Niles Canyon Safety Improvements Project
Alameda County, California
DISTRICT 4 – ALA – 84 (PM 10.8/18.0)
EA 2A3320/ EFIS 0414000039

Draft Environmental Impact Report/
Environmental Assessment

Prepared by the
State of California Department of Transportation

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.

October 2016
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: Elizabeth White, Office of Environmental Analysis, 111 Grand Avenue MS 8B, Oakland, CA 94612 or 510-286-6233, Voice.
General Information about This Document

What’s in this document:
The California Department of Transportation (Caltrans), as assigned by the Federal Highway Administration (FHWA), has prepared this Draft Environmental Impact Report/Environmental Assessment (EIR/EA), which examines the potential environmental impacts of the alternatives being considered for the proposed project located in Alameda County, California. Caltrans is the lead agency under the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). The document tells you why the project is being proposed, what alternatives we have considered for the project, how the existing environment could be affected by the project, the potential impacts of each of the alternatives, and the proposed avoidance, minimization, and/or mitigation measures.

What you should do:
- Please read this document.
- This document is available in electronic format at:
  http://www.dot.ca.gov/dist4/nilescanyon/
- Additional copies of this document are available for review at:
  o Caltrans District 4, 111 Grand Avenue, Oakland, CA 94612
  o Niles Library, 150 I Street, Fremont, CA 94536
  o Fremont Main Library, 2400 Stevenson Boulevard, Fremont, CA 94538
  o Pleasanton Library, 400 Old Bernal Avenue, Pleasanton, CA 94566
- Attend the public open house forums scheduled for:
  **Wednesday, November 2, 2016, 6-8 PM**
  Niles Elementary School
  371421 2nd Street
  Fremont, CA 94536
  **Monday, November 7, 2016, 6-8 PM**
  Sunol Glen Elementary School
  111601 Main Street
  Sunol, CA 94586
- We’d like to hear what you think. If you have any comments about the proposed project, please attend the public meeting and/or send your written comments to Caltrans by the deadline.
- Send comments via postal mail to:
  Elizabeth White
  Department of Transportation, Office of Environmental Analysis
  111 Grand Avenue, MS 8B
  Oakland, CA 94612
- Send comments via email to: nilescanyonprojects@dot.ca.gov
- Be sure to send comments by the deadline: **Friday, December 2, 2016.**

What happens next:
After comments are received from the public and reviewing agencies, Caltrans, as assigned by the FHWA, may: (1) give environmental approval to the proposed project, (2) do additional environmental studies, or (3) abandon the project. If the project is given environmental approval and funding is obtained, Caltrans could design and construct all or part of the project.
This page is intentionally left blank.
This project proposes to construct multiple safety improvements at spot locations along State Route 84. The project limits extend from PM 10.8 to 18.0.

DRAFT ENVIRONMENTAL IMPACT REPORT/ENVIRONMENTAL ASSESSMENT

Submitted Pursuant to: (State) Division 13, California Public Resources Code

(Federal) 42 USC 4332(2)(C) and 49 USC 303

THE STATE OF CALIFORNIA
Department of Transportation

Cooperating Agencies:

Responsible Agencies:
California Transportation Commission, California Department of Fish and Wildlife, California Regional Water Quality Control Board, and Office of Historic Preservation

Date of Approval

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

The following persons may be contacted for more information about this document:
Elizabeth White
Department of Transportation, Office of Environmental Analysis
111 Grand Avenue MS 8B
Oakland, CA 94612
This page is intentionally left blank.
SUMMARY

Introduction
The California Department of Transportation (Caltrans) proposes to construct multiple safety improvements at spot locations on State Route 84 (SR-84) from postmile (PM) 10.8 to PM 18.0 in southern Alameda County. Figure S-1 shows the general location of the proposed improvements, extending from Mission Boulevard (State Route 238 (SR-238)) to Interstate 680 (I-680). Caltrans is the lead agency preparing this Draft Environmental Impact Report/Environmental Assessment (EIR/EA) under the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA).

Overview of the Project Area
The proposed project is located in an undeveloped, scenic portion of SR-84, commonly referred to as the Niles Canyon Corridor. The Niles Canyon Corridor is characterized as a two-lane conventional highway that leaves the urbanized setting of Fremont, CA and transitions into a rural setting east of Mission Boulevard (SR-238) and up to its connection with I-680. The roadway is generally bounded by steep canyon walls, Alameda Creek, and the Niles Canyon Railway. The regulatory 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.

Background History
SR-84 through Niles Canyon Corridor consists of two 11-foot wide opposing traffic lanes with outside paved shoulders that vary in width from no shoulder to more than eight feet. In 2007, Caltrans installed grooved centerline rumble strips as part of a safety improvement project along the Niles Canyon Corridor from just east of SR-238 (Mission Boulevard) at PM 11.1 to just west of the Silver Springs Underpass at PM 16.7. The primary purpose of the centerline rumble strip installation was to target head-on and sideswipe crashes by alerting the driver that he/she is about to cross into opposing traffic; these crashes are almost always severe or fatal injury crashes (US FHWA, 2012). 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.

During the early 2000s, Caltrans began the planning process for EA 17440: Route 84 Safety Improvement Project (commonly referred to as Niles 1). The project involved the construction of full shoulders on SR-84 from the Rosewarne Underpass to just beyond the Farwell Underpass as well as the replacement of the existing Stonybrook Creek culvert with a clear span bridge as mitigation for project impacts incurred during the Route 84 Safety Improvement Project. Caltrans issued an Initial Study with a Negative Declaration for the Route 84 Safety Improvement Project in June 2006. Construction for the project began in 2010, but was halted by a legal injunction after the removal of approximately 150 riparian trees. Caltrans subsequently terminated the project in 2011.
Figure S-1. Niles Canyon Safety Improvements Project Location Map
After the termination of the Niles 1 project, Caltrans requested the Federal Highway Administration (FHWA) to conduct an independent Road Safety Assessment in order to achieve safety objectives while also minimizing environmental impacts. The Road Safety Assessment team was comprised of the following individuals whose collective experience and expertise included highway engineering, law enforcement, and environmental stewardship: Craig Allred (FHWA – Resource Center), Keith Harrison (FHWA - Resource Center), David Cohen (FHWA – California Division), and Lieutenant James Libby (California Highway Patrol – Dublin Area). The Road Safety Assessment identified issues that contributed to the reported crashes along the corridor as well as identified potential measures to mitigate these issues (US FHWA, 2012). The Road Safety Assessment contained Traffic Accident Surveillance and Analysis System (TASAS) crash data covering a span of nearly 10 years, from January 1, 2001 through September 30, 2010 (US FHWA, 2012).

As part of the Road Safety Assessment, the team evaluated the effectiveness of the centerline rumble strip installation using the TASAS crash data from November 1, 2007 through September 30, 2010. The Road Safety Assessment team identified that while there was a 13% reduction in the type of crashes targeted by the aforementioned centerline rumble strip project (head-on and sideswipe crashes), there were 37 other injury crashes that occurred post centerline rumble strip installation that were not head-on or sideswipe. The team concluded that the 37 other injury crashes were not likely influenced in any meaningful way by the presence of the centerline rumble strips and that further actions were needed to reduce fatal and injury crash risk. The Road Safety Assessment team recommended short-term and medium-term countermeasures to further reduce the number of head-on/sideswipe type of cross-centerline collisions, which frequently result in fatalities and/or severe injuries, as well as other roadway departure and hit object type collisions.

Caltrans Office of Traffic Safety conducted a revised Traffic Collision Analysis for the Niles Canyon Safety Improvements Project in 2016 using the latest available data (up to September 2014) (Caltrans, 2016b). The latest available accident data demonstrates that problems continue to persist along the Niles Canyon Corridor (refer to Section 1.2 Purpose and Need, Section 2.1.4 Traffic and Transportation/Pedestrian and Bicycle Facilities, and Appendix F for more detailed accident data information and analysis).

Projects in the Study Area

In addition to the Niles Canyon Safety Improvements Project, Caltrans recently completed the Niles Canyon Safety Improvements Project (Short Term Improvements) and is currently proposing two other projects for the Niles Canyon section of SR-84: the Alameda Creek Bridge Replacement Project and the Arroyo de La Laguna Bridge Scour Project.

- The Niles Canyon Safety Improvements Project (Short Term Improvements) involved several localized safety improvements along SR-84, from Mission Boulevard (SR-238) to I-680. These localized safety improvements include pavement markings (including bicycle sharrows), reflective roadside delineators, and object markings. All work associated with the Niles Canyon Safety Improvements Project (Short Term Improvements) was conducted

---

1 Post centerline rumble strip installation accident data was collected from 2008 to 2010.
2 As of August 26, 2016, the latest Traffic Accident Surveillance and Analysis System (TASAS) accident data is available through September 30, 2014. The time lag for the latest available values is the data processing time required to convert the California Highway Patrol’s California Statewide Integrated Traffic Records System (SWITRS) to Caltrans TASAS system.
on pavement; this project was completed in September 2016.

- The Alameda Creek Bridge Replacement Project proposes to replace the bridge at PM 13.6\(^3\). Caltrans circulated an environmental document for the Alameda Creek Bridge Replacement Project in January 2015 and plans to reissue the environmental document in November 2016.

- The Arroyo de La Laguna Bridge Scour Project proposes to address foundation scouring issues and provide Americans with Disabilities (ADA) compliant sidewalks with upgraded barrier railings by widening the Arroyo de La Laguna bridge deck by three feet. The Arroyo de La Laguna Bridge is located on SR-84 in the town of Sunol; widening would be done to the extent feasible without adding any additional substructure foundations.

The impacts of these future Caltrans projects, in addition to other past, present, and future projects in Niles Canyon, are addressed in Section 2.4, Cumulative Impacts. A list of projects considered as part of the Niles Canyon Safety Improvements Project’s cumulative impact analysis is located in Section 2.4.2.

**Purpose**

The project purpose is to improve safety at spot locations and address structural and operational deficiencies along SR-84.

**Need**

**System Safety Needs**

Even with the 2007 centerline rumble strip installation, certain spot locations in Niles Canyon continue to have a higher than State average rate of accidents throughout the Niles Canyon Corridor. Accident data for the entire Niles Canyon Corridor were obtained for the 83 months of Post Rumble Strip installation period from November 1, 2007 to the latest available data up to September 30, 2014 from the TASAS of Caltrans (refer to Tables S-1, S-2, and S-3). The data indicates that within the 83 months of post rumble strip installation time frame, there were a total of 166 traffic collisions reported in the corridor. Of the 166 traffic collisions, 3 resulted in fatalities and 97 resulted in injuries.

Table S-1 lists the primary collision factors involved in the 166 traffic collisions and Table S-2 identifies the types of collisions that occurred in the Niles Canyon corridor during this time period.

---

\(^3\) For clarification throughout this Draft EIR/EA, the Alameda Creek Bridge and Overhead is identified as Bridge 33-0039 while the Alameda Creek Bridge is identified as Bridge 33-0036.
Table S-1. Primary Collision Factor (Collisions from November 1, 2007 to September 30, 2014)

<table>
<thead>
<tr>
<th>Primary Collision Factor</th>
<th>Number of Collisions</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speeding</td>
<td>47</td>
<td>28.3</td>
</tr>
<tr>
<td>Improper turn</td>
<td>42</td>
<td>25.3</td>
</tr>
<tr>
<td>Other violations</td>
<td>25</td>
<td>15.1</td>
</tr>
<tr>
<td>Alcohol Influence</td>
<td>24</td>
<td>14.5</td>
</tr>
<tr>
<td>Failure to yield</td>
<td>13</td>
<td>7.8</td>
</tr>
<tr>
<td>Other than Driver</td>
<td>11</td>
<td>6.6</td>
</tr>
<tr>
<td>Follow too Close</td>
<td>2</td>
<td>1.2</td>
</tr>
<tr>
<td>Improper driving</td>
<td>1</td>
<td>0.6</td>
</tr>
<tr>
<td>Unknown</td>
<td>1</td>
<td>0.6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>166</td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Table S-2. Type of Collision (Collisions from November 1, 2007 to September 30, 2014)

<table>
<thead>
<tr>
<th>Collision Code</th>
<th>Number of Collisions</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hit Object</td>
<td>57</td>
<td>34.3</td>
</tr>
<tr>
<td>Rear End</td>
<td>33</td>
<td>19.9</td>
</tr>
<tr>
<td>Broadside</td>
<td>27</td>
<td>16.3</td>
</tr>
<tr>
<td>Overturn</td>
<td>20</td>
<td>12.0</td>
</tr>
<tr>
<td>Sideswipe</td>
<td>10</td>
<td>6.0</td>
</tr>
<tr>
<td>Head-on</td>
<td>9</td>
<td>5.4</td>
</tr>
<tr>
<td>Other</td>
<td>8</td>
<td>4.8</td>
</tr>
<tr>
<td>Auto-Pedestrian</td>
<td>1</td>
<td>0.6</td>
</tr>
<tr>
<td>Not Stated</td>
<td>1</td>
<td>0.6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>166</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

27% of the parties involved in the 166 collisions\(^4\) were classified as run-off the road and 6.6% were classified cross into the opposite lane. These types of collisions were associated with most of the serious injury accidents along the corridor.

57 (or 34%) of the 166 total collisions were specifically classified as hit object. Other types of collisions, such as ‘broadside’ or ‘overturn’, may not be specifically classified as hit object, but they could also involve hitting objects at some point during the collision.

Data for an individual collision may document multiple hit object types: for example, an overturn collision which involved hitting a guardrail and a tree, therefore, both guardrail and tree would be documented as the hit objects for this type of collision.

---

\(^4\) While total number of collisions on the Niles Canyon Corridor from November 1, 2007 to September 30, 2014 is 166, there were 236 parties involved in these 166 collisions.
Of the 166 collisions, 84 (51%) involved hitting other vehicles, 16 (10%) involved hitting the cut slope or embankment, 9 (5%) involved falling over embankment and hitting the embankment bottom, 9 (5%) involved hitting guardrail, 5 (3%) involved hitting trees, 4 (2%) involved hitting the side of bridge railing, and 3 collisions (2%) involved hitting utility poles. As described previously, these numbers represent both those collisions specifically classified as hit object, as well as other collision types (such as broadside or overturn), which also involve the hitting of objects (such as embankments, trees, or guardrail) at some point during the collision.

58 collisions (35%) of the 166 total collisions occurred in dusk/dawn or under dark lighting conditions.

Although there is a reduction in the number of head-on collisions, substantial numbers of serious injury accidents have persisted despite the centerline rumble strip installation project. Accident data for the Niles Canyon Safety Improvements Project study locations were obtained for the 83 months of Post Rumble Strip installation period from November 1, 2007 to the latest available data up to September 30, 2014. During this time period, 166 collisions occurred from PM 10.8 to 18.0. Figure S-2 displays traffic accidents (grouped by nearest tenth of a PM) in the Niles Canyon Corridor.

---

5 As of August 26, 2016, the latest Traffic Accident Surveillance and Analysis System (TASAS) accident data is available through September 30, 2014. The time lag for the latest available values is the data processing time required to convert the California Highway Patrol’s California Statewide Integrated Traffic Records System (SWITRS) to Caltrans TASAS system.
Figure S-2. Traffic Accidents by Postmile in the Niles Canyon Corridor (Post 2007 centerline rumble strip installation) and Proposed Improvements at Spot Locations

This map displays the locations of the 166 accidents (rounded to the nearest 1/10 of a postmile) that occurred following the 2007 centerline rumble strip installation (November 1, 2007 to September 30, 2014*).

Legend

<table>
<thead>
<tr>
<th>Number of Accidents by Postmile</th>
<th>Route Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Interstate</td>
</tr>
<tr>
<td>2</td>
<td>State</td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
</tr>
<tr>
<td>8 or more</td>
<td></td>
</tr>
</tbody>
</table>

*As of September 2016, the latest Traffic Accident Surveillance and Analysis System (TASAS) accident data available is up to September 30, 2014.

Map created September 2016
This page is intentionally left blank.
Niles Canyon Safety Improvements Project

Table 11 in Section 2.1.4.2 shows that the rumble strip project had no noteworthy effect in reducing the number of run-off-road and hit-object type collisions within the project limits. The Road Safety Assessment team recommended short-term and medium-term countermeasures are anticipated to further reduce the number of head-on/sideswipe type of cross-centerline collisions which frequently result in fatalities and/or severe injuries, as well as other roadway departure and hit object type collisions.

While accidents occur throughout the corridor (as shown in Figure S-2), the Road Safety Assessment identified few spot locations with high accident concentrations that required site specific safety improvements within the medium term countermeasures. Accident data at these locations, proposed improvements, and the justification for these improvements are given below in Table S-3.

### Table S-3. Niles Canyon Corridor Spot Locations Collision Data (11/1/2007 to 9/30/2014)*

<table>
<thead>
<tr>
<th>Location Description</th>
<th>PM From</th>
<th>PM To</th>
<th>Total No. of Accidents</th>
<th>Actual Accident Rate</th>
<th>Statewide Average Accident Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low Speed Curve</td>
<td>13.8</td>
<td>14.1</td>
<td>9</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>0.099</strong></td>
<td><strong>0.59</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.89</td>
<td>0.013</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.54</td>
<td>1.29</td>
</tr>
<tr>
<td>Rock Drapery System</td>
<td>12.1</td>
<td>12.175</td>
<td>4</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>0.000</strong></td>
<td><strong>1.46</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>1.46</strong></td>
<td>0.013</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.54</td>
<td>1.29</td>
</tr>
<tr>
<td>Dynamic Rockfall Fence</td>
<td>12.61</td>
<td>12.75</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>0.000</strong></td>
<td><strong>0.2</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>0.2</strong></td>
<td>0.013</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.54</td>
<td>1.29</td>
</tr>
<tr>
<td>Paloma Way</td>
<td>17.3</td>
<td>17.95</td>
<td>13</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>0.000</strong></td>
<td><strong>0.34</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>1.12</strong></td>
<td>0.032</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.74</td>
<td>1.47</td>
</tr>
<tr>
<td>Alameda Creek Bridge and Overhead (Bridge 33-0039)</td>
<td>14.29</td>
<td>14.52</td>
<td>6</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>0.000</strong></td>
<td><strong>0.51</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>0.77</strong></td>
<td>0.032</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.72</td>
<td>1.44</td>
</tr>
<tr>
<td>SR-84 and Main Street Intersection</td>
<td>17.210</td>
<td>8</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>0.000</strong></td>
<td><strong>0.03</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>0.21</strong></td>
<td>0.003</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.07</td>
<td>0.16</td>
</tr>
<tr>
<td>SR-84 &amp; Pleasanton-Sunol Road IS</td>
<td>17.287</td>
<td>9</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>0.000</strong></td>
<td><strong>0.11</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>0.32</strong></td>
<td>0.005</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.1</td>
<td>0.23</td>
</tr>
</tbody>
</table>

Note: Fat=Fatal; Inj=Injury; F+I= Fatal+Injury

Source: Caltrans TASAS Data

*Although the total number of collisions along the Niles Canyon corridor is 166, this table identifies only the collisions near the proposed Niles Canyon Safety Improvements Project spot locations.

