopulation and Patch Dynamics

The direction and type of habitat used by dispersing animals is especially important in fragmented environments (Forys and Humphrey 1996). Models of habitat patch geometry predict that individual animals will exit patches at more “permeable” areas (Buechner 1987; Stamps *et al.* 1987). A landscape corridor may increase the patch-edge permeability by extending patch habitat (La Polla and Barrett 1993), and allow individuals to move from one patch to another. The geometric and habitat features that constitute a “corridor” must be determined from the perspective of the animal (Forys and Humphrey 1996).

Because their habitats have been fragmented, many endangered and threatened species exist as metapopulations (Verboom and Apeldoorn 1990; Verboom *et al.* 1991). A metapopulation is a collection of spatially discrete subpopulations that are connected by the dispersal movements of the individuals (Levins 1970; Hanski 1991). For metapopulations of listed species, a prerequisite to recovery is determining if unoccupied habitat patches are vacant due to the attributes of the habitat patch (food, cover, and patch area) or due to patch context (distance of the patch to other patches and distance of the patch to other features). Subpopulations of patches with higher quality food and cover are more likely to persist because they can support more individuals. Large populations have less of a chance of extinction due to stochastic events (Gilpin and Soule 1986). Similarly, small



patches will support fewer individuals, increasing the rate of extinction. Patches that are near occupied patches are more likely to be recolonized when local extinction occurs and may benefit from emigration of individuals via the “rescue” effect (Hanski 1982; Fahrig and Merriam 1985; Gotelli 1991; Holt 1993). For the metapopulation to persist, the rate of patches being colonized must exceed the rate of patches going extinct (Levins 1970). If some subpopulations go extinct regardless of patch context, recovery actions should be placed on patch attributes. Patches could be managed to increase the availability of food and/or cover.

Movements and dispersal corridors likely are critical to California red-legged frog population dynamics, particularly because the animals likely currently persist as metapopulations with disjunct population centers. Movement and dispersal corridors are important for alleviating over-crowding and intraspecific competition, and also they are important for facilitating the recolonization of areas where the animal has been extirpated. Movement between population centers maintains gene flow and reduced genetic isolation. Genetically isolated populations are at greater risk of deleterious genetic effects such as inbreeding, genetic drift, and founder effects. The survival of wildlife species in fragmented habitats may ultimately depend on their ability to move among patches to access necessary resources, retain genetic diversity, and maintain reproductive capacity within populations (Petit *et al.* 1995; Buza *et al.* 2000; Hilty and Merenlender 2004).

Most metapopulation or metapopulation-like models of patchy populations do not directly include the effects of dispersal mortality on population dynamics (Hanski 1994; With and Crist 1995; Lindenmayer and Possingham 1996). Based on these models, it has become a widely held notion that more vagile species have a higher tolerance to habitat loss and fragmentation than less vagile species. But models that include dispersal mortality predict the opposite: more vagile species should be more vulnerable to habitat loss and fragmentation because they are more susceptible to dispersal mortality (Fahrig 1998; Casagrandi and Gatto 1999). This prediction is supported by Gibbs (1998), who examined the presence-absence of five amphibian species across a gradient of habitat loss. He found that species with low dispersal rates are better able than more vagile species to persist in landscapes with low habitat cover. Gibbs (1998) postulated that the land between habitats serves as a demographic “drain” for many amphibians. Furthermore, Bonnet *et al.* (1999) found that snake species that use frequent long-distance movements have higher mortality rates than do sedentary species.

### Threats

Habitat loss, non-native species introduction, and urban encroachment are the primary factors that have adversely affected the red-legged frog throughout its range. Several researchers in central California have noted the decline and eventual local disappearance of California and northern California red-legged frogs (*Rana aurora*) in systems supporting bullfrogs (Jennings and Hayes 1990; Twedt 1993), red swamp crayfish, signal crayfish, and several species of warm water fish including sunfish, goldfish, common carp, and mosquitofish (Moyle 1976, Barry 1992, Hunt 1993, Fisher and Schaffer 1996). This has been attributed to predation, competition, and reproduction interference. Twedt (1993) documented bullfrog predation of juvenile northern California red-legged frogs, and suggested that bullfrogs could prey on subadult northern California red-legged frogs as well. Bullfrogs may also have a competitive advantage over California red-legged frogs. For instance, bullfrogs are larger and possess more generalized food habits (Bury and Whelan 1984). In addition, bullfrogs have an extended breeding season (Storer 1933) during which an individual female can produce as many as 20,000 eggs (Emlen 1977). Furthermore, bullfrog larvae are unpalatable to predatory fish (Kruse and Francis 1977). Bullfrogs also interfere with red-legged frog reproduction. Thus bullfrogs are able to prey upon and out-compete California red-legged frogs, especially in sub-optimal habitat. Both California and northern California red-legged frogs have also been observed in

amplexus (mounted on) with both male and female bullfrogs (Jennings and Hayes 1990; Jennings 1993; Twedt 1993).

The urbanization of land within and adjacent to red-legged frog habitat has also adversely affected California red-legged frogs. These declines are attributed to channelization of riparian areas, enclosure of the channels by urban development that blocks red-legged frog dispersal, and the introduction of predatory fishes and bullfrogs.

Diseases may also pose a significant threat though the specific effects of diseases on the California red-legged frog are not known. Pathogens are suspected of causing global amphibian declines (Davidson *et al.* 2003). Chytridiomycosis and ranaviruses are a potential threat to the red-legged frog because these diseases have been found to adversely affect other amphibians, including the listed species (Davidson *et al.* 2003; Lips *et al.* 2003). Non-native species, such as bullfrogs and non-native tiger salamanders that live within the range of the California red-legged frog have been identified as potential carriers of these diseases (Garner *et al.* 2005). Human activities can facilitate the spread of disease by encouraging the further introduction of non-native carriers and by acting as carriers themselves (*i.e.*, contaminated boots or fishing equipment). Human activities can also introduce stress by other means, such as habitat fragmentation, that results in the listed species being more susceptible to the effects of disease. Disease will likely become a growing threat because of the relatively small and fragmented remaining California red-legged frog breeding sites, the many stresses on these sites due to habitat losses and alterations, and the many other potential disease-enhancing anthropogenic changes that have occurred both inside and outside the species' range.

Negative effects to wildlife populations from roads and pavement may extend some distance from the actual road. The phenomenon can result from any of the effects already described in this BO, such as vehicle-related mortality, habitat degradation, and invasive exotic species. Forman and Deblinger (1998, 2000) described the area affected as the "road effect" zone. Along a four-lane road in Massachusetts, they determined that this zone extend for an average of approximately 980 feet to either side of the road for an average total zone width of approximately 1,970 feet. They describe the boundaries of this zone as asymmetric and in some areas diminished wildlife use attributed to road effects was detected greater than 0.6 mile from Massachusetts Route 2. The "road-zone" effect can also be subtle. Van der Zande *et al.* (1980) reported that lapwings and black-tailed godwits feeding at 1,575-6,560 feet from roads were disturbed by passing vehicles. The heart rate, metabolic rate and energy expenditure of female bighorn sheep increase near roads (MacArthur *et al.* 1979). Trombulak and Frissell (2000) described another type of "road-zone" effect due to contaminants. Heavy metal concentrations from vehicle exhaust were greatest within 66 feet of roads, but elevated levels of metals in both soil and plants were detected at 660 feet of roads. The "road-zone" apparently varies with habitat type and traffic volume. Based on responses by birds, Forman (2000) estimated the effect zone along primary roads of 1,000 feet in woodlands, 1,197 feet in grasslands, and 2,657 feet in natural lands near urban areas. Along secondary roads with lower traffic volumes, the effect zone was 656 feet. The "road-zone" effect with regard to California red-legged frogs has not been adequately investigated.

The necessity of moving between multiple habitats and breeding ponds means that many amphibian species, such as the California red-legged frog, are especially vulnerable to roads and well-used large paved areas in the landscape. Van Gelder (1973) and Cooke (1995) have examined the effect of roads on amphibians and found that because of their activity patterns, population structure, and preferred habitats, aquatic breeding amphibians are more vulnerable to traffic mortality than some other species. Large, high-volume highways pose a nearly impenetrable barrier to amphibians and result in mortality to individual animals as well as significantly fragmenting habitat. Hels and Buchwald (2001) found that mortality rates for anurans on high traffic roads are higher than on low

traffic roads. Vos and Chardon (1998) found a significant negative effect of road density on the occupation probability of ponds by the moor frog (*Rana arvalis*) in the Netherlands. In addition, incidents of very large numbers of road-killed frogs are well documented (e.g., Ashley and Robinson 1996), and studies have shown strong population level effects of traffic density (Carr and Fahrig 2001) and high traffic roads on these amphibians (Van Gelder 1973; Vos and Chardon 1998). Most studies regularly count road kills from slow moving vehicles (Hansen 1982; Rosen and Lowe 1994; Drews 1995; Mallick *et al.* 1998) or by foot (Munguira and Thomas 1992). These studies assume that every victim is observed, which may be true for large conspicuous mammals, but it certainly is not true for small animals, such as the California red-legged frog. Amphibians appear especially vulnerable to traffic mortality because they readily attempt to cross roads, are slow-moving and small, and thus cannot easily be avoided by drivers (Carr and Fahrig 2001).

#### *Alameda Whipsnake*

For the most recent comprehensive assessment of the Alameda whipsnake's range-wide status, please refer to the species' 2011 5-Year Review (Service 2011). No change in the species' listing status was recommended in the review. The 5-Year Review does not include the threat, recovery, survey data, and other relevant updates for the species since its issuance. Since that time, actions have been implemented that have resulted in additional adverse effects to the species. In association with those actions, conservation measures have been implemented for the purpose of minimizing those adverse effects and in some cases, conserving, restoring, or enhancing Alameda whipsnake habitat. While the threats posed by habitat loss, degradation, and fragmentation as well as other factors including collection, disease, predation, uncontrolled fires, and human disturbance are ongoing, to date no project has proposed a level of effects for which the Service has issued a biological opinion of jeopardy for the species.

#### *Critical Habitat Status for the Alameda Whipsnake*

Critical habitat is defined in Section 3 of the Act as: (1) The specific areas within the geographical area occupied by a species, at the time it is listed in accordance with the Act, on which are found those physical or biological features (a) essential to the conservation of the species and (b) that may require special management considerations or protection; and (2) specific areas outside the geographical area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species. In determining which areas to designate as critical habitat, the Service considers those physical and biological features that are essential to a species' conservation and that may require special management considerations or protection (50 CFR 424.12(b)).

On October 2, 2006, the final rule determining critical habitat for the Alameda whipsnake was published in the **Federal Register** (Service 2006). The rule identifies approximately 154,834 acres located in Alameda, Contra Costa, Santa Clara, and San Joaquin counties, California. The designation resulted in six critical habitat units based on but not limited to the following criteria:

1. Space for individual and population growth and for normal behavior; food, water, air, light, minerals, or other nutritional or physiological requirements;
2. Cover or shelter; sites for breeding, reproduction, and rearing (or development) of offspring; and
3. Habitats that are protected from disturbance or are representative of the historic geographical and ecological distributions of a species.

Critical habitat designations include a list of known PCEs essential to the conservation of the species and that may require special management considerations and protection (50 CFR § 424.14). The PCEs for the Alameda whipsnake are based on the current knowledge of the life history, biology, and ecology of the species and the requirements of the habitat necessary to sustain the essential life history functions of the subspecies. The three identified PCEs are defined as:

Based on our knowledge to date, the primary constituent elements of critical habitat for the Alameda whipsnake consist of:

1. Scrub and shrub communities with a mosaic of open and closed canopy;
2. Woodland or annual grassland plant communities contiguous to lands containing PCE 1; and
3. Lands containing rock outcrops, talus, and small mammal burrows.

### **Environmental Baseline**

What is now State Route 84 (from State Route 680 near Sunol to State Route 238 in Fremont), also known as Niles Canyon Road, became part of the State highway system in 1935 (<http://www.calhighways.org/>). The existing Alameda Creek Bridge structure was built in 1928. The foundation for a former bridge remains directly downstream of the existing structure. Like most of the State's highways, Niles Canyon Road was constructed long before the establishment of the NEPA (1969), the Act (1973), or the California Environmental Quality Act (1970); as well as the Federal listing of the California red-legged frog (1996), the Alameda whipsnake (1997), or our current understanding regarding the effects roads have on wildlife and how roads can be designed to minimize those effects.

Niles Canyon Road extends approximately 7 miles from the small community of Sunol, westward to Fremont. The road follows the steeply defined Alameda Creek-carved canyon and is loosely paralleled by two railroad tracks and an above-ground concrete box-incased aqueduct. Historically, Niles Canyon was one of the primary links to the San Francisco Bay Area that was later replaced by wider travel corridors to the north and south. Niles Canyon Road remains a two-lane route with narrow shoulders and poor ahead sighting. One of the two railroads has been abandoned and the aqueduct is no longer in use and is collapsed in areas. The rugged landscape of Niles Canyon likely limited the development potential typically enabled by roadways. The canyon has remained relatively undeveloped and unchanged over the past 20 years or more.

Alameda Creek is largest river in the southern San Francisco Bay Area with an approximately 700 square mile watershed that includes three large reservoirs. Within Niles Canyon, the creek is a perennial system that can carry significant flows following winter rains. Flows within Alameda Creek are also regulated and variable dependent on releases from the associated upstream reservoirs. A variety of constructed barriers eliminated historic anadromous fish runs in Alameda Creek. However, efforts are underway to remove these barriers and restore native fish runs and the associated riparian corridor. Two of the four major fish barriers within Niles Canyon were removed in 2006 and there are plans to address fish passage for the other two. The riparian corridor along Alameda Creek is narrow due to the steepness of canyon walls and being sandwiched between State Route 84 and the railroads. The creekbed and riparian zone is relatively wider in the action area due to its location on a wide river bend. There are significant expanses of remote wilderness to the north and south of Niles Canyon as it cuts perpendicularly through the coastal mountains. Adjacent land is owned by the East Bay Parks District (EBPD), San Francisco Public Utilities Commission (SFPUC),

and private entities. Grazing and recreation are the primary uses of these adjacent areas. Niles Canyon is the only significant perpendicular break in the continuity of the north-south ridgelines from SR 580 to SR 680. This coastal range is characterized by large grassland areas interspersed with woodlands, coastal scrub, and riparian. All of these vegetation types are found within the proposed action area. Niles Canyon Road, the railroads, and the aqueduct are habitat fragmenting features from the local and regional level.

The combination of traffic volume (1,550 vehicles/peak hour in 2015; <http://www.dot.ca.gov/trafficops/census/volumes2015/Route82-86.html>) and limited sight distance on the winding two-lane Niles Canyon Road likely results in a significant baseline animal-vehicle collision risk. Generally, a volume exceeding 20 vehicles per hour can constitute a risk for significant roadkill that should be addressed with “safe” passage design features.

The land adjacent to the proposed project is influenced by the use of the Niles Canyon transportation corridor. The right-of-way (ROW) includes several associated features such as steep road cuts, vehicle pullouts, overhead utilities, road signs, and a road shoulder that is subject to vegetation maintenance. These physical features along with high traffic volume, traffic noise, exhaust, invasive vegetation, and the threat of animal-vehicle collision have an adverse effect on the function of the neighboring habitat for both common and listed wildlife. This parallel band of disturbance is referred to as a “road effects zone”. The outward extent of this zone can vary with factors such as topography and the sensitivity of a given species to those effects. A spectrum of typical road effects are likely to negatively influence the suitability of the California red-legged frog and Alameda whipsnake habitat in and adjacent to the project footprint as well as the behavior of these species within their respective road effects zone.

The habitat and species utilizing it is less influenced by SR 84 with distance from the edge of the road shoulder. The outside of the ROW is less influenced by maintenance activities and the adjacent land beyond the Caltrans ROW is developed, grazed, or unmanaged. Much of the action area is part of a large expanse of relatively contiguous habitat for the California red-legged frog and Alameda whipsnake.

#### *California Red-Legged Frog*

The action area is located within the range of the California red-legged frog. A map depicting the species’ range is included in the Service’s online profile for the species at <http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=D02D>.