Additional information about accident data in the Niles Canyon Corridor is located in Section 2.1.4. Traffic and Transportation/Pedestrian and Bicycle Facilities and detailed accident analysis for each of these spot locations is located in Appendix F. Collision Analysis for the Niles Canyon Safety Improvements Project.

Roadway and Structure Deficiencies of SR-84

As previously described, this section of SR-84 has narrow shoulders with generally curvilinear horizontal alignment; the eastern portion is less curvilinear with more open roadside and generally flatter sideslopes. The regulatory 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. There are numerous fixed objects (such as utility poles, trees, and signs) within the Clear Recovery Zone (CRZ) on SR-
The CRZ is an unobstructed, relatively flat or gently sloping area beyond the edge of travelway which afford the drivers of errant vehicles the opportunity to regain control. For conventional highways, 20 feet is recommended. Fixed objects should be eliminated or moved outside the CRZ to a location where they are unlikely to be hit. If it is not possible to be moved or eliminated, it should be shielded by guardrail, barrier, or a crash cushion. In addition to the existing roadway deficiencies of SR-84, the original bridge railing of the Alameda Creek Bridge and Overhead (33-0039), constructed in 1948, does not perform as well as modern railing when hit, and needs to be replaced.

There is extensive history of rockfall in the Niles Canyon Corridor. Caltrans Maintenance staff report rock in the ditches and in the roadway throughout the year and activity increases during wet winter months. A weather-related rockslide in January 2016 briefly closed SR-84. Visual evidence of rockfall activity is apparent throughout two specific areas in the Canyon, located at PM 12.1 and PM 12.6. Boulders and rock accumulate on the roadway and have to be pushed off by Caltrans Maintenance crews into adjacent ditches. Within the limits of the identified rockfall areas, there is extensive damage to the roadway pavement and walls from rockfall impact. The visual damage includes craters and pockmarks in roadway pavement and damage to wall structures.

Caltrans closes SR-84 between Old Canyon Road in Fremont and Main Street in Sunol for one weekend a year to perform annual extreme maintenance. Annual extreme maintenance in Niles Canyon involves litter removal, drain cleaning, weed and overgrown brush removal, tree trimming, mowing, rock slide clearing and rock scaling, shoulder grading, pothole repairs, sweeping, stripping, electrical re-lamping, and delineation. The road is closed for the safety of maintenance workers as well as the traveling public. As previously mentioned, part of this annual extreme maintenance includes rock slide clearing and rock scaling as a preventative measure to avoid loose rock from falling onto SR-84. Figures S-3 and S-4 illustrate the rock scaling and clean-up efforts occurring at PM 12.1 on SR-84.
Figure S-3. Caltrans Annual Extreme Maintenance on SR-84 (approximately at PM 12.1)

Figure S-4. Caltrans Annual Extreme Maintenance on SR-84 (approximately at PM 12.1)
Deficient Intersection Operations at SR-84 and Pleasanton-Sunol Road
The existing conditions at the SR-84 and Pleasanton-Sunol Road intersection are inadequate to accommodate the existing traffic demand. The 2012 Annual Average Daily Traffic (AADT) – the most current available traffic information for SR-84 within the project limits, is 17,900 vehicles. This is expected to increase to a projected demand of 40,400 vehicles in the year 2034. The peak period (peak period is defined as weekdays from 6-9 AM and 4-7 PM) hourly volume is 2,090 vehicles and is projected to be 3,020 vehicles in the year 2034. In 2012, 67% of the PM peak traffic was in the peak direction (going east). By the year 2034, traffic in both directions (east and west) will be almost equal.

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). LOS E or F is typically considered unacceptable by Caltrans, and indicates traffic demand is exceeding available capacity resulting in substantial traffic congestion and a need for improvements. Refer to Section 2.1.4. Traffic and Transportation/Pedestrian and Bicycle Facilities for a discussion of LOS criteria.

Currently, the intersections at SR-84 at Pleasanton-Sunol Road and Main Street are Stop controlled intersections: there is a four way stop at the SR-84 and Pleasanton-Sunol Road intersection and a single stop sign at SR-84 and Main Street. A June 2011 Traffic memo identified delays with the Stop controlled intersections at SR-84 at Pleasanton-Sunol Road and Main Street as LOS E and LOS F, respectively (refer to Table S-4 and S-5)

Table S-4. Delays at Pleasanton-Sunol Road and SR-84 Intersection

<table>
<thead>
<tr>
<th>Peak</th>
<th>Existing intersection delay (seconds)</th>
<th>Level of Service</th>
<th>Queue length (feet)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>AM</td>
<td>148</td>
<td>F</td>
<td>670</td>
</tr>
<tr>
<td>PM</td>
<td>168</td>
<td>F</td>
<td>670</td>
</tr>
</tbody>
</table>

*Based on field observations made on 1/19/11 and 3/8/11

Table S-5. Delays at Main Street and SR-84 Intersection

<table>
<thead>
<tr>
<th>Peak</th>
<th>Existing intersection delay (seconds)</th>
<th>Level of Service</th>
<th>Queue length (feet)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>AM</td>
<td>48</td>
<td>E</td>
<td>590</td>
</tr>
<tr>
<td>PM</td>
<td>90</td>
<td>F</td>
<td>1,180</td>
</tr>
</tbody>
</table>

*Based on field observations made on 1/19/11 and 3/8/11
Address Requirements of EA 17440: Route 84 Safety Improvement Project Settlement Agreement

In 2010, Caltrans began construction of EA 17440: Route 84 Safety Improvement Project (commonly referred to as ‘Niles 1’), but the project was halted by a legal injunction after the removal of approximately 150 riparian trees. Caltrans subsequently terminated the project in 2011. Since then, Caltrans and RWQCB have had ongoing discussions regarding Caltrans’ compliance with the Clean Water Act (CWA) 401 Certification mitigation requirements that were triggered by the removal of the trees.

Caltrans’ current proposal for satisfying the mitigation obligations for the Route 84 Safety Improvements Project (Niles 1) is to replace the existing Stonybrook Creek culvert with a clear span bridge. Construction of a clear span bridge would facilitate passage of steelhead from Alameda Creek to Stonybrook Creek, reduce channel maintenance requirements and provide increased capacity to meet storm requirements. The replacement of the existing Stonybrook Creek culvert with a clear span bridge would be constructed as part of the Niles Canyon Safety Improvements Project and would address the requirements of the Niles 1 settlement agreement. The work at Stonybrook Creek is included in the Niles Canyon Safety Improvements Project to expedite the replacement of the Stonybrook Creek culvert with a clear span bridge.

A more detailed description of the Stonybrook Creek culvert replacement with a clear span bridge is included in Section 1.4.1.1 Build Alternative.

Proposed Action

Caltrans proposes to construct multiple spot safety improvements on SR-84 from PM 10.8 to PM 18.0 in southern Alameda County. This section of SR-84 is commonly referred to as the Niles Canyon Corridor. The Niles Canyon Corridor is characterized as a two-lane conventional highway that leaves the urbanized setting of Fremont, CA and transitions into a rural setting east of Mission Boulevard (SR-238), up to its connection with I-680. The roadway is generally bounded by steep canyon walls, Alameda Creek, and the Niles Canyon Railway. The regulatory 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 alternatives selected for further consideration are the “Build Alternative” and the “No-Build Alternative.” This section describes the Build Alternative developed to meet the project’s purpose and need. Table S-6 summarizes the Build Alternative’s impacts to various resource areas. Other alternatives were considered but eliminated as none were deemed viable because of physical constraints and feasibility, or because they did not meet the project’s purpose and need. Refer to Chapter 1, Section 1.5, Alternatives Considered but Eliminated from Further Discussion.

Build Alternative

The Build Alternative proposes to construct multiple safety improvements in the Niles Canyon Corridor from PM 10.8 to PM 18.0. The Build Alternative would consist of the following improvements, which are discussed in further detail in Chapter 1, Section 1.4.1.1:

- Signalization of the Pleasanton/Sunol-SR-84 intersection
- Installation and removal of traffic signs
- Replace the reinforced concrete box culvert at Stonybrook Creek with a clear-span bridge
Summary

- Improvements at the Low Speed Curve
- Installation of K-rail
- Fixed object removal and relocation
- Install a rock drapery system and dynamic rockfall fence
- Limited shoulder widening at Sims Park/Quarry Road, the west side of Silver Springs, and Paloma Way
- Barrier Rail Replacement on Alameda Creek Bridge and Overhead (Bridge 33-0039)
- Install and replace Metal Beam Guardrail with Midwest Guardrail
- Install Active Warning System, Speed Feedback signs, and Dynamic Active Warning Systems

No-Build Alternative
Under the No-Build Alternative, none of the project features described above would be constructed. Safety, structural, and operational deficiencies would persist along SR-84 from Mission Boulevard (SR-238) to I-680.

The No-Build Alternative is the baseline for comparing environmental impacts under NEPA. The existing conditions at the time of the Notice of Preparation (NOP) are considered the baseline for comparing environmental impacts under CEQA.

Joint NEPA/CEQA Document
The proposed Niles Canyon Safety Improvements 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). Caltrans is the lead agency under NEPA and CEQA. In addition, FHWA’s responsibility for 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 United States Code (USC) 327.

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, quite 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, a Final EIR/EA will be prepared. Caltrans may prepare additional environmental and/or engineering studies to address comments. The Final EIR/EA will include responses to comments received on the Draft EIR/EA and will identify the preferred alternative. If the decision is made to approve the project, a Notice of Determination will be published for compliance with CEQA, and Caltrans will decide whether to issue a Finding of No Significant Impact (FONSI) or require an Environmental Impact Statement (EIS) 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.
Project Impacts
Table S-6 summarizes the impacts of the Build Alternative in comparison with the No-Build Alternative and identifies avoidance, minimization, and/or mitigation measures for those resources impacted by the proposed project.
### Table S-6. Project Impacts

<table>
<thead>
<tr>
<th>Environmental Topic</th>
<th>Build Alternative</th>
<th>No-Build Alternative</th>
<th>Avoidance, Minimization, and/or Mitigation Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Land Use</strong></td>
<td>Consistent with relevant state, regional, and local plans and programs.</td>
<td>Not consistent with the Alameda County Transportation Plan as the No-Build Alternative would not address transportation deficiencies.</td>
<td>None</td>
</tr>
<tr>
<td>Consistency with State, Regional, and Local Plans and Programs</td>
<td>No impact</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Compatibility with habitat conservation plan</td>
<td>No impact</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Located in a Coastal Zone</td>
<td>No impact</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Located near designated Wild and Scenic Rivers</td>
<td>No impact</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td><strong>Parks and Recreational Facilities</strong></td>
<td>No impact</td>
<td>No impact</td>
<td>None</td>
</tr>
<tr>
<td>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?</td>
<td>No impact</td>
<td>No impact</td>
<td>None</td>
</tr>
<tr>
<td>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?</td>
<td>No impact</td>
<td>No impact</td>
<td>None</td>
</tr>
<tr>
<td>Impact parks/recreational facilities?</td>
<td>Minimal indirect impacts to the recreational Niles Canyon Railway, including temporarily increased noise levels from project construction and demolition and indirect visual impacts as a result of construction activities.</td>
<td>No impact</td>
<td>VISUAL-3 (refer to Section 2.1.5.4 for a description) and PARKS/REC-1 (refer to Section 2.1.1.3 for a description).</td>
</tr>
<tr>
<td><strong>Growth</strong></td>
<td>No impact</td>
<td>No impact</td>
<td>VISUAL-3 (refer to Section 2.1.5.4 for a description) and PARKS/REC-1 (refer to Section 2.1.1.3 for a description).</td>
</tr>
<tr>
<td><strong>Farmlands/Timberlands</strong></td>
<td>No impact</td>
<td>VISUAL-3 (refer to Section 2.1.5.4 for a description) and PARKS/REC-1 (refer to Section 2.1.1.3 for a description).</td>
<td>VISUAL-3 (refer to Section 2.1.5.4 for a description) and PARKS/REC-1 (refer to Section 2.1.1.3 for a description).</td>
</tr>
<tr>
<td>Environmental Topic</td>
<td>Build Alternative</td>
<td>No-Build Alternative</td>
<td>Avoidance, Minimization, and/or Mitigation Measures</td>
</tr>
<tr>
<td>------------------------------------------</td>
<td>-----------------------------------------------------------------------------------</td>
<td>----------------------</td>
<td>-----------------------------------------------------</td>
</tr>
<tr>
<td><strong>Community Impacts</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No impact</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Utilities/Emergency Services</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Utilities</td>
<td>Relocation of Pacific Gas and Electric (PG&amp;E) utility poles within the project limits.</td>
<td>No impact.</td>
<td>UTL-1 (refer to Section 2.1.3.3 for a description).</td>
</tr>
<tr>
<td>Emergency Services</td>
<td>Five weekend closures of Niles Canyon Corridor expected from PM 13.0 to 14.8 to construct the Stonybrook Creek Bridge and replace the bridge raling on the Alameda Creek Bridge and Overhead (Bridge 33-0039). Movement through Niles Canyon would be provided for law enforcement, fire, and/or emergency services. Impacts to emergency services would be temporary.</td>
<td>No impact.</td>
<td>TRAFFIC-1 (refer to Section 2.1.4.4 for a description).</td>
</tr>
<tr>
<td><strong>Traffic and Transportation/Pedestrian and Bicycle Facilities</strong></td>
<td>Consistent with applicable plans, ordinances, policies, and programs.</td>
<td>Not consistent with the Alameda County Transportation Plan as the No-Build Alternative would not address transportation deficiencies.</td>
<td>TRAFFIC-1 (refer to Section 2.1.4.4 for a description).</td>
</tr>
<tr>
<td>Conflict with applicable plans, ordinances, policies, or programs</td>
<td>Would signalize the Pleasanton/Sunol and SR-84 intersection and Main Street and SR-84 intersection to reduce traffic congestion.</td>
<td>Under the No-Build Alternative, existing conditions would worsen at the Pleasanton-Sunol Road and SR-84 intersection.</td>
<td>TRAFFIC-1 (refer to Section 2.1.4.4 for a description).</td>
</tr>
<tr>
<td>Increase traffic congestion</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increase hazards as a result of a design feature</td>
<td>No impact.</td>
<td></td>
<td>None</td>
</tr>
<tr>
<td>Environmental Topic</td>
<td>Build Alternative</td>
<td>No-Build Alternative</td>
<td>Avoidance, Minimization, and/or Mitigation Measures</td>
</tr>
<tr>
<td>---------------------</td>
<td>-------------------</td>
<td>----------------------</td>
<td>-----------------------------------------------------</td>
</tr>
<tr>
<td><strong>Visual/Aesthetics</strong></td>
<td>Would result in visual/aesthetic impacts to a State Scenic Highway; these impacts include the removal of the trees, installation of two rock drapery systems in the western portion of Niles Canyon, near Mission Boulevard, and the construction of safety-shaped, three-foot-tall retaining walls at the Low-speed Curve.</td>
<td>No impact</td>
<td>VISUAL-1, VISUAL-2, VISUAL-3 and VISUAL-4 (refer to Section 2.1.5.4 for descriptions).</td>
</tr>
<tr>
<td>Adverse effect on scenic views/damage scenic resources</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Substantially damage scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings within a State Scenic Highway.</td>
<td>Would result in visual/aesthetic impacts to a State Scenic Highway; these impacts include the removal of the trees, installation of two rock drapery systems in the western portion of Niles Canyon, near Mission Boulevard, the construction of safety-shaped, three-foot-tall retaining walls at the Low-speed Curve, and the replacement of bridge railing on the National Register of Historic Places (NRHP)-eligible Alameda Creek Bridge and Overhead (Bridge 33-0039).</td>
<td>No impact</td>
<td>VISUAL-1, VISUAL-2, VISUAL-3 and VISUAL-4 (refer to Section 2.1.5.4 for descriptions).</td>
</tr>
<tr>
<td>Degradation of existing visual character or quality</td>
<td>Would alter existing visual character and quality.</td>
<td>No impact</td>
<td>VISUAL-1, VISUAL-2, VISUAL-3 and VISUAL-4 (refer to Section 2.1.5.4 for descriptions).</td>
</tr>
<tr>
<td>Create a new source of light or glare</td>
<td>No new permanent source of light or glare would be constructed that would adversely affect day or nighttime views in Niles Canyon. During construction activities,</td>
<td>No impact</td>
<td>VISUAL-3 and VISUAL-4 (refer to Section 2.1.5.4 for descriptions).</td>
</tr>
<tr>
<td>Environmental Topic</td>
<td>Build Alternative</td>
<td>No-Build Alternative</td>
<td>Avoidance, Minimization, and/or Mitigation Measures</td>
</tr>
<tr>
<td>---------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------</td>
<td>----------------------</td>
<td>------------------------------------------------------</td>
</tr>
<tr>
<td>temporary construction lighting would be limited to the area of work.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Cultural Resources</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Create a substantial adverse change in the significance of a historical resource</td>
<td>Would replace the bridge railing on the Alameda Creek Bridge and Overhead (Bridge 33-0039), an NRHP- eligible resource.</td>
<td>No impact</td>
<td>CULTURAL-1, CULTURAL-2, CULTURAL-3, CULTURAL-4, CULTURAL-5, CULTURAL-6, and CULTURAL-7 (refer to Section 2.1.6.4 for descriptions).</td>
</tr>
<tr>
<td>Create a substantial adverse change in the significance of an archeological resource</td>
<td>Would result in a substantial adverse change to an archaeological site.</td>
<td>No impact</td>
<td>CULTURAL-1, CULTURAL-2, CULTURAL-3, CULTURAL-4, CULTURAL-5, CULTURAL-6, and CULTURAL-7 (refer to Section 2.1.6.4 for descriptions).</td>
</tr>
<tr>
<td>Disturbance to human remains</td>
<td>Would disturb human remains.</td>
<td>No impact</td>
<td>CULTURAL-2 and CULTURAL-7 (refer to Section 2.1.6.4 for descriptions).</td>
</tr>
<tr>
<td><strong>Hydrology and Floodplain</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Located within a 100-year floodplain</td>
<td>No impact</td>
<td></td>
<td>None</td>
</tr>
<tr>
<td>Expose people/structure to significant risk of loss</td>
<td>No impact</td>
<td></td>
<td>None</td>
</tr>
<tr>
<td><strong>Water Quality and Storm Water Runoff</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Result in substantial drainage pattern alteration</td>
<td>Would not substantially alter/change drainage patterns, however, there will be modification of existing drainage structures and the addition of new drainage systems at the Low Speed Curve and some shoulder widening locations, as well as the addition of a new drainage system for Stonybrook Creek Bridge.</td>
<td>No impact</td>
<td>None</td>
</tr>
</tbody>
</table>