The action area is also within California red-legged frog Recovery Unit 4 (South and East San Francisco Bay Recovery Unit) (Service 2002). The recovery status for this unit is considered high, indicating that the unit contains many existing populations, many areas of high habitat suitability, and low to high levels of threats. The action area falls within Core Area #16 (East San Francisco Bay) of that Recovery Unit (Service 2002). The conservation needs for the East San Francisco Bay Core Area are: (1) protection of existing populations; (2) control of non-native predators; (3) studying the effects of grazing in riparian corridors, ponds, and uplands; (4) reduction of impacts associated with livestock grazing; (5) protection of habitat connectivity; (6) minimizing the effects of recreation and off-road vehicle use; (7) avoidance and reduction of the impacts of urbanization; and (8) protection of habitat buffers from nearby urbanization. This core area is described as being important to species recovery due to its current occupation, ability to act as a source population, and existing habitat connectivity.

The action area is approximately 3.3 miles southeast of the California red-legged frog ALA-1B and 5.5 miles northwest of ALA-2 designated critical habitat units (Service 2010). There is urban development and a major highway (SR 680) between the action area and ALA-2 but there are no significant barriers between the action area and ALA-1B.

Caltrans did not conduct standardized or protocol frog or other wildlife surveys in the action area to support their baseline analysis for the project. Species occurrences in rural areas are often discovered as a result of investigations for proposed development projects. Although not currently in the California Natural Diversity Database (CNDDB), adult California red-legged frogs were observed along Stonybrook Creek, a tributary to Alameda Creek in Niles Canyon, in 2013 and 2014 during surveys for an Alameda County Resource Conservation District (ARCD) fish passage improvement project (Service File #08ESMF00-2014-F-0462). The observations were approximately 1.5 to 2.0 miles upstream of the confluence with Alameda Creek. There are two California red-legged occurrence records in the California Natural Diversity Database (CNDDB) within 1.0 mile of the action area (CDFW 2017). Both records are from stock ponds on the ridgeline south of Niles Canyon. The records included juvenile and larval frogs, indicating local breeding (CNDDB California red-legged frog occurrences #569 and 581). The CNDDB includes two California red-legged frog records from ponds adjacent to Alameda Creek, approximately 3.2 miles (occurrence #657) and 4.6 miles (occurrence #829) upstream of the project footprint.

Due to limited access and survey data, Caltrans and the Service used aerial photography and field observations from available access locations to independently identify available upland habitat for refugia and dispersal as well as potential riparian and aquatic habitat throughout the action area vicinity. Using aerial photography, at least 7 potential breeding ponds were identified within 1.0 mile of the action area, four to the north and three south of Alameda Creek. CNDDB California red-legged frog occurrences #569 and 581 confirm breeding at two of the ponds. The remaining potential breeding sites appear to be stock ponds, similar to those where occurrences #569 and 581 were recorded.

Adult California red-legged frogs are highly mobile and have been documented to move more than 2 miles over upland habitat. The frog habitat within the action area has direct connectivity with suitable habitat up and downstream of the project site and is well within the feasible movement distance to numerous potential breeding locations. Vertical barriers can limit or prevent passage but California red-legged frogs are not adverse to steep topography and could move back and forth between the action area and nearby stock ponds north and south of the action area by way of the grassland, woodland, and scrub habitat as well as several ephemeral drainages leading up to the ridgelines.

There are varying degrees of impediments to frog movement in and adjacent to the action area. It may be difficult for California red-legged frogs to cross Alameda Creek during high and swift winter and early spring flows or during artificial releases. Northern movement is likely encumbered by the railroad parallel and north of Alameda Creek and the action area, but is unlikely a formidable barrier. The existing concrete retaining wall between SR 84 and Alameda Creek on the eastern bridge approach is tall but likely has enough of a slope for frogs to climb. Without a road mortality study or movement analysis it is difficult to determine the “hot spots” for California red-legged frog movement across Niles Canyon Road, and hence where increased road mortality risk would occur. Little roadkill data is available for this section of SR 84 on the University of California at Davis Road Ecology Center’s online California Roadkill Observation System (<http://www.wildlifecrossing.net/california/>). However, California red-legged frogs may be more likely to cross under the Alameda Creek Bridge rather than move over the roadway within the action area. The risk of roadkill is likely highest at the east and south bridge approaches due to the proximity to

Alameda Creek. Frogs are more likely to cross SR 84 at night when traffic is at its lightest, however the traffic volume remains high enough to be a significant risk. Road mortality creates a semi-permeable barrier because some California red-legged frogs are likely to safely cross the roadway however, over time continued mortality can have a significant effect on population viability as the integrity of the larger population is disrupted and the recovery goals for the species in Alameda County are compromised.

The Niles Canyon Aqueduct immediately south of the action area is over 100 years old, with the concrete casing being completed in 1923 (SFPUC 2005). This historic structure is likely the most significant barrier to frog and other wildlife movement in the area. To varying degrees, the upslope, south face of the wall is partially imbedded in the canyon wall, likely enabling frogs and wildlife to move over the wall towards Alameda Creek. The north face of the aqueduct facing Alameda Creek and SR 84 is more exposed and is up to 5 feet high. This vertical height is likely a barrier to frogs moving from the Alameda Creek riparian corridor to breeding ponds and other suitable habitat south of the action area. Although collapsed and lower profiled in areas, the aqueduct is a fragmenting feature between frog habitat and populations north and south of Niles Canyon.

Despite the surrounding barriers, Niles Canyon and the surrounding uplands provide sufficient habitat to sustain a red-legged frog population. Efforts to enhance passage across the road would likely reduce the risk of mortality and enhancement of passage across the road, railroad, and the complete or selective removal of the aqueduct would likely increase habitat connectivity. The aqueduct is no longer in use and has been decommissioned. The SFPUC holds the aqueduct and there is an opportunity work with this agency to establish wildlife passage through it. Implementing or funding such an action would directly benefit California red-legged frogs in the immediate area by enhancing connectivity to known and potential California red-legged frog breeding ponds and Alameda Creek.

The Alameda Creek riparian corridor includes perennial water, shade, and vegetation and substrate cover to provide year-round habitat for juvenile and adult California red-legged frogs. Backwater pools were observed in the action area, upstream of the existing bridge during the various field visits. Alameda Creek is a dynamic system and the duration and location of backwater pools likely changes from year to year. Alameda Creek is often at highwater during the California red-legged frog breeding season which likely limits breeding potential along the creek. However, the seasonal highwater events also discharge into side channels or low points, creating isolated pools when water level subsides. The formation of the backwater pool upstream of the existing bridge structure may be due to the former bridge foundation/weir that runs perpendicular across and within the streambed. The backwater pools can provide breeding habitat for the California red-legged frog and it is possible that California red-legged frogs lay eggs in this and other backwater pools in Alameda Creek when conditions allow. The combination of backwater, riffles, and glides within the action area represent a diverse aquatic habitat that provides frog forage, cover, escape, and moist environment needs outside the wet winter and early spring season. The presence of predators such as bullfrogs and largemouth bass does not necessarily preclude California red-legged frogs from the local areas of Alameda Creek, the nearby Stonybrook Creek, or the associated riparian and adjacent upland habitat.

The Service believes that the California red-legged frog is reasonably certain to occur within the action area due to: (1) the project being located within the species' range and current distribution; (2) the presence of suitable aquatic and upland habitat; (3) recent observations of the species within 1.0 mile of the action area; (4) connectivity with confirmed and potential breeding ponds; (5) all the elements needed to support the species' life history are located within 0.5-mile of the action area; (6) the frog's ability to move long distances; and (7) the biology and ecology of the animal.

*Alameda Whipsnake*

The action area is located within the range of the Alameda whipsnake. A map depicting the species' range is included in the Service's online profile for the species at <http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=C04A>.

Seven recovery units have been identified for the Alameda whipsnake (Service 2002a). The action area is located within the Niles Canyon-Sunol Corridor Unit (Unit 7). Unit 7 is the smallest recovery unit but is an important connection between the adjoining Hayward-Pleasanton Ridge Unit (Unit 3), immediately north of the action area, and the Sunol-Cedar Mountain Unit (Unit 5), south and east of the action area. Unit 7 is completely within Alameda County on land predominately owned by EBPd (Vargas Plateau) and SFPUC watershed lands (Alameda Watershed). The recovery plan identifies Niles Canyon Road, the railroads, aqueduct, and Alameda Creek as impediments to whipsnake movement. The plan encourages the development of safe passage across Niles Canyon Road (SR 84) by removing barriers and constructing "snake friendly" undercrossings.