Niles Canyon Safety Improvements Project xix
<table>
<thead>
<tr>
<th>Environmental Topic</th>
<th>Build Alternative</th>
<th>No-Build Alternative</th>
<th>Avoidance, Minimization, and/or Mitigation Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Violation of water quality standards</td>
<td>Potential due to excavation and construction activities.</td>
<td>No impact</td>
<td>WATER-1 through WATER-3 (refer to Section 2.2.2.4 for a description).</td>
</tr>
<tr>
<td>Change to groundwater supply or groundwater recharge</td>
<td>Increase in impervious surface area would result in increased water runoff and less percolation to groundwater aquifers.</td>
<td>No impact</td>
<td>WATER-1 through WATER-3 (refer to Section 2.2.2.4 for descriptions).</td>
</tr>
<tr>
<td>Substantially degrade water quality</td>
<td>Potential due to excavation and construction activities.</td>
<td>No impact</td>
<td>WATER-1 through WATER-3 (refer to Section 2.2.2.4 for descriptions).</td>
</tr>
</tbody>
</table>

**Geology/Soils/Seismic/Topography**

| Expected likelihood of seismic related issues, including ground shaking and liquefaction | Low potential for seismic related issues as the Stonybrook Creek bridge structure would be designed using Caltrans Seismic Design Criteria (SDC), which provides the minimum seismic requirements for highway bridges designed in California. | 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
<table>
<thead>
<tr>
<th>Environmental Topic</th>
<th>Build Alternative</th>
<th>No-Build Alternative</th>
<th>Avoidance, Minimization, and/or Mitigation Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Paleontology</strong></td>
<td>Excavation and ground disturbing activities in previously undisturbed geologic formations may impact paleontological resources.</td>
<td>No impact.</td>
<td>PALEONTOLOGY-1 (refer to Section 2.2.4.4 for a description).</td>
</tr>
<tr>
<td>Destruction of paleontological resources (i.e., fossil remains and sites) as a result of ground disturbance.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Hazardous Waste/Materials</strong></td>
<td>The Build Alternative proposes roadway and shoulder widening at various locations within the project limits, which would disturb existing roadside soils potentially containing aerially deposited lead (ADL). The Build Alternative proposes the removal and replacement of the reinforced concrete box culvert at Stonybrook Creek and the bridge railing of the Alameda Creek Bridge and Overhead (Bridge 33-0039). The railing of the Alameda Creek Bridge and Overhead might contain Asbestos Containing Materials (ACM) and Lead Based Paint (LBP).</td>
<td>No impact</td>
<td>HAZ-1 and HAZ-2 (refer to Section 2.2.5.4 for descriptions).</td>
</tr>
<tr>
<td>Create a hazard to the environment/public</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>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.</td>
<td>No impact</td>
<td>No impact</td>
<td>None</td>
</tr>
<tr>
<td><strong>Air Quality</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No impact</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmental Topic</td>
<td>Build Alternative</td>
<td>No-Build Alternative</td>
<td>Avoidance, Minimization, and/or Mitigation Measures</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>-------------------------------------------------------------------------------------</td>
<td>----------------------</td>
<td>----------------------------------------------------</td>
</tr>
<tr>
<td><strong>Noise</strong></td>
<td>No impact; project is not considered to be a Type I Project⁶.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Energy</strong></td>
<td>No impact</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Biological Resources</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Effects to habitat or sensitive natural communities</td>
<td>Would impact habitats and natural communities within the Niles Canyon Corridor including California Annual Grasslands, California Bay/Coast Live Oak, Coastal Scrub, Valley Foothill Riparian, Fresh Emergent Wetland, Creek Channel, and Urban-Landscaped.</td>
<td>No impact</td>
<td>UPLAND TREES-1, RIPARIAN TREES-1, PLANT-1, and INVASIVE-1 and INVASIVE-2 (refer to Sections 2.3.1.4, 2.3.3.4, and 2.3.6.4 for descriptions).</td>
</tr>
<tr>
<td>Effects to wetlands and other waters</td>
<td>The Build Alternative would result in .03 acres of permanent impacts and 0.27 acres of temporary impacts to wetlands and water features.</td>
<td>No impact</td>
<td>WETLANDS-1, WETLANDS-2, and WATER-1 through WATER-3 (refer to Sections 2.3.2.4 and Section 2.2.2.4 for descriptions).</td>
</tr>
<tr>
<td>Effects to sensitive or special status species</td>
<td>The Build Alternative would impact threatened and endangered species, including the California red-legged frog and Alameda whipsnake, as well as special status species.</td>
<td>No impact</td>
<td>LAMPREY-1, WESTERN POND TURTLE-1, WOODRAT-1, BATS-1, BIRDS-1 through BIRDS-4, CRLF-1, and AWS-1 (refer to Sections 2.3.4.4 and 2.3.5.4 for descriptions).</td>
</tr>
<tr>
<td>Conflict with local policies/plans</td>
<td>The Build Alternative is not consistent with Goal 6 of the East Alameda County Conservation Strategy (EACCS).</td>
<td>No impact</td>
<td>UPLAND TREES-1 and RIPARIAN TREES-1 (refer to Section 2.3.1.4 for descriptions).</td>
</tr>
</tbody>
</table>

⁶ A Type I project is defined as “a proposed Federal or Federal-aid highway project for the construction of a highway on new location or the physical alteration of an existing highway which significantly changes either the horizontal or vertical alignment or increases the number of through-traffic lanes.”
Coordination with Public and Other Agencies

Permits and Approvals Needed

The following permits, review, and approvals identified in Table S-7 are required for project construction.

Table S-7. Permits and Approvals Needed

<table>
<thead>
<tr>
<th>Agency</th>
<th>Permit/Approval</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States Fish and Wildlife Service (USFWS)</td>
<td>Section 7 Consultation for Threatened and Endangered Species</td>
<td>Consultation to occur prior to final environmental document.</td>
</tr>
<tr>
<td>United States Army Corps of Engineers (USACE)</td>
<td>Clean Water Act (CWA) Section 404 nationwide permit for filling or dredging waters of the United States.</td>
<td>Acquired prior to construction.</td>
</tr>
<tr>
<td>California Department of Fish and Wildlife (CDFW)</td>
<td>Incidental Take Permit for Threatened and Endangered Species</td>
<td>Acquired prior to project construction.</td>
</tr>
<tr>
<td>California Department of Fish and Wildlife (CDFW)</td>
<td>1602 Streambed Alteration Agreement</td>
<td>Acquired prior to project construction.</td>
</tr>
<tr>
<td>Regional Water Quality Control Board (RWQCB)</td>
<td>CWA Section 401 permit</td>
<td>Acquired prior to the CWA 404 nationwide permit.</td>
</tr>
<tr>
<td>Alameda County Water District (ACWD)</td>
<td>Drilling permit as required by ACWD Ordinance No. 2010-01</td>
<td>Drilling permit would be obtained during the design phase of the project.</td>
</tr>
</tbody>
</table>

Notice of Preparation and Scoping

Pursuant to CEQA, Caltrans filed a Notice of Preparation (NOP) with the State Clearinghouse (Office of Planning and Research) on September 30, 2015, marking the start of the 30-day public comment period. The NOP described the proposed project in addition to identifying the probable environmental effects. The scoping comment period for the Niles Canyon Safety Improvements Project ended on October 30, 2015.

Notification of Scoping

Caltrans used multiple channels of communication to inform responsible agencies, organized groups, businesses, and members of the public about the preparation of a Draft EIR/EA for the Niles Canyon Safety Improvements Project as well as to inform these parties about the opportunity for public comment and the public scoping meeting.

---

7 As of September 2016, a Biological Opinion from NMFS is not currently required, as fish passage between Alameda Creek and San Francisco Bay is blocked by the BART weir. Landlocked rainbow trout prevented from leaving the watershed are not currently considered to be anadromous Central California Coast DPS steelhead. If the fish ladder at the BART weir is installed prior to the start of the Niles Canyon Safety Improvements Project construction, Caltrans will pursue a Biological Opinion from NMFS as fish within Alameda Creek will be included by NMFS as part of the federally threatened Central California Coast steelhead DPS.
Caltrans placed newspaper advertisements announcing the opportunity for public comment and the public scoping meeting in two southern Alameda County newspapers: the Dublin/Pleasanton Independent (advertisement ran on October 8, 2015) and the Fremont Argus (advertisement ran on October 10, 2015). Caltrans also mailed flyers to all residences located approximately one mile from the SR-238 and SR-84 intersection and within the town of Sunol, inviting the public to participate in the scoping process for the project. The flyer contained information on the project, the public scoping meeting, and how to submit a scoping comment. Since 2011, Caltrans has maintained a list of parties interested in receiving emails regarding public meetings and opportunities for comment on Caltrans actions/projects in Niles Canyon. An email notifying the Listserve of the opportunity for public comment as well as the public meeting was sent on Wednesday, September 30, 2015.

On Sunday, October 11, 2015, SR-84 from Mission Boulevard to I-680 was closed to vehicular traffic to allow members of the public to run, walk, or bike along SR-84. This event, called the “Stroll and Roll”, highlighted Alameda County and East Bay Regional Park District’s (EBRPD) proposed feasibility study for a Class I Bicycle Trail in Niles Canyon. Alameda County invited agencies and groups conducting work in Niles Canyon to participate in a resource fair at Vallejo’s Mill.

Caltrans staff from Project Management, Design, Environmental Analysis, and Public Information participated in the resource fair at the Niles Canyon Stroll and Roll. The Caltrans booth included a large scale display of Niles Canyon that identified specific locations of the proposed SR-84 improvements, fact sheets on the three Caltrans projects planned for the Niles Canyon Corridor, and binders containing images of the proposed improvements. Caltrans representatives answered questions about the proposed projects and invited the public to attend the Niles Canyon Safety Improvements Project scoping meeting, scheduled for Wednesday, October 14th. Caltrans staff provided comment cards at the Stroll and Roll as well as a sign-up sheet to join Caltrans’ Niles Canyon Listserve to receive email updates about Caltrans public meetings and/or opportunities for public comment.

Public Scoping Meeting
Caltrans held a public scoping meeting for the Niles Canyon Safety Improvements at the Sunol Glen Elementary School on Wednesday, October 14, 2015 from 6-8 PM. Forty-eight people attended the public meeting. The meeting was an open house style. Simulation boards highlighting the proposed improvements were located around the room for meeting participants to view. Upon arrival, meeting participants were requested to sign-in and offered comment cards. Participants were given the opportunity to submit comment cards at the meeting, send an email to the project email address (nilescanyonprojects@dot.ca.gov), or mail a comment letter and/or the comment card to Caltrans (Caltrans District 4, Attn. Elizabeth White, 111 Grand Avenue MS 8B, Oakland, CA 94612). At the meeting, Caltrans staff notified members of the public that the scoping comment period ended at 5 PM on October 30, 2015.

Caltrans staff from Project Management, Design, Environmental Analysis, Biological Science and Permits, Landscape Architecture, and Traffic Safety units were present at the public scoping meeting to answer questions about the proposed project. The Caltrans Project Manager gave a presentation on the project at 6:30 PM.
External Agency Coordination

- January 11, 2008 - Letter from SHPO - SHPO concurrence on eligibility of Western Pacific/Central Pacific stone railroad culvert, non-eligibility of 4 properties, and finding of No Historic Properties Affected.
- June 4, 2014 – A meeting was held at Caltrans District 4 Office to discuss the Alameda Creek Bridge Replacement Project. Conclusions from that meeting are relevant to the Niles Canyon Safety Improvement Project, because the project areas partially overlap. Attendees included representatives from USFWS, CDFW, USACE, RWQCB, and National Oceanic Administration Agency (NOAA)\(^8\). Discussion on the potential occurrence of California tiger salamander occurred. Staff from USFWS and CDFW concluded that California tiger salamander would not likely be present in the proposed bridge replacement project area and that compensatory mitigation would not be required for that project.
- January 12, 2015 – Caltrans held a technical assistance meeting in the field with USFWS. The USFWS representative concluded that California tiger salamander would not likely be present in the proposed project area but further research and discussion with other USFWS staff would be needed before a conclusion that compensatory mitigation for California tiger salamander would not be required for the project.
- August 26, 2015 – Caltrans informed USFWS and CDFW of the incorporation of Stonybrook Culvert Replacement Project into the Niles Canyon Safety Improvements Project. Caltrans informed USFWS that an updated Biological Assessment (BA) incorporating the Stonybrook Culvert Replacement project elements and studies would be submitted to USFWS for review.
- October 13, 2015 - Letter from SHPO - CA-ALA-677/H Eligibility Concurrence.
- December 4, 2015 – Caltrans informed NOAA of the incorporation of Stonybrook Culvert Replacement Project into the Project.
- December 23, 2015 – Caltrans hosted an inter-agency meeting with CDFW, RWQCB, and NMFS. The meeting also included discussions about addition of the Stonybrook Culvert Replacement into the Niles Canyon Safety Improvements Project
- February 1, 2016 – Caltrans submitted Stonybrook Culvert Replacement Plans to CDFW, RWQCB, NMFS, and USFWS.

---

\(^8\) As of September 2016, fish passage between Alameda Creek and San Francisco Bay is blocked within the City of Fremont by a concrete grade control structure, commonly referred to as the “BART weir” due to its proximity to the Bay Area Rapid Transportation (BART) tracks. As a result, these fish are considered landlocked rainbow trout and are not currently considered to be anadromous Central California Coast DPS steelhead, meaning they do not receive protection under the Federal Endangered Species Act. ACWD is scheduled to install a fish ladder that will circumvent this structure. Construction of the fish ladder is scheduled for 2019 (ACWD, 2014). When the fish ladder is complete, 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. As of September 2016, 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. If the fish ladder at the BART weir is installed prior to the start of the Niles Canyon Safety Improvements Project construction, Caltrans will pursue a Biological Opinion from NMFS as fish within Alameda Creek will be included by NMFS as part of the federally threatened Central California Coast steelhead DPS.
April 10, 2016 – Letter sent to CDFW and RWQCB detailing previous coordination efforts on the Stonybrook Creek Bridge design.
# Table of Contents

Summary ......................................................................................................................... i

**Chapter 1. Proposed Project** ..................................................................................... 1

1.1 Introduction .............................................................................................................. 1

1.2 Purpose and Need .................................................................................................... 4

   1.2.1 Project Purpose ............................................................................................... 4

   1.2.2 Project Need .................................................................................................. 4

       1.2.2.1 System Safety Needs .............................................................................. 4

       1.2.2.2 Roadway and Structure Deficiencies of SR-84 .................................... 9

       1.2.2.3 Deficient Intersection Operations at SR-84 and Pleasanton-Sunol Road .... 12

       1.2.2.4 Address requirements of the EA 17440: Route 84 Safety Improvement Project Settlement Agreement ............................................................ 12

       1.2.3 Independent Utility and Logical Termini ................................................... 13

1.3 Project Description .................................................................................................. 14

1.4 Alternatives ............................................................................................................. 14

   1.4.1.1 Build Alternative ....................................................................................... 14

   1.4.1.2 No-Build Alternative ................................................................................ 21

1.5 Alternatives Considered But Eliminated From Further Discussion ....................... 21

1.6 Project Cost and Funding ....................................................................................... 23

1.7 Permits and Approvals Needed .............................................................................. 23

**Chapter 2. Affected Environment, Environmental Consequences,**
**And Avoidance, Minimization, and/or Mitigation Measures** .................................... 25

2.1 Human Environment .............................................................................................. 27

   2.1.1 Land Use ....................................................................................................... 27

       2.1.1.1 Existing and Future Land Use ................................................................. 27

       2.1.1.2 Consistency with State, Regional, and Local Plans and Programs .......... 28

       2.1.1.3 Parks and Recreational Facilities ....................................................... 39

   2.1.2 Community Impacts ....................................................................................... 42

       2.1.2.1 Relocations and Real Property Acquisition ........................................... 42

   2.1.3 Utilities/Emergency Services ......................................................................... 51

       2.1.3.1 Affected Environment ......................................................................... 51

       2.1.3.2 Environmental Consequences .............................................................. 51
Table of Contents

2.1.3.3 Avoidance, Minimization, and/or Mitigation Measures ........................................... 52
2.1.4 Traffic and Transportation/Pedestrian and Bicycle Facilities ........................................ 52
  2.1.4.1 Regulatory Setting ........................................................................................................ 52
  2.1.4.2 Affected Environment .................................................................................................. 52
  2.1.4.3 Environmental Consequences .................................................................................... 56
  2.1.4.4 Avoidance, Minimization, and/or Mitigation Measures ............................................ 58
2.1.5 Visual/Aesthetics .............................................................................................................. 59
  2.1.5.1 Regulatory Setting ....................................................................................................... 59
  2.1.5.2 Affected Environment ................................................................................................ 59
  2.1.5.3 Environmental Consequences .................................................................................... 68
  2.1.5.4 Avoidance, Minimization, and/or Mitigation Measures ............................................ 97
2.1.6 Cultural Resources .......................................................................................................... 97
  2.1.6.1 Regulatory Setting ..................................................................................................... 97
  2.1.6.2 Affected Environment ................................................................................................ 98
  2.1.6.3 Environmental Consequences .................................................................................... 101
  2.1.6.4 Avoidance, Minimization, and/or Mitigation Measures ............................................ 103
2.2 Physical Environment ......................................................................................................... 104
  2.2.1 Hydrology and Floodplain ............................................................................................ 104
    2.2.1.1 Regulatory Setting .................................................................................................... 104
    2.2.1.2 Affected Environment ............................................................................................. 104
    2.2.1.3 Environmental Consequences ................................................................................ 110
    2.2.1.4 Avoidance, Minimization, and/or Mitigation Measures ........................................ 110
  2.2.2 Water Quality and Storm Water Runoff ....................................................................... 110
    2.2.2.1 Regulatory Setting .................................................................................................. 110
    2.2.2.2 Affected Environment ............................................................................................. 114
    2.2.2.3 Environmental Consequences ................................................................................ 117
    2.2.2.4 Avoidance, Minimization, and/or Mitigation Measures ........................................ 117
  2.2.3 Geology/Soils/Seismic/Topography .............................................................................. 118
    2.2.3.1 Regulatory Setting .................................................................................................. 118
    2.2.3.2 Affected Environment ............................................................................................. 119
    2.2.3.3 Environmental Consequences ................................................................................ 124
    2.2.3.4 Avoidance, Minimization, and/or Mitigation Measures ........................................ 124
  2.2.4 Paleontology .................................................................................................................. 125
Table of Contents

2.2.4.1 Regulatory Setting ........................................................................................................ 125
2.2.4.2 Affected Environment ................................................................................................. 125
2.2.4.3 Environmental Consequences ..................................................................................... 127
2.2.4.4 Avoidance, Minimization, and/or Mitigation Measures .................................................. 128
2.2.5 Hazardous Waste/Materials ............................................................................................ 129
2.2.5.1 Regulatory Setting ....................................................................................................... 129
2.2.5.2 Affected Environment .................................................................................................. 129
2.2.5.3 Environmental Consequences ..................................................................................... 130
2.2.5.4 Avoidance, Minimization, and/or Mitigation Measures .................................................. 131
2.2.6 Energy ............................................................................................................................. 132
2.2.6.1 Regulatory Setting ....................................................................................................... 132
2.2.6.2 Affected Environment .................................................................................................. 132
2.2.6.3 Environmental Consequences ..................................................................................... 132
2.2.6.4 Avoidance, Minimization, and/or Mitigation Measures .................................................. 132
2.3 Biological Environment ...................................................................................................... 132
2.3.1 Natural Communities ..................................................................................................... 132
2.3.1.1 Affected Environment .................................................................................................. 133
2.3.1.2 Environmental Consequences ..................................................................................... 137
2.3.1.3 Avoidance, Minimization, and/or Mitigation Measures .................................................. 143
2.3.2 Wetlands and Other Waters ............................................................................................. 147
2.3.2.1 Regulatory Setting ....................................................................................................... 147
2.3.2.2 Affected Environment .................................................................................................. 149
2.3.2.3 Environmental Consequences ..................................................................................... 149
2.3.2.4 Avoidance, Minimization, and/or Mitigation Measures .................................................. 163
2.3.3 Plant Species .................................................................................................................... 164
2.3.3.1 Regulatory Setting ....................................................................................................... 164
2.3.3.2 Affected Environment .................................................................................................. 164
2.3.3.3 Environmental Consequences ..................................................................................... 166
2.3.3.4 Avoidance, Minimization, and/or Mitigation Measures .................................................. 166
2.3.4 Animal Species ................................................................................................................ 166
2.3.4.1 Regulatory Setting ....................................................................................................... 166
2.3.4.2 Affected Environment .................................................................................................. 167
2.3.4.3 Environmental Consequences ..................................................................................... 175

Niles Canyon Safety Improvements Project
### Table of Contents

2.3.4.4  Avoidance, Minimization, and/or Mitigation Measures ........................................ 176

2.3.5  Threatened and Endangered Species ................................................................. 177
  2.3.5.1  Regulatory Setting .......................................................................................... 177
  2.3.5.2  Affected Environment .................................................................................... 178
  2.3.5.3  Environmental Consequences ........................................................................ 181
  2.3.5.4  Avoidance, Minimization, and/or Mitigation Measures ..................................... 185

2.3.6  Invasive Species .................................................................................................. 187
  2.3.6.1  Regulatory Setting .......................................................................................... 187
  2.3.6.2  Affected Environment .................................................................................... 187
  2.3.6.3  Environmental Consequences ........................................................................ 187
  2.3.6.4  Avoidance, Minimization, and/or Mitigation Measures ..................................... 187

2.4  Cumulative Impacts ............................................................................................... 188
  2.4.1  Regulatory Setting ............................................................................................ 188
  2.4.2  Projects Considered for Cumulative Impact Analysis ........................................ 188
  2.4.3  Resource Areas with No Contribution to Cumulative Impacts ............................ 197
  2.4.4  Resources Considered for Cumulative Impact Analysis ...................................... 199
      2.4.4.1  Visual/Aesthetics ......................................................................................... 199
      2.4.4.2  Cultural Resources (Built/Architectural Resources) ...................................... 201
      2.4.4.3  Water Quality and Stormwater Runoff ......................................................... 203
      2.4.4.4  Biological Environment: Wetlands and Other Waters .................................. 206
      2.4.4.5  Biological Environment: Natural Communities ............................................. 210
      2.4.4.6  Biological Environment: Alameda Whipsnake ............................................. 212
      2.4.4.7  Biological Environment: California Red-Legged Frog ................................... 215

### CHAPTER 3. CALIFORNIA ENVIRONMENTAL QUALITY ACT EVALUATION ... 219

3.1  Determining Significance under the California Environmental Quality Act ............. 219

3.2  Effects of the Proposed Project .............................................................................. 219
  3.2.1  No Effects ......................................................................................................... 219
  3.2.2  Less-than-Significant Effects of the Proposed Project ......................................... 220
  3.2.3  Significant Environmental Effects of the Proposed Project ................................ 228
  3.2.4  Unavoidable Significant Environmental Effects ................................................ 229
  3.2.5  Growth-Inducing Impacts ................................................................................ 230
  3.2.6  Climate Change ............................................................................................... 230

3.3  Mitigation Measures for Significant Impacts under CEQA .................................... 239
CHAPTER 4. COMMENTS AND COORDINATION................................................................. 241
4.1 Scoping Process................................................................................................. 241
   4.1.1 Notice of Preparation .................................................................................. 241
   4.1.2 Advertising of Scoping Meeting ................................................................. 241
   4.1.3 Scoping Meeting ......................................................................................... 242
   4.1.4 Opportunities for Public and Agency Comment During Scoping ............. 242
4.2 External Agency Coordination........................................................................... 243

CHAPTER 5. LIST OF PREPARERS ........................................................................... 245
CHAPTER 6. DISTRIBUTION LIST ........................................................................ 247
CHAPTER 7. REFERENCES ....................................................................................... 251
This page is intentionally left blank.
FIGURES
Figure S-1. Niles Canyon Safety Improvements Project Location Map ........................................ ii
Figure S-2. Traffic Accidents by Postmile in the Niles Canyon Corridor (Post 2007 centerline
rumble strip installation) and Proposed Improvements at Spot Locations ............................ vii
Figure S-3. Caltrans Annual Extreme Maintenance on SR-84 (approximately at PM 12.1) .......... xi
Figure S-4. Caltrans Annual Extreme Maintenance on SR-84 (approximately at PM 12.1) .......... xi

Figure 1. Niles Canyon Safety Improvements Project Location Map ....................................... 2
Figure 2. Traffic Accidents by Postmile in the Niles Canyon Corridor (Post 2007 centerline
rumble strip installation) and Proposed Improvements at Spot Locations ............................ 7
Figure 3. Crews working to clean up weather-related rockslide on SR-84 on January 18, 2016. 10
Figure 4. Caltrans Annual Extreme Maintenance on SR-84 (approximately at PM 12.1) .......... 11
Figure 5. Caltrans Annual Extreme Maintenance on SR-84 (approximately at PM 12.1) .......... 11
Figure 6. Niles Canyon Safety Improvements Project in the Niles Canyon Corridor ............... 15
Figure 7. Proposed Right of Way Acquisitions within the Niles Canyon Safety Improvements
Project Limits .............................................. 44
Figure 8. Proposed Right of Way, Location 1 of 6 ................................................................. 45
Figure 9. Proposed Right of Way, Location 2 of 6 ................................................................. 46
Figure 10. Proposed Right of Way, Location 3 of 6 ............................................................... 47
Figure 11. Proposed Right of Way, Location 4 of 6 ............................................................... 48
Figure 12. Proposed Right of Way, Location 5 of 6 ............................................................... 49
Figure 13. Proposed Right of Way, Location 6 of 6 ............................................................... 50
Figure 14. Levels of Service for Unsignalized Intersections .................................................... 55
Figure 15. Visual Assessment Units and Key Viewpoints ....................................................... 65
Figure 16. Key Viewpoint 1 Existing Condition ................................................................. 71
Figure 17. Key Viewpoint 1 Simulated View ........................................................................ 72
Figure 18. Key Viewpoint 2 Existing Condition ................................................................. 74
Figure 19. Key Viewpoint 2 Simulated View ........................................................................ 75
Figure 20. Key Viewpoint 3 Existing Condition ................................................................. 77
Figure 21. Key Viewpoint 3 Simulated View ........................................................................ 78
Figure 22. Key Viewpoint 4 Existing Condition ................................................................. 80
Figure 23. Key Viewpoint 4 Simulated View ST-20S Rail ..................................................... 81
Figure 24. Key Viewpoint 4 Simulated View with ST-70 Rail ............................................... 82
Figure 25. KVP-5 – Existing Condition from SR-84 at Stonybrook Creek, looking east .......... 85
Figure 26. KVP-5 - Existing Condition at Stonybrook Creek Culvert, seen from south of SR-84
......................................................................................................................... 86
Figure 27. KVP-5 Simulated View of Stonybrook Creek Bridge, seen from south of SR-84 .... 87
Figure 28. Key Viewpoint 6 Existing Condition ................................................................. 90
Figure 29. Key Viewpoint 6 Simulated View ...................................................................... 91
Figure 30. Key Viewpoint 7 Existing Condition ................................................................. 92
Figure 31. Key Viewpoint 7 Simulated View ...................................................................... 93
Figure 32. Key Viewpoint 8 Existing Condition ................................................................. 95
Figure 33. Key Viewpoint 8 Simulated View ...................................................................... 96
Figure 34. Flood Insurance Rate Map, from Mission Boulevard (SR-238) to the Alameda Creek
Bridge (33-0036) ............................................................................................................. 106
Figure 35. Flood Insurance Rate Map, from just east of the Alameda Creek Bridge (33-0036) to east of Sunol ......................................................................................................................... 107
Figure 36. Flood Insurance Rate Map, town of Sunol .......................................................... 108
Figure 37. Flood Insurance Rate Map, from east of the town of Sunol to I-680 .................... 109
Figure 38. Alameda Creek Watershed Map ............................................................................ 116
Figure 39. Geology Units in the Project Vicinity ................................................................. 126
Figure 40. Western Sycamore Tree proposed for removal as part of the Stonybrook Creek culvert demolition .............................................................................................................. 141
Figure 41. Build Alternative Impacts to Jurisdictional Wetlands and Other Waters (Map 1 of 13) .......................................................................................................................... 150
Figure 42. Build Alternative Impacts to Jurisdictional Wetlands and Other Waters (Map 2 of 13) .......................................................................................................................... 151
Figure 43. Build Alternative Impacts to Jurisdictional Wetlands and Other Waters (Map 3 of 13) .......................................................................................................................... 152
Figure 44. Build Alternative Impacts to Jurisdictional Wetlands and Other Waters (Map 4 of 13) .......................................................................................................................... 153
Figure 45. Build Alternative Impacts to Jurisdictional Wetlands and Other Waters (Map 5 of 13) .......................................................................................................................... 154
Figure 46. Build Alternative Impacts to Jurisdictional Wetlands and Other Waters (Map 6 of 13) .......................................................................................................................... 155
Figure 47. Build Alternative Impacts to Jurisdictional Wetlands and Other Waters (Map 7 of 13) .......................................................................................................................... 156
Figure 48. Build Alternative Impacts to Jurisdictional Wetlands and Other Waters (Map 8 of 13) .......................................................................................................................... 157
Figure 49. Build Alternative Impacts to Jurisdictional Wetlands and Other Waters (Map 9 of 13) .......................................................................................................................... 158
Figure 50. Build Alternative Impacts to Jurisdictional Wetlands and Other Waters (Map 10 of 13) .......................................................................................................................... 159
Figure 51. Build Alternative Impacts to Jurisdictional Wetlands and Other Waters (Map 11 of 13) .......................................................................................................................... 160
Figure 52. Build Alternative Impacts to Jurisdictional Wetlands and Other Waters (Map 12 of 13) .......................................................................................................................... 161
Figure 53. Build Alternative Impacts to Jurisdictional Wetlands and Other Waters (Map 13 of 13) .......................................................................................................................... 162
Figure 54. State Species of Special Concern with Moderate or High Potential to Occur ............ 167
Figure 55. Threatened and Endangered Species within the Niles Canyon Safety Improvements Project limits ......................................................................................................................... 179
Figure 56. California Greenhouse Gas Forecast ..................................................................... 234
Figure 57. Mobility Pyramid .................................................................................................. 235
TABLES
Table S-1. Primary Collision Factor (Collisions from November 1, 2007 to September 30, 2014) ................................................................. v
Table S-2. Type of Collision (Collisions from November 1, 2007 to September 30, 2014) .......... v
Table S-3. Niles Canyon Corridor Spot Locations Collision Data (11/1/2007 to 9/30/2014) ....... ix
Table S-4. Delays at Pleasanton-Sunol Road and SR-84 Intersection .................................. xii
Table S-5. Delays at Main Street and SR-84 Intersection ................................................ xii
Table S-6. Project Impacts .................................................................................................. xvi
Table S-7. Permits and Approvals Needed ........................................................................... xxiii