Focused Alameda whipsnake surveys were not completed for the project. McGinnis (2002) conducted a site assessment for the adjacent SR 84 Niles Canyon Mid-Term Safety Improvement Project (Service File #08ESMF00-2015-F-0301-1) and concluded that the Alameda whipsnake was likely to occur in the area based on presence of suitable coastal scrub habitat and abundance of prey items (northern fence lizards). The recovery plan identifies the Niles Canyon-Sunol Corridor Unit as an area that has been subject to no or inadequate surveys. The closest available Alameda whipsnake observation is a historic record near Niles Canyon Road, approximately 1.6 miles southwest of the action area (Karen Swaim personal communication with Ben Solvesky, Service on April 4, 2011). Like the SR 84 Niles Canyon Mid-Term Safety Improvement Project, the action area includes suitable habitat on both sides of Alameda Creek. This includes the scrub vegetation that the snake is closely associated with and contiguous grassland and woodland habitat. Although not their primary habitat, Alameda whipsnakes have been observed in riparian habitat and it is likely that they use and move through the Alameda Creek riparian corridor. Rock outcrops, burrows, downed trees, and other whipsnake refugia sites are located throughout the action area. Fence lizards and other prey items were observed in the action area during the 2010, site visit.

As with the California red-legged frog and as mentioned in the Alameda whipsnake Recovery Plan, Niles Canyon Road, Alameda Creek, and the aqueduct likely impede Alameda whipsnake movement through and within the action area. Whipsnakes are fast and agile and should have little difficulty moving over the railroad.

Snakes often warm themselves on road surfaces which increase their risk of being killed on roads. The risk of Alameda whipsnake-vehicle collision is further amplified by general persecution of snake species. In one study, Ashley *et al.* (2007) determined that 2.7 percent of drivers intentionally ran over snake and turtle decoys placed on the road shoulder. Assuming similar attitudes regarding snakes, approximately 351 vehicles passing through the action area a day would be inclined to intentionally run over an Alameda whipsnake on Niles Canyon Road.

Whipsnakes are more likely to move across Alameda Creek in the summer when the water is at its lowest level. Within the action area there is greater potential for snakes to cross Alameda Creek downstream of the existing bridge where the creek riffles over various sized cobble and boulders in the summer. Alameda whipsnakes can negotiate steep structures like the existing retaining wall supporting the eastern end of the bridge approach but it is unlikely that they would be able to scale the vertical 5 foot face of the aqueduct. As with the frog, the aqueduct likely inhibits snake movement directed north of Niles Canyon Road and between Recovery Units 3, 7, and 5, and the snake would benefit from establishment of wildlife passage across the aqueduct.



The Service believes that the Alameda whipsnake is reasonably certain to occur within the action area due to: (1) the project being located within the species' range, current distribution; (2) the presence of suitable scrub, woodland, and grassland habitat; (3) the abundance of rock outcrops and other cover; (4) the presence of their preferred prey item; (5) connectivity to suitable habitat; (6) all the elements needed to support the species' life history are located within the action area; and (7) the biology and ecology of the animal.

#### *Alameda Whipsnake Critical Habitat*

The action area is within Critical Habitat Unit 3 (otherwise known as the Hayward–Pleasanton Ridge Unit). This unit comprises 25,966 acres within Alameda County of which approximately 404 acres are within EBRP lands and the remainder is privately owned.

The Hayward–Pleasanton Ridge Unit contains the mosaic of scrub and chaparral vegetation and rocky outcrops considered essential features (PCEs 1 and 3) for Alameda whipsnake critical habitat. The unit also includes a variation in vegetation patch size, an abundant edge between grassland and woodland, and a minimal amount of development or planned development. The area supports scrub and rock outcrop features essential for the Alameda whipsnake. The Alameda whipsnake records within this unit are associated with Gaviota rocky sandy loams in particular, which likely provide talus (PCE 3) and appear to coincide in aerial imagery to scrub or chaparral vegetation preferred by Alameda whipsnake. Vegetation is largely of oak woodland community of variable densities (PCE 2) and statures (trees and shrubs) interspersed with grassland.

Some peripheral portions of habitat around this unit were not included as critical habitat due to the high degree of development-related disturbance and fragmentation of the habitat. The unit is included in the designated critical habitat because it contains features essential to the conservation of the Alameda whipsnake; is currently occupied by the subspecies (Swaim 2005); and represents the southwestern portion of the subspecies' range and one of the five population centers.

The special management actions which may be required throughout this unit includes management of controlled burns and grazing, trespass, unauthorized trail and road construction, dumping, and/or feral animals, and other activities associated with urban or recreational interface.

The action area includes 1.44 acres of Alameda whipsnake critical habitat Unit 3. The northern boundary of the project footprint encroaches upon the southern boundary of the unit. This area includes all three PCEs: (1) scrub and shrub communities with a mosaic of open and closed canopy; (2) woodland or annual grassland plant communities contiguous to lands containing PCE 1; and (3) lands containing rock outcrops, talus, and small mammal burrows. The southern boundary of this unit is important in maintaining connectivity with Alameda whipsnake habitat and populations south of Alameda Creek.

#### **Effects of the Action**

The direct effects of the proposed project are those effects occurring within the action area during construction of the proposed project. For this project much of the direct effects are associated with the loss of habitat for the two listed animals and construction-related disturbance. The effects of habitat loss were analyzed based on the term of the loss, restoration potential, and the associated changes to functional value. As a result, habitat loss was characterized as permanent, temporary, or prolonged temporary.

Permanent habitat loss was defined as those areas that will be converted to hardscape as a result of the project. Hardscape can retain some functional use. For instance, frogs and snakes may still be able to move across these areas and snakes may use paved surfaces for thermoregulation. Other hardscape features, such as the addition of vertical walls, can have a more drastic adverse effect to wildlife. However, conversion of landscape to hardscape is dramatic, there will be no restoration to baseline, and is therefore considered permanent.

Temporary habitat loss was considered for any landscape cover that will be restored to baseline habitat values (for the given species) within one year following the initial disturbance. Based on the link to the successful restoration timeline, the temporary habitat loss category typically applies to habitat types that are dominated by annual plant species or other situations that can become quickly established. For this project this includes grassland, marsh, and creek channel land cover. Despite when the restoration efforts begin relative to the initial disturbance, habitat types dominated by woody vegetation, such as riparian, woodland, and scrub land cover typically cannot be successfully restored to baseline values within one year.

The prolonged temporary habitat loss category captures those areas that will be subject to restoration efforts but will take greater than one year to be successfully restored to baseline ecological values. This may include grassland areas that will not be subject to restoration efforts until after more than one year of construction activities as well as habitat types such as riparian vegetation that may not reach baseline ecological values for five or more years into the restoration effort. Despite the length of time needed to reach baseline, in many cases, areas subject to restoration can provide functional habitat for subject species. For instance, riparian areas may be occupied by annual plant growth, willow cuttings, and young plantings during the initial phase of restoration. This condition would likely provide some functional ecological value in terms of refugia, forage, and moisture regulation for species such as the California red-legged frog.

Indirect effects are the effects of the proposed project generally occurring later in time after construction has been completed (*e.g.*, degradation of habitat due to the spread of invasive plant species; barriers to dispersal due to the installation of retaining walls). An interrelated activity is an activity that is part of the proposed project and depends on the proposed project for its justification. An interdependent activity is an activity that has no independent utility apart from the action under consultation.

#### *California Red-Legged Frog*

Caltrans proposes to minimize construction related effects by implementing the *Conservation Measures* included in the project description section of this BO. Effective implementation of *Conservation Measures* will likely minimize effects to the California red-legged frog during construction but incidental take is still likely to occur. Therefore, the proposed project has the potential to result in a variety of adverse effects to the California red-legged frog.