Table 1. Primary Collision Factor ......................................................................................... 4
Table 2. Type of Collision ....................................................................................................... 5
Table 3. Niles Canyon Corridor Spot Locations Collision Data (11/1/2007 to 9/30/2014) ....... 9
Table 4. Delays at Pleasanton-Sunol Road/SR-84 Intersection ............................................. 12
Table 5. Delays at State Route 84/Main Street Intersection ................................................. 12
Table 6. Permits and Approvals for the Niles Canyon Safety Improvements Project ........... 23
Table 7. Resource Areas with No Adverse Impact ............................................................... 25
Table 8. Consistency with State, Regional, and Local Plans and Policies ............................... 31
Table 9. List of Parks and Recreational Facilities within 0.5 miles of the Niles Canyon Safety
Improvements Project ........................................................................................................ 40
Table 10. Proposed Right of Way Requirements ................................................................. 43
Table 11. Niles Canyon Corridor Collision Data from PM 10.8 to PM 18.0 ......................... 54
Table 12. Delays at Pleasanton-Sunol Road/SR-84 Intersection ......................................... 56
Table 13. Delays at State Route 84/Main Street Intersection ............................................... 56
Table 14. Level of Service Comparison ............................................................................... 58
Table 15. Visual Impact Ratings Using Viewer Response and Resource Change .................. 68
Table 16. Beneficial Uses of Water Bodies in the Niles Canyon Safety Improvements Project
limits ...................................................................................................................................... 114
Table 17. Fault Data ............................................................................................................. 121
Table 18. Land Cover Types and Acreages within the Project Limits .................................. 133
Table 19. Build Alternative Impacts to Natural Communities ............................................... 137
Table 20. Tree Abundance and Impacts within the Project Limits ...................................... 142
Table 21. Impacts to Native Trees with Diameter at Breast Height of 20 or Greater .......... 143
Table 22. Wetlands and Other Waters Located Within the Project Limits ......................... 149
Table 23. Build Alternative Impacts to Wetlands and Other Waters ................................. 149
Table 24. Plant Species by Vegetation Type ........................................................................ 165
Table 25. Summary of Impacts to California Red-Legged Frog Habitat ............................. 183
Table 26. Summary of Impacts to Alameda Whipsnake Habitat ........................................ 184
Table 27. Proposed Compensatory Mitigation for Impacts to California Red-Legged Frog .... 186
Table 28. Proposed Compensatory Mitigation for Impacts to Alameda Whipsnake ............ 187
Table 29. List of Projects Considered for Cumulative Impact Analysis ............................. 191
Table 30. Impacts to wetlands and other waters in the Resource Study Area .................... 209
Table 31. Impacts to Alameda Whipsnake Habitat within the Resource Study Area ............ 214
Table 32. Climate Change/ CO2 Reduction Strategies ....................................................... 236
LIST OF APPENDICES
Appendix A California Environmental Quality Act (CEQA) Checklist
Appendix B Section 4(f) De Minimis Determination
Appendix C Title VI Policy Statement
Appendix D Environmental Commitments Record
Appendix E Notice of Preparation and Newspaper Advertisements
Appendix F Collision Analysis for Niles Canyon Safety Improvements Project
Appendix G Species Lists
# LIST OF ABBREVIATED TERMS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AADT</td>
<td>Average Annual Daily Traffic</td>
</tr>
<tr>
<td>AB</td>
<td>Assembly Bill</td>
</tr>
<tr>
<td>ABAG</td>
<td>Association of Bay Area Governments</td>
</tr>
<tr>
<td>ACFCDD</td>
<td>Alameda County Flood Control and Water Conservation District</td>
</tr>
<tr>
<td>ACM</td>
<td>asbestos-containing material</td>
</tr>
<tr>
<td>ACRCDD</td>
<td>Alameda County Resource Conservation District</td>
</tr>
<tr>
<td>ACWD</td>
<td>Alameda County Water District</td>
</tr>
<tr>
<td>ADL</td>
<td>aerially deposited lead</td>
</tr>
<tr>
<td>APE</td>
<td>Area of Potential Effect</td>
</tr>
<tr>
<td>ARB</td>
<td>Air Resources Board</td>
</tr>
<tr>
<td>ASR</td>
<td>Archaeological Study Report</td>
</tr>
<tr>
<td>AT&amp;T</td>
<td>American Telephone and Telegraph Company</td>
</tr>
<tr>
<td>AWS</td>
<td>Alameda whipsnake</td>
</tr>
<tr>
<td>BAAQMD</td>
<td>Bay Area Air Quality Management District</td>
</tr>
<tr>
<td>BART</td>
<td>Bay Area Rapid Transit</td>
</tr>
<tr>
<td>BAT</td>
<td>best available technology</td>
</tr>
<tr>
<td>BDPL</td>
<td>Bay Development Pipeline</td>
</tr>
<tr>
<td>BMP</td>
<td>best management practices</td>
</tr>
<tr>
<td>BO</td>
<td>Biological Opinion</td>
</tr>
<tr>
<td>CalEPA</td>
<td>California Environmental Protection Agency</td>
</tr>
<tr>
<td>Caltrans</td>
<td>California Department of Transportation</td>
</tr>
<tr>
<td>CARB</td>
<td>California Air Resources Board</td>
</tr>
<tr>
<td>CDFW</td>
<td>California Department of Fish and Wildlife</td>
</tr>
<tr>
<td>CEQ</td>
<td>Council on Environmental Quality</td>
</tr>
<tr>
<td>CEQA</td>
<td>California Environmental Quality Act</td>
</tr>
<tr>
<td>CESA</td>
<td>California Endangered Species Act</td>
</tr>
<tr>
<td>CFR</td>
<td>Code of Federal Regulations</td>
</tr>
<tr>
<td>CH₄</td>
<td>methane</td>
</tr>
<tr>
<td>CNNDDB</td>
<td>California Natural Diversity Database</td>
</tr>
<tr>
<td>CNPS</td>
<td>California Native Plant Society</td>
</tr>
<tr>
<td>CO-CAT</td>
<td>Coastal Ocean Climate Action Team</td>
</tr>
<tr>
<td>CO</td>
<td>Carbon monoxide</td>
</tr>
<tr>
<td>CO₂</td>
<td>Carbon dioxide</td>
</tr>
<tr>
<td>CRHR</td>
<td>California Register of Historical Resources</td>
</tr>
<tr>
<td>CRLF</td>
<td>California red-legged frog</td>
</tr>
<tr>
<td>CTP</td>
<td>California Transportation Plan</td>
</tr>
<tr>
<td>CTS</td>
<td>California tiger salamander</td>
</tr>
<tr>
<td>CWTP</td>
<td>Alameda Countywide Transportation Plan</td>
</tr>
<tr>
<td>CWA</td>
<td>Clean Water Act</td>
</tr>
<tr>
<td>DNA</td>
<td>dioxyribonucleic acid</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Definition</td>
</tr>
<tr>
<td>--------------</td>
<td>------------------------------------------------</td>
</tr>
<tr>
<td>DPS</td>
<td>Distinct Population Segment</td>
</tr>
<tr>
<td>EACCS</td>
<td>East Alameda County Conservation Strategy</td>
</tr>
<tr>
<td>EBRPD</td>
<td>East Bay Regional Park District</td>
</tr>
<tr>
<td>ECAP</td>
<td>East County Area Plan</td>
</tr>
<tr>
<td>EIR</td>
<td>Environmental Impact Report</td>
</tr>
<tr>
<td>EO</td>
<td>Executive Order</td>
</tr>
<tr>
<td>ESA</td>
<td>environmentally sensitive area</td>
</tr>
<tr>
<td>FEMA</td>
<td>Federal Emergency Management Agency</td>
</tr>
<tr>
<td>FESA</td>
<td>Federal Endangered Species Act</td>
</tr>
<tr>
<td>FHWA</td>
<td>Federal Highway Administration</td>
</tr>
<tr>
<td>GHG</td>
<td>green-house gas</td>
</tr>
<tr>
<td>HM</td>
<td>hydromodification</td>
</tr>
<tr>
<td>HOV</td>
<td>high-occupancy vehicle</td>
</tr>
<tr>
<td>HPSR</td>
<td>Historic Property Survey Report</td>
</tr>
<tr>
<td>HRER</td>
<td>Historic Resources Evaluation Report</td>
</tr>
<tr>
<td>H&amp;SC</td>
<td>Health and Safety Code</td>
</tr>
<tr>
<td>I-580</td>
<td>Interstate 580</td>
</tr>
<tr>
<td>I-680</td>
<td>Interstate 680</td>
</tr>
<tr>
<td>I-80</td>
<td>Interstate 80</td>
</tr>
<tr>
<td>IGR</td>
<td>intergovernmental review</td>
</tr>
<tr>
<td>IPCC</td>
<td>Intergovernmental Panel on Climate Change</td>
</tr>
<tr>
<td>ITP</td>
<td>Incidental Take Permit</td>
</tr>
<tr>
<td>ITS</td>
<td>Intelligent Transportation System</td>
</tr>
<tr>
<td>LBP</td>
<td>lead based paint</td>
</tr>
<tr>
<td>MBTA</td>
<td>Migratory Bird Treaty Act</td>
</tr>
<tr>
<td>MLD</td>
<td>Most Likely Descendent</td>
</tr>
<tr>
<td>MOA</td>
<td>Memorandum of Agreement</td>
</tr>
<tr>
<td>MOU</td>
<td>Memorandum of Understanding</td>
</tr>
<tr>
<td>MTC</td>
<td>Metropolitan Transportation Plan</td>
</tr>
<tr>
<td>RTP</td>
<td>Regional Transportation Plan</td>
</tr>
<tr>
<td>MMT</td>
<td>million metric tons</td>
</tr>
<tr>
<td>mph</td>
<td>miles per hour</td>
</tr>
<tr>
<td>MPO</td>
<td>Metropolitan Planning Organization</td>
</tr>
<tr>
<td>MS4s</td>
<td>Municipal Separate Storm Sewer Systems</td>
</tr>
<tr>
<td>NAHC</td>
<td>Native American Heritage Commission</td>
</tr>
<tr>
<td>N2O</td>
<td>nitrous oxide</td>
</tr>
<tr>
<td>NCTR</td>
<td>Niles Canyon Transcontinental Railroad</td>
</tr>
<tr>
<td>NEPA</td>
<td>National Environmental Policy Act</td>
</tr>
<tr>
<td>NES</td>
<td>Natural Environment Study</td>
</tr>
<tr>
<td>NHHPA</td>
<td>National Historic Preservation Act</td>
</tr>
<tr>
<td>NHTSA</td>
<td>National Highway Traffic Safety Administration</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Description</td>
</tr>
<tr>
<td>--------------</td>
<td>-------------</td>
</tr>
<tr>
<td>NMFS</td>
<td>National Marine Fisheries Service</td>
</tr>
<tr>
<td>NPDES</td>
<td>National Pollutant Discharge Elimination System</td>
</tr>
<tr>
<td>NRHP</td>
<td>National Register of Historic Places</td>
</tr>
<tr>
<td>NOAA</td>
<td>National Oceanic and Atmospheric Administration</td>
</tr>
<tr>
<td>NOP</td>
<td>Notice of Preparation</td>
</tr>
<tr>
<td>OPR</td>
<td>Office of Planning and Research</td>
</tr>
<tr>
<td>OSHA</td>
<td>Occupational Safety and Health Act</td>
</tr>
<tr>
<td>OSTP</td>
<td>Office of Science and Technology Policy</td>
</tr>
<tr>
<td>PA</td>
<td>Programmatic Agreement</td>
</tr>
<tr>
<td>PCE</td>
<td>primary constituent elements</td>
</tr>
<tr>
<td>PDT</td>
<td>project development team</td>
</tr>
<tr>
<td>PG&amp;E</td>
<td>Pacific Gas &amp; Electric</td>
</tr>
<tr>
<td>PER</td>
<td>Paleontological Evaluation Report</td>
</tr>
<tr>
<td>PIR</td>
<td>Paleontological Identification Report</td>
</tr>
<tr>
<td>PLA</td>
<td>Pacific Locomotive Association</td>
</tr>
<tr>
<td>PM$_{2.5}$</td>
<td>Particulate matter less than 2.5 micrometers in diameter</td>
</tr>
<tr>
<td>PM$_{10}$</td>
<td>Particulate matter less than 10 micrometers in diameter</td>
</tr>
<tr>
<td>PMP</td>
<td>Paleontological Mitigation Plan</td>
</tr>
<tr>
<td>PRC</td>
<td>Public Resources Code</td>
</tr>
<tr>
<td>RSA</td>
<td>Resource Study Area</td>
</tr>
<tr>
<td>RWQCB</td>
<td>Regional Water Quality Control Board</td>
</tr>
<tr>
<td>SB</td>
<td>Senate Bill</td>
</tr>
<tr>
<td>SCS</td>
<td>Sustainable Communities Strategy</td>
</tr>
<tr>
<td>SDC</td>
<td>Seismic Design Criteria</td>
</tr>
<tr>
<td>SFPUC</td>
<td>San Francisco Public Utilities Commission</td>
</tr>
<tr>
<td>SFWD</td>
<td>San Francisco Water Department</td>
</tr>
<tr>
<td>SF$_{6}$</td>
<td>sulfur hexafluoride</td>
</tr>
<tr>
<td>SHPO</td>
<td>State Historic Preservation Officer</td>
</tr>
<tr>
<td>SHOPP</td>
<td>State Highway Operation and Protection Program</td>
</tr>
<tr>
<td>SR</td>
<td>State Route</td>
</tr>
<tr>
<td>SR-238</td>
<td>State Route 238 / Mission Boulevard</td>
</tr>
<tr>
<td>SR-84</td>
<td>State Route 84</td>
</tr>
<tr>
<td>Sta.</td>
<td>station</td>
</tr>
<tr>
<td>SVWC</td>
<td>Spring Valley Water Company</td>
</tr>
<tr>
<td>SWMP</td>
<td>Storm Water Management Plan</td>
</tr>
<tr>
<td>SWPPP</td>
<td>Storm Water Pollution Prevention Plan</td>
</tr>
<tr>
<td>SWRCB</td>
<td>State Water Resources Control Board</td>
</tr>
<tr>
<td>TASAS</td>
<td>Traffic Accident Surveillance and Analysis System</td>
</tr>
<tr>
<td>TCE</td>
<td>temporary construction easement</td>
</tr>
<tr>
<td>TMDLs</td>
<td>total maximum daily loads</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Definition</td>
</tr>
<tr>
<td>--------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>TMP</td>
<td>Traffic Management Plan</td>
</tr>
<tr>
<td>TSAR</td>
<td>Traffic Safety Analysis Report</td>
</tr>
<tr>
<td>U.S. EPA</td>
<td>United States Environmental Protection Agency</td>
</tr>
<tr>
<td>UCMP</td>
<td>University of California Museum of Paleontology</td>
</tr>
<tr>
<td>USACE</td>
<td>United States Army Corp of Engineers</td>
</tr>
<tr>
<td>USC</td>
<td>United States Code</td>
</tr>
<tr>
<td>USFWS</td>
<td>United States Fish and Wildlife Service</td>
</tr>
<tr>
<td>VIA</td>
<td>Visual Impact Assessment</td>
</tr>
<tr>
<td>WB</td>
<td>westbound</td>
</tr>
<tr>
<td>WDRs</td>
<td>Waste Discharge Requirements</td>
</tr>
<tr>
<td>WPCP</td>
<td>Water Pollution Control Plan</td>
</tr>
</tbody>
</table>
CHAPTER 1. PROPOSED PROJECT

1.1 Introduction

The California Department of Transportation (Caltrans) proposes to construct multiple spot safety improvements on State Route 84 (SR-84) between Mission Boulevard (State Route 238 (SR-238)) and Interstate 680 (I-680) from postmile (PM) 10.8 to PM 18.0 in southern Alameda County (refer to Figure 1). The Niles Canyon Safety Improvements Project 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 preparing this Draft Environmental Impact Report/Environmental Assessment (EIR/EA) under the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). The project is included in the conforming 2015 Transportation Improvement Program (TIP) in the grouped listing for Safety Improvements – State Highway Operation and Protection Program (SHOPP) Collision Reduction Program (VAR 110004).

In addition to the Niles Canyon Safety Improvements Project, Caltrans recently completed the Niles Canyon Safety Improvements Project (Short Term Improvements) and is currently proposing two other projects for the Niles Canyon section of SR-84: the Alameda Creek Bridge Replacement Project and the Arroyo de La Laguna Bridge Scour Project. The Niles Canyon Safety Improvements Project (Short Term Improvements), which began construction in July 2016, involves several localized safety improvements along SR-84, from Mission Boulevard (SR-238) to I-680. These localized safety improvements include pavement markings (including bicycle sharrows), reflective roadside delineators, and object markings. All work associated with the Niles Canyon Safety Improvements Project (Short Term Improvements) was conducted on pavement; this project was completed in September 2016.

The Alameda Creek Bridge Replacement Project proposes to replace the bridge at PM 13.6. Caltrans circulated an environmental document for the Alameda Creek Bridge Replacement Project in January 2015 and plans to reissue the environmental document in November 2016.

The Arroyo de La Laguna Bridge Scour Project proposes to address foundation scouring issues and provide Americans with Disabilities Act (ADA) compliant sidewalks with upgraded barrier railings by widening the Arroyo de La Laguna bridge deck by three feet. The Arroyo de La Laguna Bridge is located on SR-84 in the town of Sunol; widening would be done to the extent feasible without adding any additional substructure.

The impacts of these future Caltrans projects, in addition to other past, present, and future projects in Niles Canyon, are addressed in Section 2.4, Cumulative Impacts.

---

9 For clarification throughout this Draft EIR/EA the Alameda Creek Bridge and Overhead is identified as Bridge 33-0039 while the Alameda Creek Bridge is identified as Bridge 33-0036.
Figure 1. Niles Canyon Safety Improvements Project Location Map
Background History
SR-84 through Niles Canyon Corridor consists of two 11-foot wide opposing traffic lanes with outside paved shoulders that vary in width from no shoulder to more than eight feet. In 2007, Caltrans installed grooved centerline rumble strips as part of a safety improvement project along the Niles Canyon Corridor from just east of SR-238 (Mission Boulevard) at PM 11.1 to just west of the Silver Springs Underpass at PM 16.7. The primary purpose of the centerline rumble strip installation was to target head-on and sideswipe crashes by alerting the driver that he/she is about to cross into opposing traffic; these crashes are almost always severe or fatal injury crashes (US FHWA, 2012). 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.

During the early 2000s, Caltrans began the planning process for EA 17440: Route 84 Safety Improvement Project (commonly referred to as Niles 1). The project involved the construction of full shoulders on SR-84 from the Rosewarne's Underpass to just beyond the Farwell Underpass as well as the replacement of the existing Stonybrook Creek culvert with a clear span bridge as mitigation for project impacts incurred during the Route 84 Safety Improvement Project. Caltrans issued an Initial Study with a Negative Declaration for the Route 84 Safety Improvement Project in June 2006. Construction for the project began in 2010, but was halted by a legal injunction after the removal of approximately 150 riparian trees. Caltrans subsequently terminated the project in 2011.

After the termination of the Niles 1 project, Caltrans requested the Federal Highway Administration (FHWA) to conduct an independent Road Safety Assessment in order to achieve safety objectives while also minimizing environmental impacts. The Road Safety Assessment team was comprised of the following individuals whose collective experience and expertise included highway engineering, law enforcement, and environmental stewardship: Craig Allred (FHWA – Resource Center), Keith Harrison (FHWA - Resource Center), David Cohen (FHWA – California Division), and Lieutenant James Libby (California Highway Patrol – Dublin Area). The Road Safety Assessment identified issues that contributed to the reported crashes along the corridor as well as identified potential measures to mitigate these issues (US FHWA, 2012). The Road Safety Assessment contained Traffic Accident Surveillance and Analysis System (TASAS) crash data covering a span of nearly 10 years, from January 1, 2001 through September 30, 2010 (US FHWA, 2012).

As part of the Road Safety Assessment, the team evaluated the effectiveness of the centerline rumble strip installation using the TASAS crash data from November 1, 2007 through September 30, 2010. The Road Safety Assessment team identified that while there was a 13% reduction in the type of crashes targeted by the aforementioned centerline rumble strip project (head-on and sideswipe crashes), there were 37 other injury crashes that occurred post centerline rumble strip installation that were not head-on or sideswipe\textsuperscript{10}. The team concluded that the 37 other injury crashes were not likely influenced in any meaningful way by the presence of the centerline rumble strips and that further actions were needed to reduce fatal and injury crash risk. The Road Safety Assessment team recommended short-term and medium-term countermeasures to further reduce

\textsuperscript{10} Post centerline rumble strip installation accident data was collected from 2008 to 2010.
the number of head-on/sideswipe type of cross-centerline collisions, which frequently result in fatalities and/or severe injuries, as well as other roadway departure and hit object type collisions.

Caltrans Office of Traffic Safety conducted a revised Traffic Collision Analysis for the Niles Canyon Safety Improvements Project in 2016 using the latest available data (up to September 2014) (Caltrans, 2016b). The latest available accident data demonstrates that problems continue to persist along the Niles Canyon Corridor (refer to Section 1.2 Purpose and Need, Section 2.1.4 Traffic and Transportation/Pedestrian and Bicycle Facilities, and Appendix F for more detailed accident data information and analysis).

1.2 Purpose and Need
1.2.1 Project Purpose
The project purpose is to improve safety at spot locations and address structural and operational deficiencies on SR-84.

1.2.2 Project Need
1.2.2.1 System Safety Needs
Even with the 2007 centerline rumble strip installation, certain spot locations in Niles Canyon continue to have a higher than State average rate of accidents throughout the Niles Canyon Corridor. Accident data for the entire Niles Canyon Corridor were obtained for the 83 months of Post Rumble Strip installation period from November 1, 2007 to the latest available data up to September 30, 2014 from the TASAS of Caltrans. The data indicates that within the 83 months of post rumble strip installation time frame, there were a total of 166 traffic collisions reported in the corridor. Of the 166 traffic collisions, 3 resulted in fatalities and 97 resulted in injuries.

Table 1 lists the primary collision factors and Table 2 identifies the types of collisions that occurred in the Niles Canyon corridor during this time period.

Table 1. Primary Collision Factor

<table>
<thead>
<tr>
<th>Primary Collision Factor</th>
<th>Number of Collisions</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speeding</td>
<td>47</td>
<td>28.3</td>
</tr>
<tr>
<td>Improper turn</td>
<td>42</td>
<td>25.3</td>
</tr>
<tr>
<td>Other violations</td>
<td>25</td>
<td>15.1</td>
</tr>
<tr>
<td>Alcohol Influence</td>
<td>24</td>
<td>14.5</td>
</tr>
<tr>
<td>Failure to yield</td>
<td>13</td>
<td>7.8</td>
</tr>
<tr>
<td>Other than Driver</td>
<td>11</td>
<td>6.6</td>
</tr>
<tr>
<td>Follow too Close</td>
<td>2</td>
<td>1.2</td>
</tr>
<tr>
<td>Improper driving</td>
<td>1</td>
<td>0.6</td>
</tr>
<tr>
<td>Unknown</td>
<td>1</td>
<td>0.6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>166</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>
Table 2. Type of Collision

<table>
<thead>
<tr>
<th>Collision Code</th>
<th>Number of Collisions</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hit Object</td>
<td>57</td>
<td>34.3</td>
</tr>
<tr>
<td>Rear End</td>
<td>33</td>
<td>19.9</td>
</tr>
<tr>
<td>Broadside</td>
<td>27</td>
<td>16.3</td>
</tr>
<tr>
<td>Overturn</td>
<td>20</td>
<td>12.0</td>
</tr>
<tr>
<td>Sideswipe</td>
<td>10</td>
<td>6.0</td>
</tr>
<tr>
<td>Head-on</td>
<td>9</td>
<td>5.4</td>
</tr>
<tr>
<td>Other</td>
<td>8</td>
<td>4.8</td>
</tr>
<tr>
<td>Auto-Pedestrian</td>
<td>1</td>
<td>0.6</td>
</tr>
<tr>
<td>Not Stated</td>
<td>1</td>
<td>0.6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>166</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

27% of the parties involved in the 166 collisions\(^{11}\) were classified as run-off the road and 6.6% were classified cross into the opposite lane. These types of collisions were associated with most of the serious injury accidents along the corridor.