Construction activities could result in the killing, harming and/or harassment of juvenile and adult frogs in the action area. Based on information provided by Caltrans on March 9, 2015, the proposed project would result in the permanent loss of 1.66 acres, prolonged temporary loss of 2.81 acres, and temporary loss of 0.75 acre of California red-legged frog habitat. Affected habitats include grassland, scrub, woodland, riparian, wetland, and riverine land cover. The riverine, emergent wetland, and grassland habitats in the action area have the potential to be restored within one year but effects to some of these areas will be prolonged due to the multi-year construction schedule. However, mature woodland, riparian, and scrub habitat in the action area cannot be restored to baseline functions within one year.

In terms of the Service's ecologically-based definition of "temporary effects", the effect would be considered prolonged temporary if the restoration is achieved more than one year following the initial disturbance. This is the case for 0.29 acre of grassland land cover that will be utilized for construction over multiple years but will be subject to restoration at that end of that term. Once this area is cleaned up, treated, and seeded, it is likely the grassland habitat will be restored within a year. The Service recognizes that the area will eventually be restored and provide baseline or better ecological function for the California red-legged frog.

The proposed project will also have a prolonged temporary effect on 0.56 acre of woodland, 0.39 acre of scrub, and 1.57 acres of riparian land cover, likely utilized by the California red-legged frog. These defined areas will be subject to restoration but these habitat types typically take multiple years to be restored to baseline ecological values following one year of restoration. The Service recognizes the value in restoring these areas; however the prolonged temporal loss will have a greater adverse effect on the California red-legged frog than habitat that would be restored in less than a year.

To summarize the quantity and characterization of California red-legged frog habitat loss associated with the project: (1) 1.66 acres will be permanently affected; (2) 2.81 acres will be temporarily affected for more than one year and restored to baseline ecological function over a prolonged period; and (3) 0.75 acre will be temporarily affected and restored to baseline ecological function within less than one year from the initial disturbance. These values are further summarized by land cover in Table 2.

**Table 2.** California Red-Legged Frog Habitat Loss.

Land cover	Area and Characterization of Habitat Loss (acre)			
	Temporary	Prolonged Temporary	Permanent	Total
Grassland	0.16	0.29	0.36	0.81
Woodland	0	0.56	0.63	1.19
Scrub	0	0.39	0.36	0.75
Wetland	0.33	0	0.001	0.33
Riverine	0.26	0	0	0.26
Riparian	0	1.57	0.31	1.88
<b>Total</b>	<b>0.75</b>	<b>2.81</b>	<b>1.66</b>	<b>5.22</b>

Vegetation clearing will daylight previously shaded areas, likely changing the micro climate below with increased exposure and decreased moisture. This could affect the movement and available cover sites for amphibians. Removal of understory vegetation will result in the loss of foraging habitat and cover from predators and the elements. The ground disturbance associated with vegetation removal may result in exposure, stranding, crushing, or maiming California red-legged frogs. The noise and vibration associated with the vegetation removal will be disruptive and may result in California red-legged frogs avoiding the action area, therefore modifying their behavior and creating a barrier to resource areas. Noise and vibration may also result in California red-legged frogs taking cover in conspicuous areas rather than fleeing potential harm. This will make them more difficult to find, avoid, and rescue from harm's way.

Dewatering of the work area within Alameda Creek will temporarily remove aquatic habitat that the California red-legged frog would no longer be able to utilize for cover, foraging, maintaining moisture balance, and movement up and down the creek. The riparian corridor is interrupted by the existing bridge abutments, therefore connectivity up and downstream of the bridge is confined to the river as it passes under the bridge. Frogs moving to the water for cover or otherwise within the area to be dewatered risk being impinged by the pumps or will become exposed as the water is

drawn down. Exposure could result in increased predation risk, desiccation, entrapment, and other injury.

Construction activity within the bed and bank following the dewatering will involve noise, vibration, increased human activity, and artificial lighting that may interfere with normal behaviors such as feeding, sheltering, movement between refugia and foraging grounds, and other essential behaviors. This can result in avoidance of areas that have suitable habitat but intolerable levels of disturbance. Animals can become trapped or choose to take cover in excavations and other areas where they will be difficult to detect. Ground disturbance and ground traffic from equipment and personnel could result in crushing, entombing, or otherwise injuring California red-legged frogs.

Educating project personnel will encourage compliance with the conservation measures and increase the possibility that California red-legged frogs in the work area will be identified and addressed appropriately for avoidance. Worker education is limited by the effectiveness of the presentation and the willingness of the construction personnel to participate in compliance.

Limiting work within the Alameda Creek bed between June 1 and October 15, primarily avoids the wettest time of year and the onset of the breeding season when frogs are more likely to be involved in dispersal.

Pre-construction surveys by a Service-approved biologist will assist in clearing California red-legged frogs from the work areas prior to the introduction of a potential construction-related threat. Biological clearance of work areas prior to the start of each day's work and during construction will increase the chances of identifying frogs in the work area that would be susceptible to injury. Biological clearance of work areas is limited by the experience of the biologist, the complexity and abundance of potential cover sites, the small size and inconspicuous nature of the species, and the challenges of completing a thorough clearance given the construction schedule.

Despite being "cleared" prior to construction, California red-legged frogs can continue to move into the work site undetected. The project is situated within a riparian corridor in which frogs would routinely move through as well as back and forth from the adjacent upland. Frogs may be actively moving around, through, or within the work area during the evening as well as when work is taking place. This places greater emphasis on thorough biological clearance of work areas and under staged equipment and materials prior to the start of each day's activities. Exclusion of frogs from active work areas will depend on the integrity of the installed barrier fencing. Monitors would also need to inspect the fence daily for "stranded" frogs along the inside or outside fence edge, risking exposure while attempting to negotiate the new barrier.

Even with exclusion fencing around active work areas there is the potential to injure California red-legged frogs that remained undetected by the clearance surveys or have gained access to the work site following the fence installation and survey. This will be of particular concern in areas of dense vegetation and underground refugia, such as within the riparian and rocky scrub habitat.

Work within Alameda Creek will involve vegetation removal; establishment of access into the streambed; removal of embedded infrastructure; dewatering of the work area; damming and rerouting the creek; use of heavy equipment within the streambed, and reconstruction of the streambed. The California red-legged frog has the greatest potential to be found in aquatic habitat and the surrounding area. Therefore the ground work within and adjacent to Alameda Creek has greater potential to result in injury to the listed frog; restricted movement between up and downstream habitat; and sediment and pollution release into the species aquatic habitat that can travel further downstream.

Placement of cover boards may provide a relatively safer refugia option for California red-legged frogs that otherwise would have taken cover under equipment or project-related materials. The boards may increase the potential for the biological monitor to discover those frogs and other wildlife that are within active work areas, thereby decreasing the chance of injury.

Monitoring and the proposed installation of escape ramps should provide a means of exit but frogs risk being directly killed or may be unable to escape and be killed due to predation, desiccation, entombment, or starvation. Proper trash disposal is often difficult to enforce and is a common non-compliance issue. Improperly disposed edible trash could attract predators, such as raccoons, crows, and ravens, to the site, which could subsequently prey on the listed herpetofauna.

If unrestricted, biologists and construction workers traveling to the action area from other project sites may transmit diseases by introducing contaminated equipment. The chance of a disease being introduced into a new area is greater today than in the past due to the increasing occurrences of disease throughout amphibian populations in California and the United States. It is possible that chytridiomycosis, caused by chytrid fungus, may exacerbate the effects of other diseases on amphibians or increase the sensitivity of the amphibian to environmental changes (*e.g.*, water pH) that reduce normal immune response capabilities (Bosch *et al.* 2001, Weldon *et al.* 2004).

Discovery, capture, and relocation of individual California red-legged frogs may avoid injury or mortality due to construction activities; however, capturing and handling animals may result in stress and/or inadvertent injury during handling, containment, and transport.

California red-legged frogs and their prey could also be affected by contamination due to chemical or sediment discharge. Exposure pathways could include inhalation, dermal contact, direct ingestion, or secondary ingestion of contaminated soil, plants or prey species. Exposure to contaminants could cause short- or long-term morbidity, possibly resulting in reduced productivity or mortality. However, Caltrans proposes to reduce these risks by implementing BMPs and the SWPPP that consist of refueling, oiling, or cleaning of vehicles and equipment a minimum of 50 feet from riparian and aquatic areas; installing coir rolls, straw wattles and/or silt fencing to capture sediment and prevent runoff or other harmful chemicals from entering the aquatic habitat; and locating staging, storage and parking areas away from aquatic habitat.

Caltrans' commitment to use erosion control devices other than mono-filament should be effective in avoiding the associated risk of entrapment that can result in death by predation, starvation, or desiccation (Stuart *et al.* 2001).

Sediment built up behind the historical weir will be released downstream as a result of the weir removal. The amount released will depend on whether the structure is completely removed or selectively breached. Performing this action during the summer when flows are at their lowest will minimize the transport of sediment. The creek diversion system will be utilized to keep the weir dry during the removal. Proper sediment control will be included in the final weir removal plan to be reviewed and approved by the Service and other regulatory agencies.

The completed project will likely increase the local risk of California red-legged frog mortality from vehicle collision. The widened bridge approaches will increase the surface area in which frogs may come in contact with passing vehicles on the west end of the project. The retaining walls and viaducts constructed along the approaches are likely to prevent or deter frogs from entering that portion of the roadway. Widening the roadway and increasing the sighting distance is likely to result in higher traffic speeds which would decrease the potential for drivers to actively avoid frogs.

The road effects zone described in the baseline section would likely expand into nearby habitat in correlation with the expansion of the roadway infrastructure.

The completed project is likely to have some long-term benefits for the California red-legged frog. Removing bridge infrastructure from Alameda Creek, replacing the potentially unstable bridge, and removing or breaching the concrete weir structure is likely to further open the river's flow and present fewer barriers to movement.

Effective restoration of the areas needed for access and work space is expected to reestablish baseline aquatic, riparian, and upland habitat values for the California red-legged frog within 5 to 20 years of project completion. Restoration of the abandoned approaches will provide some compensation for permanent and temporal habitat loss. Potential planting of riparian vegetation elsewhere within the Alameda Creek watershed may enhance habitat for the frog in the region.

Caltrans' proposal to provide 9.21 acres of habitat compensation through in-perpetuity preservation of high quality habitat for the California red-legged frog through purchase of Service-approved bank credits in Alameda County will contribute to the overall conservation of the species by protecting and managing habitat for the species in perpetuity.

#### *Alameda Whipsnake*

The potential effects to the Alameda whipsnake are similar to those described above for the California red-legged frog.

Construction activities could result in the killing, injuring, or disruption of juvenile and adult snakes in the action area. Based on information provided by Caltrans on March 9, 2015, the proposed project would result in the permanent loss of 1.66 acres, prolonged temporary loss of 2.81 acres, and temporary loss of 0.16 acre of Alameda whipsnake habitat. Affected habitat classifications include grassland, scrub, woodland, and riparian land cover. The grassland habitat in the action area has the potential to be restored within one year but as discussed for the California red-legged frog, effects to some of this area will be prolonged due to the multi-year construction schedule. Again, mature woodland, riparian, and scrub habitat in the action area cannot be restored to baseline functions within one year.

The proposed project will also have a prolonged temporary effect on 0.29 acre of grassland, 0.56 acre of woodland, 0.39 acre of scrub, and 1.57 acres of riparian land cover, likely utilized by the Alameda whipsnake.

To summarize the quantity and characterization of Alameda whipsnake habitat loss associated with the project: (1) 1.66 acres will be permanently affected, (2) 2.81 acres will be temporarily affected for more than one year and restored to baseline ecological function over a prolonged period; and (3) 0.16 acre will be temporarily affected and restored to baseline ecological function within less than one year from the initial disturbance. These values are further summarized by land cover in Table 3.

**Table 3.** Alameda Whipsnake Habitat Loss.

Land cover	Area and Characterization of Habitat Loss (acre)			Total
	Temporary	Prolonged Temporary	Permanent	
Grassland	0.16	0.29	0.36	0.81
Woodland	0	0.56	0.63	1.19
Scrub	0	0.39	0.36	0.75
Riparian	0	1.57	0.31	1.88
<b>Total</b>	<b>0.16</b>	<b>2.81</b>	<b>1.66</b>	<b>4.63</b>

As with the frog, the Alameda whipsnake is most likely to be affected during the construction phase of the project due to habitat loss, destruction of occupied rock outcrops and other shelter, exclusion from the habitat within the work area, and disruption of movement through the action area, loss of prey, and displacement into adjacent areas where they may be vulnerable to increased predation, exposure, starvation, or stress through disorientation, loss of shelter, and intraspecific and interspecific aggression (Grigione 2002). Alameda whipsnakes are diurnal, and therefore their behavior is likely to be adversely affected by construction activities, resulting in avoidance of areas that have suitable habitat but intolerable levels of disturbance.

Alameda whipsnakes are difficult to find and very difficult to capture. Therefore it will be difficult for biological monitors to find them in dense vegetation and effectively move them from harm's way. Whipsnake-specific fencing can be an effective barrier to snakes but animals can still gain access to work areas through the fence openings that allow access for construction. Not allowing the use of mono-filament erosion control is an important measure to avoid entrapment and likely injury or death. The completed project is also likely to increase the local risk of Alameda whipsnake mortality from vehicle collision. The road effects zone would likely expand into nearby habitat in correlation with the expansion of the roadway infrastructure.

Effective restoration of the areas needed for access and work space is expected to reestablish baseline grassland and habitat values for the Alameda whipsnake within a year of project completion. Restoration of woodland, scrub, and riparian habitat may begin providing some functional habitat component for the snake within a year of project completion but baseline habitat function is unlikely to be achieved until 5 to 20 years following planting.

Caltrans' proposal to provide 9.21 acres of habitat compensation through in-perpetuity preservation of high quality habitat for the Alameda whipsnake through purchase of Service-approved bank credits in Alameda County will contribute to the overall conservation of the species by protecting and managing habitat for the species in perpetuity..

#### *Alameda Whipsnake Critical Habitat*

The proposed activities within critical habitat will result in the temporary removal of scrub habitat (PCE 1), woodland and grassland habitat adjacent to scrub (PCE 2), and rocky outcrops and other refugia (PCE 3) as well as the permanent removal of PCE 2 and PCE 3. Temporary effects within the unit are associated with the establishment of temporary access roads and work areas. Successful restoration of the habitat function of temporary and prolonged temporary work areas will minimize the long-term effects on the unit. Permanent effects within the unit involve the construction and operation of new road facilities on critical habitat that currently provides PCE functions. The loss of 1.44 acres (0.61 permanent + 0.83 temporary) represents approximately 0.006 percent of Unit 3. The permanent effects to critical habitat are not expected to appreciably diminish the value of the critical habitat for the Alameda whipsnake, or prevent critical habitat from sustaining its role in the conservation and recovery of the species because the action will not result in the removal of a PCE that is limited or unique to the area, the loss represents a small area of effects relative to the overall unit, and the effects will occur along the southern edge of the unit which is subject to existing edge effects from SR 84, a rail road, and Niles Canyon Aqueduct.

#### **Cumulative Effects**

Cumulative effects include the effects of future State, Tribal, local or private actions that are reasonably certain to occur in the action area considered in this BO. Future Federal actions that are unrelated to the SR 84 Alameda Creek Bridge Replacement Project are not considered in this section because they require separate consultation pursuant to section 7 of the Act. During this consultation,

the Service did not identify any future non-Federal actions that are reasonably certain to occur in the action area of the proposed project.

## Conclusion

After reviewing the current status of the California red-legged frog, Alameda whipsnake, the environmental baseline for the action area, the effects of the proposed SR 84 Alameda Creek Bridge Replacement Project, and the cumulative effects, it is the Service's biological opinion that the SR 84 Alameda Creek Bridge Replacement Project, as proposed, is not likely to jeopardize the continued existence of the California red-legged frog or Alameda whipsnake.

The Service reached this conclusion because the project-related effects to the species, when added to the environmental baseline and analyzed in consideration of all potential cumulative effects, will not rise to the level of precluding recovery or reducing the likelihood of survival of the species based on the following: (1) successful implementation of the described *Conservation Measures* is likely to reduce the potential for proposed project activities to result in the disruption of normal California red-legged frog and Alameda whipsnake behavior or risk of injury; (2) habitat disturbed for access and work space will be restored to baseline levels; (3) the ground disturbing activities and new infrastructure will be located within and adjacent to the existing roadway; (4) the completed project will result in less intrusive bridge infrastructure and the removal of a historical weir within Alameda Creek will both increase habitat connectivity and natural hydrologic actions; and (5) Caltrans will partially offset habitat loss with the purchase of occupied California red-legged frog and Alameda whipsnake habitat credits at a Service-approved conservation bank in Alameda County.