57 (or 34%) of the 166 total collisions were specifically classified as hit object. Other types of collisions, such as ‘broadside’ or ‘overturn’, may not be specifically classified as hit object, but they could also involve hitting objects at some point during the collision.

Data for an individual collision may document multiple hit object types: for example, an overturn collision which involved hitting a guardrail and a tree, therefore, both guardrail and tree would be documented as the hit objects for this type of collision.

Of the 166 collisions, 84 (51%) involved hitting other vehicles, 16 (10%) involved hitting the cut slope or embankment, 9 (5%) involved falling over embankment and hitting the embankment bottom, 9 (5%) involved hitting guardrail, 5 (3%) involved hitting trees, 4 (2%) involved hitting the side of bridge railing, and 3 collisions (2%) involved hitting utility poles. As described previously, these numbers represent both those collisions specifically classified as hit object, as well as other collision types (such as broadside or overturn), which also involve the hitting of objects (such as embankments, trees, or guardrail) at some point during the collision. 58 collisions (35%) of the 166 total collisions occurred in dusk/dawn or under dark lighting conditions.

Although there is a reduction in the number of head-on collisions, substantial numbers of serious injury accidents have persisted despite the centerline rumble strip installation project. Accident data for the Niles Canyon Safety Improvements Project study locations were obtained for the 83 months of Post Rumble Strip installation period from November 1, 2007 to the latest available data up to September 30, 2014\(^{12}\). During this time period, 166 collisions occurred from PM 10.8 to 18.0. Figure 2 displays traffic accidents (grouped by nearest tenth of a PM) in the Niles Canyon Corridor.

---

\(^{11}\) While total number of collisions on the Niles Canyon Corridor from November 1, 2007 to September 30, 2014 is 166, there were 236 parties involved in these 166 collisions.

\(^{12}\) As of August 26, 2016, the latest Traffic Accident Surveillance and Analysis System (TASAS) accident data is available through September 30, 2014. The time lag for the latest available values is the data processing time required to convert the California Highway Patrol’s California Statewide Integrated Traffic Records System (SWITRS) to Caltrans TASAS system.
This page is intentionally left blank.
Figure 2. Traffic Accidents by Postmile in the Niles Canyon Corridor (Post 2007 centerline rumble strip installation) and Proposed Improvements at Spot Locations

This map displays the locations of the 166 accidents (rounded to the nearest 1/10 of a postmile) that occurred following the 2007 centerline rumble strip installation (November 1, 2007 to September 30, 2014*).

Legend

<table>
<thead>
<tr>
<th>Number of Accidents by Postmile</th>
<th>Route Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Interstate</td>
</tr>
<tr>
<td>2</td>
<td>State</td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
</tr>
<tr>
<td>8 or more</td>
<td></td>
</tr>
</tbody>
</table>

*As of September 2016, the latest Traffic Accident Surveillance and Analysis System (TASAS) accident data available is up to September 30, 2014.

Map created September 2016
This page is intentionally left blank.
Table 11 in Section 2.1.4.2 shows that the rumble strip project had no noteworthy effect in reducing the number of run-off-road and hit-object type collisions within the project limits. The Road Safety Assessment team recommended short-term and medium-term countermeasures are anticipated to further reduce the number of head-on/sideswipe type of cross-centerline collisions which frequently result in fatalities and/or severe injuries, as well as other roadway departure and hit object type collisions.

While accidents occur throughout the corridor (as shown in Figure 2), the Road Safety Assessment studies identified few spot locations with high accident concentrations that required site specific safety improvements within the medium term countermeasures. Accident data at these locations, proposed improvements, and the justification for these improvements are given below in Table 3.

### Table 3. Niles Canyon Corridor Spot Locations Collision Data (11/1/2007 to 9/30/2014)*

<table>
<thead>
<tr>
<th>Location Description</th>
<th>PM</th>
<th>No. of Accidents</th>
<th>Actual Accident Rate</th>
<th>Statewide Average Accident Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Speed Curve</td>
<td>13.8-14.1</td>
<td>9</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Rock Drapery System</td>
<td>12.1-12.175</td>
<td>4</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Dynamic Rockfall Fence</td>
<td>12.61-12.75</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Paloma Way</td>
<td>17.3-17.95</td>
<td>13</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Alameda Creek Bridge and Overhead (Bridge 33-0039)</td>
<td>14.29-14.52</td>
<td>6</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>SR-84 and Main Street Intersection</td>
<td>17.210-17.240</td>
<td>8</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>SR-84 &amp; Pleasanton-Sunol Road IS</td>
<td>17.287-17.317</td>
<td>9</td>
<td>0</td>
<td>3</td>
</tr>
</tbody>
</table>

Note: Fat=Fatal; Inj=Injury; F+I= Fatal+Injury

*Although the total number of collisions along the Niles Canyon corridor is 166, this table identifies only the collisions near the proposed Niles Canyon Safety Improvements Project spot locations.

Additional information about accident data in the Niles Canyon Corridor is located in Section 2.1.4. Traffic and Transportation/Pedestrian and Bicycle Facilities and detailed accident analysis for each of these spot locations is located in Appendix F. Collision Analysis for the Niles Canyon Safety Improvements Project.

### 1.2.2.2 Roadway and Structure Deficiencies of SR-84

As previously described, this section of SR-84 has narrow shoulders with generally curvilinear horizontal alignment; the eastern portion is less curvilinear with more open roadside and generally flatter sideslopes. The regulatory 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. There are numerous fixed objects (such as utility poles, trees, and signs) within the Clear Recovery Zone (CRZ) on SR-
84. A CRZ is an unobstructed, relatively flat or gently sloping area beyond the edge of travel way which afford the drivers of errant vehicles the opportunity to regain control. For conventional highways, 20 feet is recommended. Fixed objects should be eliminated or moved outside the CRZ to a location where they are unlikely to be hit. If it is not possible to be moved or eliminated, it should be shielded by guardrail, barrier, or a crash cushion. In addition to the existing roadway deficiencies of SR-84, the original railing of the Alameda Creek Bridge and Overhead (33-0039), constructed in 1948, does not perform as well as modern railing when hit, and needs to be replaced.

There is extensive history of rockfall in the Niles Canyon Corridor. Caltrans Maintenance staff report rock in the ditches and in the roadway throughout the year and activity increases during wet winter months. A weather-related rockslide in January 2016 briefly closed SR-84 (refer to Figure 3). Visual evidence of rockfall activity is apparent throughout two specific areas in the Canyon, located at PM 12.1 and PM 12.6. Boulders and rock that have accumulated on the roadway and have been pushed off by Caltrans Maintenance crews, into adjacent ditches. Within the limits of the identified rockfall areas, there is extensive damage to the roadway pavement and walls from rockfall impact. The visual damage includes craters and pockmarks in roadway pavement and damage to wall structures.

**Figure 3. Crews working to clean up weather-related rockslide on SR-84 on January 18, 2016**


Caltrans closes SR-84 between Old Canyon Road in Fremont and Main Street in Sunol for one weekend a year to perform annual extreme maintenance. Annual extreme maintenance in Niles Canyon involves litter removal, drain cleaning, weed and overgrown brush removal, tree trimming, mowing, rock slide clearing and rock scaling, shoulder grading, pothole repairs, sweeping, stripping, electrical re-lamping, and delineation. The road is closed for the safety of maintenance workers as well as the traveling public. As previously mentioned, part of this annual extreme maintenance includes rock slide clearing and rock scaling as a preventative measure to avoid loose rock from falling onto SR-84. Figures 4 and 5 illustrate the rock scaling and clean-up efforts occurring at PM 12.1 on SR-84.
Figure 4. Caltrans Annual Extreme Maintenance on SR-84 (approximately at PM 12.1)

Figure 5. Caltrans Annual Extreme Maintenance on SR-84 (approximately at PM 12.1)
1.2.2.3 **Deficient Intersection Operations at SR-84 and Pleasanton-Sunol Road**

The existing conditions at the SR-84 and Pleasanton-Sunol Road intersection are inadequate to accommodate the existing traffic demand. The 2012 Annual Average Daily Traffic (AADT) – the most current available traffic information for SR-84 within the project limits, is 17,900 vehicles. This is expected to increase to a projected demand of 40,400 vehicles in the year 2034. The peak period (considered weekdays from 6-9 AM and from 4-7 PM) hourly volume is 2,090 vehicles and is projected to be 3,020 vehicles in the year 2034. In 2012, 67% of the PM peak traffic was in the peak direction. By the year 2034, traffic in both directions will be almost equal.

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). LOS E or F is typically considered unacceptable by Caltrans, and indicates traffic demand is exceeding available capacity resulting in substantial traffic congestion and a need for improvements. Refer to Section 2.1.4. Traffic and Transportation/Pedestrian and Bicycle Facilities for a discussion of LOS criteria.

Currently, the intersections at SR-84 at Pleasanton-Sunol Road and Main Street are Stop controlled intersections: there is a four way stop at the SR-84 and Pleasanton-Sunol Road intersection and a single stop sign at SR-84 and Main Street. A June 2011 Traffic memo identified delays with the Stop controlled intersections at SR-84 at Pleasanton-Sunol Road and Main Street as LOS E and LOS F, respectively (refer to Tables 4 and 5).

### Table 4. Delays at Pleasanton-Sunol Road/SR-84 Intersection

<table>
<thead>
<tr>
<th>Peak</th>
<th>Existing intersection delay (seconds)</th>
<th>Level of Service</th>
<th>Queue length (feet)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>AM</td>
<td>148</td>
<td>F</td>
<td>670</td>
</tr>
<tr>
<td>PM</td>
<td>168</td>
<td>F</td>
<td>670</td>
</tr>
</tbody>
</table>

*Based on field observations made on 1/19/11 and 3/8/11

### Table 5. Delays at State Route 84/Main Street Intersection

<table>
<thead>
<tr>
<th>Peak</th>
<th>Existing intersection delay (seconds)</th>
<th>Level of Service</th>
<th>Queue length (feet)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>AM</td>
<td>48</td>
<td>E</td>
<td>590</td>
</tr>
<tr>
<td>PM</td>
<td>90</td>
<td>F</td>
<td>1,180</td>
</tr>
</tbody>
</table>

*Based on field observations made on 1/19/11 and 3/8/11

1.2.2.4 **Address requirements of the EA 17440: Route 84 Safety Improvement Project Settlement Agreement**

In 2010, Caltrans began construction of EA 17440: Route 84 Safety Improvement Project (commonly referred to as ‘Niles 1’), but the project was halted by a legal injunction after the removal of approximately 150 riparian trees. Caltrans subsequently terminated the project in 2011. Since then, Caltrans and RWQCB have had ongoing discussions regarding Caltrans’ compliance with the Clean Water Act (CWA) 401 Certification mitigation requirements that were triggered by the removal of the trees.
Caltrans’ current proposal for satisfying the mitigation obligations for the Route 84 Safety improvements Project (Niles 1) is to replace the existing Stonybrook Creek culvert with a clear span bridge. Construction of a clear span bridge would facilitate passage of steelhead from Alameda Creek to Stonybrook Creek, reduce channel maintenance requirements and provide increased capacity to meet storm requirements. The replacement of the existing Stonybrook Creek culvert with a clear span bridge would be constructed as part of the Niles Canyon Safety Improvements Project and would address the requirements of the Niles 1 settlement agreement. The work at Stonybrook Creek is included in the Niles Canyon Safety Improvements Project to expedite the replacement of the Stonybrook Creek culvert with a clear span bridge.

A more detailed description of the Stonybrook Creek culvert replacement with a clear span bridge is included in Section 1.4.1.1 Build Alternative.

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 Niles Canyon Safety Improvements Project is focused on the rural section of SR-84, commonly referred to as Niles Canyon. As previously mentioned, Caltrans installed grooved centerline rumble strips as part of a safety improvement project along the Niles Canyon Corridor from just east of SR-238 (Mission Boulevard) at PM 11.1 to just west of the Silver Springs Underpass at PM 16.7. The purpose of the centerline rumble strip installation was intended to primarily target head-on and sideswipe crashes by alerting the driver that he/she is about to cross into opposing traffic; these crashes are almost always severe or fatal injury crashes (US FHWA, 2012). Although there is a reduction in the number of head-on collisions, substantial numbers of serious injury accidents have persisted despite the centerline rumble strip installation project.

While accidents are found to occur throughout the corridor, the Road Safety Assessment studies identified few spot locations with high accident concentrations that required site-specific safety improvements. Accident data for each of these spot locations are discussed in Section 1.2 Purpose and Need. Detailed accident analysis for each of these spot location improvements proposed in the Niles Canyon Safety Improvements Project are located in Appendix F, Collision Analysis for the Niles Canyon Safety Improvements Project.

These safety improvements would reduce the number of accidents on SR-84, which is not dependent on other capacity increasing or operational improvements in the Niles Canyon Corridor. The project has logical termini as the proposed improvements would be made within project limits that had a total of 166 traffic collisions, including three fatalities and 97 that resulted in injuries. It also has independent utility as it will provide safety improvements whether or not any other project(s) is (are) developed.

13 This statement is based on accident data for the entire Niles Canyon Corridor obtained for the 83 months of post rumble strip installation from November 1, 2007 to the latest available data up to September 30, 2014 from Caltrans’ TASAS database.
1.3 Project Description
The Niles Canyon Safety Improvements Project proposes to construct multiple safety improvements at spot locations along the Niles Canyon Corridor. Figure 1 shows the location of the proposed improvements on SR-84 from PM 10.8 to PM 18.0. The alternatives are the “Build Alternative” and the “No-Build Alternative”. The Build Alternative would result in the construction of the safety improvements while the No-Build Alternative would result in no project.

1.4 Alternatives
Section 1.4 describes the Build Alternative that would meet the project’s purpose and need. The No-Build Alternative would result in no project and safety, structural, and operational deficiencies would persist along SR-84 from Mission Boulevard (SR-238) to I-680.

1.4.1.1 Build Alternative
The Build Alternative involves the construction of multiple spot safety improvements throughout the Niles Canyon Corridor. Visual simulations of several spot safety improvements are located in Chapter 2, Section 2.1.5 and referenced here in Chapter 1. Figure 6 highlights the locations of the proposed spot safety improvements in relation to the entire Niles Canyon Corridor.
Chapter 1 – Proposed Project

Figure 6. Niles Canyon Safety Improvements Project in the Niles Canyon Corridor
Signalization at SR-84 and Main Street (PM 17.15) and SR-84 and Pleasanton-Sunol Road (PM 17.3) (refer to Figures 28-31 in Section 2.1.5.3)
Caltrans proposes to signalize the intersection of SR-84 and Pleasanton-Sunol Road, which is currently a four-way stop, as well as signalize the intersection of SR-84 and Main Street, which is currently a one-way stop.

Intersection of SR-84 and Main Street (PM 17.15)
Four new traffic signals with end lighting poles and two new STOP bars (striping on the roadway for crosswalks) are proposed at the SR-84 and Main Street intersection in Sunol. Type 15 Lighting Poles would be used for the traffic signals.

Electricity would be provided to these traffic lights by using controller cabinets and electrical trenching.

Intersection of SR-84 and Pleasanton-Sunol Road (PM 17.3)
The existing right turn pocket would be widened by 12 feet with an additional five-foot shoulder, for a total of 17 feet. Construction would remove six trees at this location.

At the Pleasanton-Sunol Road and SR-84 intersection, there would be seven traffic light signals:
- Three Type 15 Lighting Poles would be installed on the northeast corner
- One Type 15 Lighting Pole would be installed on the southeast corner
- One Type 28-5-100 Lighting Pole would be installed on the southwest corner
- Two Type 15 Lighting Poles would be installed on the northwest corner

Electricity would be provided to these traffic lights by using cabinets that are connected by buried conduits to existing utility poles.

Installation and Removal of Traffic Signs (Various locations)
As part of the proposed safety improvements in the Niles Canyon Corridor, approximately 29 new roadway traffic signs would be installed and four existing signs would be removed and replaced.

Low Speed Curve Improvements (PM 13.7-PM 13.8) (refer to Figures 20 and 21 in Section 2.1.5.3)
A sharp curve (300-foot radius) with minimal lane widths and shoulders is located approximately 0.5 mile east of the Alameda Creek Bridge (Bridge 33-0036). The total length of the existing curve is approximately 500 feet. Safety improvements, including correcting the superelevation (the amount by which the outer edge of a curve on a road or railroad is banked above the inner edge), roadway widening, and constructing rock cuts and a concrete barrier, are proposed at this location. There would be no change to the existing highway geometry at the low speed curve and the existing black-and-yellow 35 mph advisory sign would remain in place.

Correcting Superelevation
The curve will be reconstructed so that it has an overall 12 percent super elevation. As previously mentioned, superelevation is the degree to which a curve is banked. The existing roadway pavement would be ground and overlaid to provide the additional superelevation throughout the curve. The surface of the pavement would be wetted down prior to grinding to reduce dust. A
vacuum truck would then remove the loose material. This material would be disposed of by the contractor per Caltrans standard specifications (Caltrans, 2015a).

The approximate roadway length of increased superelevation would be 300 feet. The increase in superelevation would “hinge” around the westbound edge of the travelway in order to minimize potential impacts to the creek bank along the westbound lanes. A three-foot shoulder already exists along the eastbound direction, so an additional five feet of widening on the eastbound side would be required to create a standard eight-foot shoulder.

Roadway Widening
The current 11-foot lane width would be increased to 12 feet throughout the 300-foot length of this curve on the eastbound side. The existing three-foot shoulder on the eastbound lane would be increased to a standard eight-foot shoulder. This would be constructed in the same area as a proposed retaining wall (see below) and would add an additional 3,000 square foot of paved area along the existing roadway.

Rock Cuts and Construction of Type 60 Concrete Barrier at Low-Speed Curve Improvement
Two rock cuts are proposed at the Low-Speed Curve Improvement. The first rock cut spans a length of approximately 33 feet, and would be approximately eight to ten feet in height. The second rock cut spans a length of approximately 40 feet, and would be eight to ten feet in height. Between the two rock cuts, a 237-foot long, three-foot tall Type 60 concrete barrier would be constructed. It is unlikely that vegetation would grow over the rock cuts.

Construct Retaining Wall with Safety Shape Barrier
Caltrans proposes to construct two, three-foot high Type 6A retaining walls at the locations of the rock cuts at the low-speed curve listed above. A 33-foot long wall and a 40-foot long wall would be constructed. The wall footings would be 3.25 feet wide, with eight inches of the footing protruding behind the wall. Cuts and fills would be required along the sides of the walls.