After reviewing the current status of designated critical habitat for the Alameda whipsnake, the environmental baseline for the action area, the effects of the proposed SR 84 Alameda Creek Bridge Replacement Project, and the cumulative effects, it is the Service's biological opinion that the SR 84 Alameda Creek Bridge Replacement Project, as proposed, is not likely to destroy or adversely modify designated critical habitat. The Service reached this conclusion because the project-related effects to the designated critical habitat, when added to the environmental baseline and analyzed in consideration of all potential cumulative effects, will not rise to the level of precluding the function of the critical habitat to serve its intended conservation role for the Alameda whipsnake. The effects to the Alameda whipsnake critical habitat are small and discrete, relative to the entire area designated, and are not expected to appreciably diminish the value of the critical habitat or prevent it from sustaining its role in the conservation of the Alameda whipsnake.

## INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harass is defined by Service regulations at 50 CFR 17.3 as an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. Harm is defined by the same regulations as an act which actually kills or injures wildlife. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavior patterns, including breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action



is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this *Incidental Take Statement*.

The measures described below are non-discretionary, and must be undertaken by the Caltrans so that they become binding conditions of any grant or permit issued to the applicant, as appropriate, for the exemption in section 7(o)(2) to apply. The Caltrans has a continuing duty to regulate the activity covered by this incidental take statement. If the Caltrans (1) fails to assume and implement the terms and conditions or (2) fails to require the applicant to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, Caltrans must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement [50 CFR §402.14(i)(3)].

### **Amount or Extent of Take**

#### *California Red-Legged Frog*

The Service anticipates that incidental take of the California red-legged frog will be difficult to detect due to their small size, wariness, and cryptic nature. The project footprint includes dense riparian and upland vegetation, providing considerable cover for the California red-legged frog. Finding an injured or dead California red-legged frog is unlikely due to their relatively small body size, rapid carcass deterioration, and likelihood that the remains will be removed by a scavenger or indistinguishable amongst the disturbed soil and debris. Depending on the condition of a frog carcass, it may be difficult to differentiate between the remains of a California red-legged frog and a foothill yellow-legged frog (also likely to occur within the action area). Losses of the California red-legged frog may also be difficult to quantify due to a lack of baseline survey data and seasonal/annual fluctuations in their numbers due to environmental or human-caused disturbances. There is a risk of harm, harassment, injury and mortality as a result of the proposed construction activities, the permanent loss/degradation of suitable habitat, and capture and relocation efforts; therefore, the Service is authorizing take incidental to the proposed action as: (1) the harassment of all California red-legged frogs within the 21-acre construction footprint plus a 300 foot upland and 500 foot riparian action area buffer; (2) the capture of all California red-legged frogs within the 21-acre construction footprint; and (3) the injury or mortality of one adult or juvenile California red-legged frog.

#### *Alameda Whipsnake*

The Service anticipates that incidental take of the Alameda whipsnake will be difficult to detect due to their small size, wariness, and cryptic nature. The project footprint includes dense riparian and upland vegetation, providing considerable cover for the snake. Finding an injured or dead Alameda whipsnake is unlikely due to their relatively small body size, rapid carcass deterioration, and likelihood that the remains will be removed by a scavenger or indistinguishable amongst the disturbed soil and debris. Losses of the snake may also be difficult to quantify due to a lack of baseline survey data and seasonal/annual fluctuations in their numbers due to environmental or human-caused disturbances. There is a risk of harm, harassment, injury and mortality as a result of the proposed construction activities, the permanent loss/degradation of suitable habitat, and capture and relocation efforts; therefore, the Service is authorizing take incidental to the proposed action as: (1) the harassment of all Alameda whipsnakes within the 21-acre construction footprint plus a 300 foot upland action area buffer; (2) the capture of all Alameda whipsnakes within the 21-acre construction footprint ; and (3) the injury or mortality of one Alameda whipsnake.

Upon implementation of the following *Reasonable and Prudent Measures*, the incidental take of California red-legged frog and Alameda whipsnake associated with the proposed project in proportion to the amount and type of take outlined above will become exempt from the prohibitions described under section 9 of the Act. No other forms of take are exempted under this opinion.

### **Effect of the Take**

In the accompanying biological opinion, the Service determined that this level of anticipated take for the California red-legged frog and Alameda whipsnake is not likely to result in jeopardy to the species.

### **Reasonable and Prudent Measure**

The Service has determined that the following reasonable and prudent measure is necessary and appropriate to minimize the effect of the action on the California red-legged frog and Alameda whipsnake. Caltrans will be responsible for the implementation and compliance with this measure:

1. Minimize the adverse effects to the California red-legged frog and Alameda whipsnake and their habitats in the action area by implementing their proposed project, including the conservation measures as described, with the following terms and conditions.

### **Terms and Conditions**

In order to be exempt from the prohibitions of section 9 of the Act, Caltrans must ensure compliance with the following terms and conditions, which implement the reasonable and prudent measure described above. These terms and conditions are nondiscretionary.

1. The following *Terms and Conditions* implement *Reasonable and Prudent Measure* one (1):
  - a. Caltrans shall include language in their contracts that expressly requires contractors and subcontractors to work within the boundaries of the project footprint identified in this BO, including staging and access.
  - b. Caltrans' proposed conservation banking credits purchase shall be presented to the Service for review and approval prior to their purchase. The preservation of California red-legged frog and Alameda whipsnake habitat through purchase of credits at a conservation bank must minimize the effects of habitat loss. The proposed bank must provide habitat for breeding, feeding, or sheltering commensurate with or better than habitat lost as a result of the project. Approved banking credits shall be purchased within 6 months prior to the start of the bridge construction phase.
  - c. Rodenticides shall not be used at the project site. Herbicides shall only be used if needed to control noxious weeds.
  - d. Each California red-legged frog or Alameda whipsnake encounter shall be treated on a case-by-case basis in coordination with the Service but general guidance is as follows: (1) leave the non-injured animal if it is not in danger or (2) move the animal to a nearby location if it is in danger.

These two options are further described as follows:

- 1) When a California red-legged frog or Alameda whipsnake is encountered in the action area the first priority is to stop all activities in the surrounding area that have the potential to result in the harm, harassment, injury, or death of the individual. Then the monitor needs to assess the situation in order to select a course of action that will minimize adverse effects to the individual. Contact the Service once the site is secure. The contacts for this situation are Ryan Olah ([ryan\\_olah@fws.gov](mailto:ryan_olah@fws.gov)) at (916) 414-6623 or John Cleckler ([john\\_cleckler@fws.gov](mailto:john_cleckler@fws.gov)) at (916) 414-6639. Contact the Service prior to the start of construction to confirm the status of this contact information.

The first priority is to avoid contact with the animal and allow it to move out of the project footprint and hazardous situation on its own to a safe location. The animal should not be picked up and moved because it is not moving fast enough or it is inconvenient for the construction schedule. This guidance only applies to situations where an animal is encountered on the move during conditions that make their upland travel feasible. This does not apply to animals that are uncovered or otherwise exposed or in areas where there is not sufficient adjacent habitat to support the life history of the California red-legged frog or Alameda whipsnake should they move outside the construction footprint.

Avoidance is the preferred option if the animal is not moving and is using aquatic habitat (frog) or is within some sort of burrow or other refugia (frog and snake). The area should be well marked for avoidance by construction and a Service-approved biological monitor should be assigned to the area when work is taking place nearby.

- 2) The animal should be captured and moved when it is the only option to prevent its death or injury.

If appropriate habitat is located immediately adjacent to the capture location then the preferred option is short distance relocation to that habitat. This must be coordinated with the Service but the general guidance is the frog or snake should not be moved outside of the area it would have traveled on its own. Captured frogs should be released within the Alameda Creek riparian corridor and snakes should be released in appropriate cover as close to their capture location as feasible possible for their continued safety. Under no circumstances should a frog be relocated to another property without the owner's written permission. It is Caltrans' responsibility to arrange for that permission.

The release must be coordinated with the Service and will depend on where the individual was found and the opportunities for nearby release. In most situations the release location is likely to be into the mouth of a small burrow or other suitable refugia and in certain circumstances pools without non-native predators may be suitable.