Tree Removal (Various locations)
Trees (defined four inches or larger Diameter at Breast Height (DBH)) within eight feet of the edge of travelway throughout the project area would be removed, unless guardrail exists to protect the trees. As of September 2016, it is anticipated that approximately 40 trees would be removed due to their proximity to the roadway. Refer to Tables 20 and 21 in Section 2.3.1 for impacts to trees within the project limits.

Utility Pole Removal (Various locations)
The utility poles within eight feet of the edge of travelway would be relocated where feasible. If guardrail currently exists to protect the poles, they would not be relocated. A total of 17 poles would be relocated.

K-rail Replacement (PM 12.0)
An obsolete section of K-rail is located at the edge of the eastbound travelway spanning approximately 850 feet, which crosses under the Rosewarne railroad crossing. It would be replaced by K-rail that meets current Caltrans standards. An approximately one-foot wide section
Chapter 1 – Proposed Project

of new pavement would be constructed at the location of the K-rail that is to be replaced. Reflectors would be installed on top of each K-rail unit within ten feet of a traffic lane.

**Install Rockfall Protection Systems (refer to Figures 16-19 in Section 2.1.5.3)**

Two separate rockfall protection systems would be installed on steep sections of hillside adjacent to SR-84 that are prone to rockfalls.

*Cable Net Drapery System on Upslope Hill Facing east at PM 12.1*

An approximately 250-foot-long steel cable net drapery system would be installed at PM 12.1. The cable net drapery would be anchored at the top of the slope (approximately 40 feet above the roadway) and falling rocks would work their way down into an existing catchment ditch to be cleared out by Caltrans Maintenance. Vegetation is expected to grow in isolated patches through the cable net drapery system. The cable net drapery system would be either brown or black in color. Anchoring of the cable net drapery would be located within Caltrans right of way. 26,000 square-foot area at the top of the slope, directly above the cable net drapery, would be acquired as new right of way from the San Francisco Public Utilities Commission (SFPUC) in order to install and maintain the cable net drapery system.

It is anticipated that all materials needed to construct the cable net drapery system would be flown by helicopter to the newly acquired 26,000 square-foot right of way area at the top of the slope; this is the only permitted location for equipment staging at the top of the slope. The first step for constructing the cable drapery system is to drill and install all of the anchors for the system. Once the anchors have been tested, a top support cable would be installed across all the anchors. The individual cable net drapery panels would be flown in by a helicopter, connected to the top support cable, and then laid across the slope. All work on the slope would be done with hand tools by personnel on ropes. The edges of each panel would be stitched or stapled together to create a single uniform cable mesh covering of the slope.

Access for the installation of this cable net drapery system is expected to require an area approximately 170 feet upslope from the centerline of the road. Existing vehicle pullout locations on the north side of the westbound lane would be used as equipment staging areas.

*Rockfall Fence on Upslope Hill Facing East at PM 12.6*

A dynamic rockfall fence, approximately eight feet tall and 400 feet long, would be installed approximately 40 feet above the roadway at PM 12.6. Rocks falling from the slope would be “caught” in the fence, which would be angled perpendicular to the slope so that no rocks fall onto SR-84.

Post foundations would be constructed by drilling a series of three-inch holes, no more than ten feet deep, into native material. Either a steel cable anchor or a steel anchor bar would be installed into the drilled hole and grouted. At the top of each post location a small form would be constructed and a concrete pad would be poured. The fence posts would then be installed on top of each concrete pad. Cranes, man lifts, and spider excavators (excavators with mechanical legs that can walk up and operate in very steep terrain) would be used to install the dynamic rockfall fence. 16,000 square-foot of newly acquired right of way would be needed to complete the work.
Equipment for the rockfall fence would be staged at the same vehicle pullout locations used for the cable net drapery system, on the north side of the westbound lane of SR-84.

**Shoulder Widening (Various locations) (refer to Figures 32 and 33 in Section 2.1.5.3)**
The following sections of road shoulder would be widened to accommodate an eight-foot shoulder with a pavement safety edge (a safety edge is a sloped edge of 30 degrees placed at the edge of roadway pavement) on both sides of the current travel lane:
- Eastbound SR-84 near Sims Park/Quarry Road, for approximately of 1,100 feet
- The west side of Silver Springs, for a total length of 2,330 feet
- Eastbound side of Paloma Way, for a total length of 2,000 feet

As requested during the CEQA scoping period, “No dumping”, and/or “No trespassing” signs would be placed near areas where shoulder widening is occurring.

**Widening and Barrier Rail Replacements on Alameda Creek Bridge Overhead (Located at PM 14.3) (refer to Figures 22-24 in Section 2.1.5.3)**
Caltrans proposes to remove a concrete curb and replace outdated barrier rail on the Alameda Creek Bridge Overhead (Bridge 33-0039), located at PM 14.3. The existing curb is approximately three-feet wide and 1,000-feet long. It would be removed using a saw cut method and transported outside of the project area. Disposal of the old curb would be per standard Caltrans specifications (Caltrans, 2015a). The current curb would be replaced with a shoulder approximately 1.5-feet wide and 1,000-feet long on either side of the bridge deck.

The current Alameda Creek Bridge Overhead has an antiquated tubular steel type barrier. The preferred option is to replace the existing bridge railing with a Type ST-20S see-through metal barrier. The new barrier would be 1.75 feet wide. The second bridge railing option is Type ST-70, which is also a see-through metal barrier.

Access for construction would be from the current roadway; there would be no storage of materials on-site and no off-pavement staging areas would be required.

**Install and Replace Metal Beam Guard Railing with Midwest Guardrail System (Various locations)**
The existing metal beam guardrail (MBGR) would be replaced with the Midwest Guardrail System (MGS) to meet current Caltrans design safety standards. Approximately 9,400 linear feet of existing MBGR would be replaced with MGS in several locations on both the eastbound and westbound shoulders of SR-84. In addition, approximately 3,000 linear feet of new MGS would be installed along eastbound Paloma Way in association with shoulder widening at that location (refer to Figure 33 in Section 2.1.5.3).

**Active Warning System**
Four active warning systems would be installed throughout the project area. The active warning system is a push-button-activated flashing beacon that bicyclists can use to signal their presence to motorists on roadway structures such as bridges and underpasses. The components of the system are a 36-inch post bearing the push button (installed outside the shoulder), two 14-foot posts with footings bearing a warning sign and the button-actuated flashing yellow beacon, and a five-foot
by two-foot controller cabinet with footing. Three of the four locations would be connected to existing electrical utility services by buried conduits. At the fourth location, the system would be powered using a solar panel mounted on the beacon post with a battery installed inside.

**Lighting**
Lighting poles on standard footings would be installed at 16 locations within the project limits and connected by buried conduits to existing pull boxes or utility poles.

**Speed Feedback Signs**
The project would install three solar powered speed-feedback signs and twelve conventionally powered speed-feedback signs at various locations along SR-84.

**Dynamic Active Warning System**
The Dynamic Active Warning System automatically triggers an Extinguishable Message Sign (EMS) when vehicles are present. Two systems would be installed. At the approach to the Silver Springs undercrossing, the system would signal when traffic, which may not be visible to approaching motorists, has backed up beneath the undercrossing. At the Palomares Road intersection, the system would signal to motorists on SR-84 that vehicles on Palomares Road are waiting to make a left turn.

The components of the system are loop detectors embedded in the pavement, a flashing beacon, a controller cabinet, and the electrical hookup to two EMSs mounted on wooden posts. The components would be connected by buried conduit to existing electrical utility infrastructure.

**Relocate Flashing Beacons**
The project would relocate the existing flashing beacon that is east of the Palomares undercrossing to a pole with mast arm that would be 350 feet east of the current location.

**Stonybrook Culvert Demolition and Replacement with a Clear span Bridge (refer to Figures 25-27 in Section 2.1.5.3)**
The proposed project would demolish the existing 57-foot reinforced concrete box culvert that drains Stonybrook Creek into Alameda Creek and construct a clear span bridge. Construction of a clear span bridge would facilitate passage of steelhead from Alameda Creek to Stonybrook Creek, reduce channel maintenance requirements and provide increased capacity to meet storm requirements. Work at Stonybrook Creek would consist of the following:

- The Stonybrook Creek Bridge would be widened approximately four feet to the north and approximately four feet to the south to ensure a standard eight foot shoulder. There would be no shift in the existing alignment of SR-84 for the construction of the Stonybrook Creek Bridge;
- The bridge design would pass the 100-year design discharge with one foot of freeboard under the bridge;
- The proposed bridge abutments would be skewed to be more in line with the approaching creek (given site constraints);
- The channel profile and substrate would be restored to conditions similar to upstream and downstream conditions;
• The new bridge would provide a clear span of more than 24 feet between abutment walls. The clear span would allow for Stonybrook Creek (field measured at 20.5 feet) to flow unimpeded beneath the new bridge.
• The re-graded channel bottom section would be shaped to match upstream channel sections and the creek bed would be overlaid with native materials. A slight centerline depression in the channel section would be provided to initiate the formation of a low flow channel; and
• The creek bed would be allowed to aggrade or degrade naturally over time while the creek’s side slopes would be hardened as necessary to protect adjacent structures and embankments.

A temporary creek diversion is proposed to create a dry working environment within the Stonybrook Creek bed from June 1 to October 15 to construct the proposed project. The temporary creek diversion involves the installation of two temporary cofferdams, one upstream of the work area to prevent inflow, and one downstream to prevent backflow. All dewatering would adhere to Caltrans Field Guide to Construction Site Dewatering (Caltrans, 2014c).

No temporary stockpiling of material in the creek is proposed; if any material falls in the creek during the demolition of the Stonybrook box culvert, it would be removed.

**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. Two stormwater treatment technologies that are preferred for this project include bioretention swales and biofiltration strips. A bioretention swale is a graded, vegetated feature with imported soil beneath the base of the swale. The imported soil promotes infiltration and treatment of concentrated roadway runoff. Biofiltration strips (commonly referred to as ‘biostrips’) would be considered because they can be placed in the clear recovery zone. A biostrip is a vegetated area with a width (in the direction of flow) of 15 feet, at a slope of 4:1 or flatter. This area is parallel to the roadway and receives sheet flow (otherwise known as runoff directly from the roadway, not conveyed in a pipe).

**1.4.1.2 No-Build Alternative**
Under the No-Build Alternative, no safety improvements would be made in the Niles Canyon Corridor of SR-84. Safety, structural, and operational deficiencies would persist along SR-84 from Mission Boulevard (SR-238) to I-680.

**1.5 Alternatives Considered But Eliminated From Further Discussion**
*Replace the Alameda Creek Bridge and Overhead (Bridge 33-0039)*
An alternative that proposes to widen or replace the Alameda Creek Bridge and Overhead (Bridge 33-0039) was rejected because of the construction complexities, environmental issues, and cost. The replacement of the Alameda Creek Bridge and Overhead is anticipated to require an extended route closure, resulting in a need for a temporary detour. The replacement of the Alameda Creek Bridge and Overhead would have complex Endangered Species Act (ESA) issues and would also
result in the removal of National Register of Historic Places (NRHP)-eligible property, which would require Section 4(f) consultation with the Secretary of the United States Department of the Interior. The construction cost alone of replacing the Alameda Creek Bridge and Overhead is estimated to be upwards of 30 million dollars; this estimate does not include capital outlay support and right of way acquisition cost.

*Other means of rockfall protection, including concrete barriers at the bottom of slope*

Other means of rockfall protection, including concrete barriers at the bottom of the slope, were rejected given the current scope to maintain the existing roadway width. Maintaining the existing roadway width limits the options for rockfall protection in Niles Canyon. Caltrans does not utilize concrete barriers as primary rockfall protection because they are easily damaged by multiple impacts and can create a hazard within the roadway. When a boulder impacts the uphill side of a concrete barrier, the energy is transferred through the barrier to the downhill face of the wall. This can cause fracturing and spalling (chipping or splintering), which leads to concrete breaking off and being deposited into the travelway.

Another potential solution to handle the rocks and boulders was to construct a rockfall fence system at roadway level with a concrete barrier between the fence and the travelled way to protect the fence from vehicle impacts. However, a minimum of 10 feet from the toe of slope would be needed to construct the rockfall fence system and the concrete barrier. As a result, a rockfall fence at the roadway would not fit in the Niles Canyon Corridor. Given that the Niles Canyon Safety Improvements Project is not proposing to widen SR-84 through the sections of highway with severe rockfall, a rockfall fence at the roadway would not fit.

*Roundabout at the SR-84 and Pleasanton-Sunol Road Intersection*

A roundabout at the SR-84 and Pleasanton-Sunol intersection was analyzed in 2013 and rejected as it makes operations at the Main Street/SR-84 intersection undesirable. The analysis did not include a roundabout at Main Street due to the lack of space at this intersection for a roundabout. Even though a roundabout at the Pleasanton/Sunol intersection would improve the Level of Service at the intersection compared to existing conditions, it makes operations at the Main Street intersection less desirable. The improved flow a roundabout brings to the Pleasanton/Sunol intersection may actually reduce the ‘gaps’ for traffic turning left from Main Street to eastbound SR-84, making it more difficult for Main Street traffic to access SR-84. In addition, a roundabout at the SR-84/Pleasanton-Sunol Road intersection would require more right of way than signals would and the NRHP-listed water temple gates would be impacted. Implementing the combination of a roundabout at the SR-84 and Pleasanton-Sunol Road intersection with signals at Main Street was rejected since the signal would essentially negate the benefits of the roundabout.

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

A TSM and TDM Alternative would not meet the project’s purpose and need as this alternative would not improve safety on SR-84. 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. A TSM and TDM alternative alone could not satisfy the purpose and need of the project and therefore, was rejected from further consideration.
1.6 Project Cost and Funding
The Niles Canyon Safety Improvements Project is programmed in the 2016 SHOPP, under 201.010 Safety Improvement Program, for the 2016/17 fiscal year. As of August 1, 2016, construction cost for the Build Alternative is estimated at $19.5 million and right of way cost is estimated at $2 million for a total of approximately $21.5 million. The project would be funded from both state and federal sources.

1.7 Permits and Approvals Needed
The following permits, reviews, and approvals would be required for project construction:

Table 6. Permits and Approvals for the Niles Canyon Safety Improvements Project\(^{14}\)

<table>
<thead>
<tr>
<th>Agency</th>
<th>Permit/Approval</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States Fish and Wildlife Service (USFWS)</td>
<td>Section 7 Consultation for Threatened and Endangered Species</td>
<td>Consultation to occur prior to final environmental document.</td>
</tr>
<tr>
<td>United States Army Corps of Engineers (USACE)</td>
<td>Clean Water Act (CWA) Section 404 nationwide permit for filling or dredging waters of the United States.</td>
<td>Acquired prior to construction.</td>
</tr>
<tr>
<td>California Department of Fish and Wildlife (CDFW)</td>
<td>Incidental Take Permit for Threatened and Endangered Species</td>
<td>Acquired prior to project construction.</td>
</tr>
<tr>
<td>California Department of Fish and Wildlife (CDFW)</td>
<td>1602 Streambed Alteration Agreement</td>
<td>Acquired prior to project construction.</td>
</tr>
<tr>
<td>Regional Water Quality Control Board (RWQCB)</td>
<td>CWA Section 401 permit</td>
<td>Acquired prior to the CWA 404 nationwide permit.</td>
</tr>
<tr>
<td>Alameda County Water District (ACWD)</td>
<td>Drilling permit as required by ACWD Ordinance No. 2010-01</td>
<td>Drilling permit would be obtained during the design phase of the project.</td>
</tr>
</tbody>
</table>

\(^{14}\) As of September 2016, a Biological Opinion from National Marine Fisheries Service (NMFS) is not currently required, as fish passage between Alameda Creek and San Francisco Bay is blocked by the BART weir. Landlocked rainbow trout prevented from leaving the watershed are not currently considered to be anadromous Central California Coast DPS steelhead. If the fish ladder at the BART weir is installed prior to the start of the Niles Canyon Safety Improvements Project construction, Caltrans will pursue a Biological Opinion from NMFS as fish within Alameda Creek will be included by NMFS as part of the federally threatened Central California Coast steelhead DPS.
This page is intentionally left blank.
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 this project, Caltrans considered the following environmental resources. The Build Alternative would not result in adverse impacts to the resources discussed below in Table 7; consequently, there is no further discussion of these resources in this document.

Table 7. Resource Areas with No Adverse Impact

<table>
<thead>
<tr>
<th>Resource Topic</th>
<th>Reason for No Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture/Forestry/ Farmlands/Timberlands</td>
<td>No agricultural, timberland, or forest land would be lost or converted as part of the Niles Canyon Safety Improvements Project and no prime agricultural land or the lands associated with the California Lands Conservation Act of 1965 (also known as the Williamson Act) would be used for this project.</td>
</tr>
<tr>
<td>Air Quality</td>
<td>The Niles Canyon Safety Improvements Project is included in the conforming 2015 Transportation Improvement Program (TIP) in the grouped listing for Safety Improvements – SHOPP Collision Reduction Program (VAR 110004). The proposed safety improvement project is exempt from the requirement of air conformity determination under 40 CFR 93.126, which states that safety improvement projects are exempt from air conformity. 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. There are no sensitive receptors close enough to the project to be affected by the emissions. Sensitive receptors are people that have an increased sensitivity to air pollution or environmental contaminants; sensitive receptors include, but are not limited to, hospitals, schools, parks, and nursing homes. Even though there are no sensitive receptors within the project limits, control measures would be implemented as specified in the Environmental Stewardship Section of Caltrans’ Standard Specifications - Section 14-9.01 Air Pollution Control and Section 14-9.02 Dust Control (Caltrans, 2015a) during construction activities. No adverse air quality emission impacts are associated with the Niles Canyon Safety Improvements Project.</td>
</tr>
<tr>
<td>Coastal Zone and Wild and Scenic Rivers</td>
<td>The project is not located in the coastal zone and would have no impact to coastal resources protected by the Coastal Zone Management Act</td>
</tr>
</tbody>
</table>
(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 Environmental Justice

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 have been identified that would be adversely impacted by the proposed project and therefore, this project is not subject to the provisions of Executive Order (EO) 12898.

### Growth/Population/Housing

The project is a highway safety improvement project that would not alter or increase the capacity of SR-84. The proposed project would maintain the existing two-lane capacity of SR-84. 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

The Niles Canyon Safety Improvements 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 proposed project would result in no impact to traffic noise following the construction activities.

Noise levels would increase during the construction of the Niles Canyon Safety Improvements Project. 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, and concrete mixing. The noise levels would be kept under 86 dBA ($L_{max}$) 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 concrete box culvert at Stonybrook Creek, 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 vicinity.