Only Service-approved biologists for the project can capture California red-legged frogs or Alameda whipsnakes. Nets or bare hands may be used to capture California red-legged frogs. Soaps, oils, creams, lotions, repellents, or solvents of any sort cannot be used on hands within 2 hours before and during periods when they are capturing and relocating California red-legged frogs. To avoid transferring disease or pathogens between sites during the course of surveys or handling of amphibians, Service-approved biologists must use the following guidance for disinfecting equipment and clothing.

These recommendations are adapted from the *Declining Amphibian Population Task Force's Code* (<http://www.open.ac.uk/daptf/>).

- i. All dirt and debris, including mud, snails, plant material (including fruits and seeds), and algae, must be removed from nets, traps, boots, vehicle tires and all other surfaces that have come into contact with water and/or an amphibian. Cleaned items should be rinsed with fresh water before leaving each site.
  - ii. Boots, nets, traps, etc., must then be scrubbed with either a 70 percent ethanol solution, a bleach solution (0.5 to 1.0 cup of bleach to 1.0 gallon of water), QUAT 128 (quaternary ammonium, use 1:60 dilution), or a 6 percent sodium hypochlorite 3 solution and rinsed clean with water between sites. Avoid cleaning equipment in the immediate vicinity of a pond or wetland. All traces of the disinfectant must be removed before entering the next aquatic habitat.
  - iii. Used cleaning materials (liquids, etc.) must be disposed of safely, and if necessary, taken back to the lab for proper disposal.
  - iv. Service-approved biologists must limit the duration of handling and captivity. While in captivity, California red-legged frogs shall be kept in a cool, dark, moist, aerated environment, such as a clean and disinfected bucket or plastic container with a damp sponge. Containers used for holding or transporting should not contain any standing water.
- e. Caltrans shall provide a restoration and revegetation plan for the project to be reviewed and approved by the Service no later than sixty (60) calendar days prior to the initial groundbreaking at the project site. The plan will include, but will not be limited to: schedule, methodology, a list of the seed mixes and container plants, plant material source, irrigation, maintenance schedule, monitoring program, success criteria, control of invasive, noxious weeds, reestablishment of overhanging vegetation, and remediation and adaptive management. The planting assemblage will include native trees, shrubs, and vines appropriate for the riparian corridor. A revegetation status and success report will be submitted on or before December 31 of each year monitoring is conducted.

The revegetation plan will include a photo monitoring plan. The plan will include, but is not limited, to the following:

- 1) An adequate number of photo monitoring stations will be established to provide representative views of project restoration and construction activities. Each station will provide a representative panoramic view of the restoration footprint. Caltrans will ensure that photo monitoring stations numbers and locations are sufficient to document temporary effects restoration success.
- 2) Establishment and operation of photo monitoring at all stations will occur prior to vegetation clearing. Baseline photographs will be taken during the spring growing season prior to construction. Following the completion of ground disturbance, photo documentation will be conducted quarterly to document restoration relative to four seasons. Photo documentation will conclude when the Service has agreed that success criteria have been met.

- 3) Photo monitoring station locations will be provided to the Service in an acceptable geographic format with the coordinate system identified.
- 4) If the Service or the biological monitor(s) determines that additional monitoring stations are necessary, the locations will be added to the inventory of photo monitoring stations prior to the date of the next photo documentation.
- 5) During each photo monitoring cycle all stations will be visited within a two day period.
- 6) At the conclusion of restoration, the acreage of restored areas will be tabulated and provided to the Service. The extent of restoration will be delineated with a handheld GPS device and a trackfile provided to the Service Representative.

#### *Reporting Requirements*

In order to monitor whether the amount or extent of incidental take anticipated from implementation of the project is approached or exceeded, Caltrans shall adhere to the following reporting requirements. Should this anticipated amount or extent of incidental take be exceeded, Caltrans must reinitiate formal consultation as per 50 CFR 402.16.

1. Notification of injured or dead listed species will be made to the Coast-Bay Division Chief of the Endangered Species Program at the Sacramento Fish and Wildlife Office at (916) 414-6623. When an injured or dead individual of the listed species is found, Caltrans shall follow the steps outlined in the following *Disposition of Individuals Taken* section.
2. Sightings of any listed or sensitive animal species should be reported to the CNDDB (<http://www.dfg.ca.gov/biogeodata/cnddb/>).
3. Construction compliance reports will be addressed to the Coast-Bay Division Chief of the Endangered Species Program at the Sacramento Fish and Wildlife Office.
4. Caltrans shall submit post-construction compliance reports prepared by the Service-approved biologist to the Service within 60 calendar days following completion of each construction season or within 60 calendar days of any break in construction activity lasting more than 60 calendar days. This report shall detail (1) dates that relevant project activities occurred; (2) pertinent information concerning the success of the project in implementing avoidance and minimization measures; (3) an explanation of failure to meet such measures, if any; (4) known project effects on the California red-legged frog; (5) occurrences of incidental take of any listed species; (6) documentation of employee environmental education; and (7) other pertinent information.

#### *Disposition of Individuals Taken*

Injured listed species must be cared for by a licensed veterinarian or other qualified person(s), such as the Service-approved biologist. Dead individuals must be sealed in a resealable plastic bag containing a paper with the date and time when the animal was found, the location where it was found, and the name of the person who found it, and the bag containing the specimen frozen in a freezer located in a secure site, until instructions are received from the Service regarding the disposition of the dead specimen. The Service contact person is the Coast-Bay Division Chief of the Endangered Species Program at the Sacramento Fish and Wildlife Office at (916) 414-6623.

## CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. The Service recommends the following actions:

1. Caltrans should coordinate with SFPUC to fund and/or implement the establishment of at least four California red-legged frog and Alameda whipsnake passage points across the Niles Canyon Aqueduct. Two of the crossings should be upstream of the eastern bridge approach and two downstream. Each passage should be at least 5 feet wide. At least half of the crossings should provide passage to adjacent scrub habitat. This action would directly benefit both species and could be used as an alternative to offsite habitat preservation to minimize the harm and harassment of the California red-legged frog and Alameda whipsnake on this or other local projects.
2. Caltrans District 4 should work with the Service to develop a conservation strategy that would identify the current safe passage potential along Bay Area highways and the areas where safe passage for wildlife could be enhanced or established.
3. Caltrans should assist the Service in implementing recovery actions identified in the *Recovery Plan for the California Red-legged Frog* (Service 2002) and the *Draft Recovery Plan for Chaparral and Scrub Community Species East of San Francisco Bay, California* (Service 2003).
4. Caltrans should consider participating in the planning for a regional habitat conservation plan for the California red-legged frog, Alameda whipsnake, other listed species, and sensitive species.
5. Caltrans should consider establishing functioning preservation and creation conservation banking systems to further the conservation of the California red-legged frog and Alameda whipsnake. Such banking systems also could be utilized for other required mitigation (i.e., seasonal wetlands, riparian habitats, etc.) where appropriate. Efforts should be made to preserve habitat along roadways in association with wildlife crossings.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

## REINITIATION--CLOSING STATEMENT

This concludes formal consultation on the SR 84 Alameda Creek Bridge Replacement Project. As provided in 50 CFR §402.16, reinitiation of formal consultation is required and shall be requested by the Federal agency or by the Service where discretionary Federal agency involvement or control over the action has been retained or is authorized by law and: (a) if the amount or extent of taking specified in the incidental take statement is exceeded; (b) if new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (c) if the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion; or (d) if a new species is listed or critical habitat designated that may be affected by the identified action.

If you have questions concerning this consultation or implementation of its measures, please contact John Cleckler, Caltrans Liaison, john\_cleckler@fws.gov, (916) 414-6639 or Ryan Olah, Coast-Bay Division Chief, ryan\_olah@fws.gov, (916) 414-6623, at the letterhead address, by telephone, or by e-mail.

Sincerely,

A handwritten signature in blue ink, appearing to read "Jennifer M. Norris".

Jennifer M. Norris  
Field Supervisor

cc:

Craig Weightman, California Department of Fish and Wildlife, Napa, California  
John Yeakel and Tiffany Ngo, Caltrans District 4, Oakland, California

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**Personal Communication**

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