---

15 A Type I project is defined as “a proposed Federal or Federal-aid highway project for the construction of a highway on new location or the physical alteration of an existing highway which significantly changes either the horizontal or vertical alignment or increases the number of through-traffic lanes.”
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 surrounding vicinity.

Affected Environment

The proposed project is located within an undeveloped, rural area of Alameda County. 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 majority of land use surrounding the immediate project study area (SR-84, PM 10.8 to PM 18.0) is open space, predominately owned by public agencies including Caltrans, Alameda County, San Francisco Public Utilities Commission (SFPUC), and the Alameda County Flood Control and Water Conservation District (ACFCD). The nearest residential areas to the project location are the community of Niles, located at the intersection of SR-84 and Mission Boulevard (SR-238), near the City of Fremont and the town of Sunol, located at the intersection of SR-84 and Pleasanton-Sunol Road.

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 town of Sunol, are planned for the near future. Therefore, there are no immediate development trends in the project vicinity.

**Environmental Consequences**

**Build Alternative**
The proposed Build Alternative requires additional right of way for modifications to existing SR-84 facilities and construction of spot safety improvements, however, the Niles Canyon Safety Improvements Project would not result in any land use designation changes.

**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 Niles Canyon Safety Improvements 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 Californian’s quality of life.

**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 the Alameda County General Plan 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 is 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 County 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 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 designed 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 Park District
Niles Canyon Safety Improvements Project

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

(EBRPD), Zone 7 ACFCD, 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

**Build Alternative**

The Niles Canyon Safety Improvements Project is generally consistent with the planning goals and policies that direct the physical development of the area surrounding the project.

The Niles Canyon Safety Improvements Project is not fully consistent with Goal 6 of the EACCS. Goal 6 aims to “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 focal species and promote the level of native biodiversity expected to occur within this natural community in the study area”.

As identified in Tables 19 and 20 in Section 2.3.1, the Niles Canyon Safety Improvements Project would impact approximately 0.68 acres of permanent impact and .66 acres of temporary impact to California Bay/Coast Live Oak land cover and would result in the removal of individual oak trees.

**No-Build Alternative**

The No-Build Alternative is not consistent with the Alameda County Transportation Plan as the No-Build Alternative would not address transportation deficiencies.

Table 8 identifies the Build Alternative and No-Build Alternative consistency with state, regional, and local plans and policies. A brief explanation justifies each “consistent” or “not consistent” determination.
### Table 8. Consistency with State, Regional, and Local Plans and Policies

<table>
<thead>
<tr>
<th>Policy</th>
<th>Build Alternative</th>
<th>No-Build Alternative</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>California Transportation Plan 2040</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Goal 4: Improve Public Safety and Security</td>
<td>Consistent</td>
<td>Not Consistent</td>
</tr>
<tr>
<td>Policy 1: Reduce fatalities, serious injuries, and collisions.</td>
<td>The Build Alternative is consistent with California Transportation Plan 2040 policies to reduce fatalities, serious injuries, and collisions.</td>
<td>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.</td>
</tr>
<tr>
<td>Goal 6: Practice Environmental Stewardship</td>
<td>Consistent</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Policy 1 Integrate environmental considerations in all stages of planning and implementation</td>
<td>Integration of environmental considerations occurred throughout the project development process and would continue to be integrated during the design phase of the project.</td>
<td></td>
</tr>
<tr>
<td><strong>City of Fremont General Plan Land Use Element/Hill Area Initiative of 2002</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>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.</td>
<td>Consistent</td>
<td>Consistent</td>
</tr>
<tr>
<td></td>
<td>Although the Build Alternative would require right of way fee acquisitions, the Build Alternative would not physically encroach onto the Hill Face.</td>
<td>The No-Build Alternative would not require acquisition of land.</td>
</tr>
<tr>
<td><strong>Alameda County General Plan</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conservation Element Goal: To protect and enhance wildlife habitats and natural vegetation areas in Alameda County</td>
<td>Consistent</td>
<td>Consistent</td>
</tr>
<tr>
<td></td>
<td>The Build Alternative would replace the existing culvert at Stonybrook Creek with a single-span bridge, removing a barrier to fish passage and enhancing wildlife habitat in Alameda County.</td>
<td>The No-Build Alternative would not impact wildlife habitats and natural vegetation areas in Alameda County.</td>
</tr>
<tr>
<td>Conservation Element Goal: To insure and maintain a continuing supply of high water quality for the citizens of Alameda County</td>
<td>Consistent</td>
<td>Consistent</td>
</tr>
<tr>
<td></td>
<td>A stream diversion would be proposed as a BMP to avoid impacts to Stonybrook Creek and ensure water quality is protected during construction activities (refer to Section 2.2.2.4. Avoidance, Minimization, and/or Mitigation Measures).</td>
<td>The No-Build Alternative would have no water quality impacts.</td>
</tr>
<tr>
<td>Policy</td>
<td>Build Alternative</td>
<td>No-Build Alternative</td>
</tr>
<tr>
<td>--------</td>
<td>-------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td><strong>East County Area Plan</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* 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. *Policy amended in accordance with Measure D: Save Agriculture and Open Space Lands Initiative</td>
<td>Consistent</td>
<td>Consistent</td>
</tr>
<tr>
<td>The Build Alternative requires acquisition of land designated as open space for transportation use. Although acquisition is minimal, the project would not result in a change in land use designation. The Build Alternative is consistent with Measure D: Save Agriculture and Open Space Lands Initiative as the construction of the Build Alternative would have no growth-inducing effect on the East County area and would not expand service beyond the capacity of the existing SR-84 facility.</td>
<td>The No-Build Alternative would maintain the existing conditions.</td>
<td></td>
</tr>
<tr>
<td><strong>Urban and Rural Development Policy 13:</strong> 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 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</td>
<td>Consistent</td>
<td>Not applicable</td>
</tr>
<tr>
<td>The Build Alternative would not increase the capacity of SR-84, but would construct spot safety improvements throughout the Niles Canyon Corridor to provide safer transportation infrastructure for East Alameda County.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Chapter 2 - Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures

<table>
<thead>
<tr>
<th>Policy</th>
<th>Build Alternative</th>
<th>No-Build Alternative</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Policy</strong>&lt;br&gt;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.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Consistent</strong>&lt;br&gt;Landscaping activities as part of the Build Alternative would be based on compatibility with surrounding vegetation, drought-tolerance, and suitability to site conditions and habitat value in Niles Canyon.</td>
<td><strong>Not Applicable</strong></td>
</tr>
<tr>
<td><strong>Sensitive Viewsheds Policy 114:</strong> 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 with surrounding vegetation, drought-tolerance, and suitability to site conditions; and in rural areas, habitat value and fire retardance.</td>
<td><strong>Consistent</strong>&lt;br&gt;Elements of the Build Alternative would blend with and be subordinate to the environment and character of Niles Canyon and would not detract from the visual qualities of the area. Exterior lighting would be shielded to confine direct rays to the travel way (refer to Section 2.1.5.4 Avoidance, Minimization, and/or Mitigation Measures)</td>
<td><strong>Not applicable</strong></td>
</tr>
<tr>
<td><strong>Sensitive Viewsheds Policy 115</strong>: 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.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Policy</td>
<td>Build Alternative</td>
<td>No-Build Alternative</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>*Amended in accordance with the adoption of Measure D; Save Agriculture and Open Spaces</td>
<td></td>
<td></td>
</tr>
<tr>
<td>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 minimized. Graded slopes shall be designed to simulate natural contours and support vegetation to blend with surrounding undisturbed slopes.</td>
<td>Consistent Elements of the Build Alternative would reduce the visibility of cuts and fill slopes as well as new drainage improvements. However, graded slopes would be designed to emulate natural contours and several years after construction, vegetation would regrow to blend with the surrounding undisturbed slopes.</td>
<td>Not applicable</td>
</tr>
<tr>
<td>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.</td>
<td>Consistent The Build Alternative would not impact existing regional trails and would improve a wildlife corridor by removing a fish passage barrier through the replacement of the culvert at Stonybrook Creek with a clear span bridge.</td>
<td>Not applicable</td>
</tr>
<tr>
<td>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.</td>
<td>Consistent The Build Alternative would replace the bridge railing on the NRHP-eligible Alameda Creek Bridge and Overhead (Bridge 33-0039) as well as impact an archaeological site within the project limits. The project would not result in physical damage to any portion of the bridge that contributes to its eligibility for the NRHP and avoidance and minimization measures would be implemented to ensure data is recovered from the archaeological site.</td>
<td>Not applicable</td>
</tr>
<tr>
<td>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 Urban Growth Boundary consistent</td>
<td>Consistent The Build Alternative would improve the State Highway System by constructing multiple spot safety improvements along the Niles Canyon Corridor.</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>
### Chapter 2 - Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures

<table>
<thead>
<tr>
<th>Policy</th>
<th>Build Alternative</th>
<th>No-Build Alternative</th>
</tr>
</thead>
<tbody>
<tr>
<td>with the policies and Land Use Diagram of the East County Area Plan.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>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.</td>
<td><strong>Consistent</strong> The Build Alternative would improve the State Highway System by constructing multiple spot safety improvements along the Niles Canyon Corridor.</td>
<td><strong>Not applicable</strong></td>
</tr>
<tr>
<td>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.</td>
<td><strong>Consistent</strong> The Build Alternative would maintain the existing scenic value of SR-84.</td>
<td><strong>Consistent</strong> The No-Build Alternative involves no changes to the existing State Highway System.</td>
</tr>
<tr>
<td>State Scenic Highway Program: Scenic Corridor Protection Plan for Niles Canyon Road and Paloma Way Portion of California State Route 84</td>
<td><strong>Consistent</strong></td>
<td><strong>Not applicable</strong></td>
</tr>
<tr>
<td>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.</td>
<td><strong>Consistent</strong> The Alameda County Scenic Highway Corridor Protection Committee is invited to review and comment on this Draft EIR/EA for the Niles Canyon Safety Improvements Project.</td>
<td></td>
</tr>
<tr>
<td>Alameda County Watershed Management Plan</td>
<td><strong>Consistent</strong></td>
<td><strong>Not applicable</strong></td>
</tr>
<tr>
<td>Water Quality Policy 11: Where new roads or trails are required, locate and design them to follow natural topography.</td>
<td><strong>Consistent</strong> The Build Alternative would not realign any section of SR-84, but temporary access roads would be needed during construction. Following construction completion, access roads would be removed and the areas restored to their original condition.</td>
<td><strong>Not applicable</strong></td>
</tr>
<tr>
<td>Water Quality Policy 18: Minimize vehicle-related contaminants in runoff from roads, parking lots, facilities, etc.</td>
<td><strong>Consistent</strong> Runoff from the roadway pavement for the Build Alternative would be treated by a stormwater treatment system to remove pollutants. Prior to the project’s construction, a Storm Water</td>
<td><strong>Not consistent</strong></td>
</tr>
</tbody>
</table>
### Chapter 2 - Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures

<table>
<thead>
<tr>
<th>Policy</th>
<th>Build Alternative</th>
<th>No-Build Alternative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pollutant 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.</td>
<td><strong>Consistent</strong> The SFPUC is invited to review and comment on this Draft EIR/EA for the Niles Canyon Safety Improvements Project.</td>
<td><strong>Not applicable</strong></td>
</tr>
<tr>
<td>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.</td>
<td><strong>Consistent</strong> The SFPUC is invited to review and comment on this Draft EIR/EA for the Niles Canyon Safety Improvements Project.</td>
<td><strong>Not applicable</strong></td>
</tr>
<tr>
<td>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.</td>
<td><strong>Consistent</strong> The SFPUC is invited to review and comment on this Draft EIR/EA for the Niles Canyon Safety Improvements Project.</td>
<td><strong>Not applicable</strong></td>
</tr>
<tr>
<td>Alameda Countywide Transportation Plan</td>
<td><strong>Consistent</strong> The Build Alternative would improve the State Highway System by constructing multiple spot safety improvements on the Niles Canyon Corridor.</td>
<td><strong>Not consistent</strong> The No-Build Alternative would not address transportation deficiencies that exist at this location.</td>
</tr>
<tr>
<td>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.</td>
<td><strong>Consistent</strong> The Build Alternative maintains and enhances the effective movement of native organisms by removing a fish passage barrier; the project would not negatively impact wildlife corridors in Niles Canyon.</td>
<td><strong>Not applicable</strong></td>
</tr>
<tr>
<td>East Alameda County Conservation Strategy (EACCS)</td>
<td><strong>Consistent</strong> The No-Build Alternative would not impact oak woodland communities.</td>
<td><strong>Consistent</strong> The No-Build Alternative would not impact oak woodland communities.</td>
</tr>
<tr>
<td>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.</td>
<td><strong>Consistent</strong> The Build Alternative maintains and enhances the effective movement of native organisms by removing a fish passage barrier; the project would not negatively impact wildlife corridors in Niles Canyon.</td>
<td><strong>Not applicable</strong></td>
</tr>
<tr>
<td>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</td>
<td><strong>Not consistent</strong> Although the project was designed to minimize impacts to natural communities, the project would impact woodland communities to meet purpose and need. Approximately 25 trees of oak woodland communities are located in permanent</td>
<td><strong>Consistent</strong>. The No-Build Alternative would not impact oak woodland communities.</td>
</tr>
</tbody>
</table>
### Chapter 2 - Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures

<table>
<thead>
<tr>
<th>Policy</th>
<th>Build Alternative</th>
<th>No-Build Alternative</th>
</tr>
</thead>
<tbody>
<tr>
<td>species and promote the level of native biodiversity expected to occur within this natural community in the study area.</td>
<td>impact areas and 84 trees of oak woodland communities are located in temporary impact areas. Trees located in permanent impact areas would be removed while trees located in temporary impact areas may be preserved depending on the activities occurring around them.</td>
<td></td>
</tr>
<tr>
<td>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.</td>
<td><strong>Consistent</strong> The Build Alternative involves the removal of a fish passage barrier, which would improve hydrologic and geomorphic processes in Stonybrook Creek.</td>
<td><strong>Not consistent</strong> The No-Build Alternative would not remove a fish passage barrier in Stonybrook Creek.</td>
</tr>
<tr>
<td>Goal 16</td>
<td><strong>Consistent</strong> As a transportation project, the Build Alternative is not consistent with Goal 16 of the EACC. However, the Build Alternative is consistent with Objective 16.1 as the project is designed to minimize impacts to Alameda whipsnake habitat while still meeting the purpose and need of the project.</td>
<td><strong>Consistent</strong> The No-Build Alternative would not impact Alameda whipsnake populations.</td>
</tr>
<tr>
<td>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. 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.</td>
<td><strong>Consistent</strong> The Build Alternative is consistent with Goal 22 as well as Objectives 22.1, 22.3, and 22.4. The Build Alternative involves the removal of a fish passage barrier in Stonybrook Creek. Steelhead have been reported historically using the Alameda Creek watershed, including its tributaries for spawning. The project would have an overall net benefit to the creek channel habitat by removing a fish barrier and facilitating passage of steelhead and lamprey from Alameda Creek to Stonybrook Creek.</td>
<td><strong>Not consistent</strong> The No-Build Alternative would not remove a fish passage barrier in Stonybrook Creek.</td>
</tr>
<tr>
<td>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 project activities by implementing avoidance measures.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Niles Canyon Safety Improvements Project
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.

<table>
<thead>
<tr>
<th>Policy</th>
<th>Build Alternative</th>
<th>No-Build Alternative</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Objective 22.3.</strong> 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.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Objective 22.4.</strong> Ensure that all new road crossings and crossing upgrades in areas of steelhead habitat are designed to facilitate passage of adult and juvenile steelhead.</td>
<td>Consistent</td>
<td>Not consistent</td>
</tr>
</tbody>
</table>

**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

The Build Alternative would reduce injuries from collisions through the implementation of spot safety improvements in the Niles Canyon Corridor.

Not consistent

The No-Build Alternative would not reduce injuries from collisions in the Niles Canyon Corridor.
Avoidance, Minimization, and/or Mitigation Measures

Section 2.1.5.4 Visual/Aesthetics
Measures VISUAL-1, VISUAL-2, VISUAL-3, and VISUAL-4 would be implemented as visual/aesthetic avoidance and minimization measures to ensure consistency with state, regional, and local plans and programs.

Section 2.1.6.4 Cultural Resources
Measures CULTURAL-1, CULTURAL-2, CULTURAL-3, CULTURAL-4, CULTURAL-5, CULTURAL-6, and CULTURAL-7 would be implemented as cultural resource avoidance and minimization measures to ensure consistency with state, regional and local plans and programs.

Section 2.2.2.4 Water Quality and Stormwater Coordination
Measures WATER-1, WATER-2, and WATER-3 would be implemented as water quality and stormwater avoidance and minimization measures to ensure consistency with state, regional and local plans and programs.

Section 2.3.1.4 Natural Communities
Measures UPLAND TREES-1 and RIPARIAN TREES-1 would be implemented as natural resource avoidance and minimization measures to ensure consistency with state, regional and local plans and programs.

Section 2.3.5.4 Threatened and Endangered Species
Measures CRLF-1 and AWS-1 would be implemented as threatened and endangered species avoidance and minimization measures to ensure consistency with state, regional and local plans and programs.

Section 2.3.6.4 Invasive Species
Measures INVASIVE-1 and INVASIVE-2 would be implemented as invasive species avoidance and minimization measures to ensure consistency with state, regional and local plans and programs.

2.1.1.3 Parks and Recreational Facilities
Affected Environment
There are four existing parks and recreational facilities identified within 0.5 miles from the proposed Build Alternative: the Niles Canyon Railway, Vallejo Mill, Thermalito Trail, and Sunol Water Temple. In addition to these potential parks and recreational facilities, the EBRPD is currently in the early planning phases to develop a Class I bicycle trail through the Niles Canyon Corridor and therefore, the future facility is included in this discussion. These potential parks and recreational facilities are listed in Table 9.
Table 9. List of Parks and Recreational Facilities within 0.5 miles of the Niles Canyon Safety Improvements Project

<table>
<thead>
<tr>
<th>Name</th>
<th>Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Niles Canyon Railway</td>
<td>6 Kilkare Road, Sunol, CA 94586</td>
</tr>
<tr>
<td>Vallejo Mill Park</td>
<td>Located at the intersection of SR-238 and SR-84</td>
</tr>
<tr>
<td>Thermalito Trail</td>
<td>Located in Sunol, CA</td>
</tr>
<tr>
<td>Sunol Water Temple</td>
<td>Located at Plesanton-Sunol Road and SR-84 in Sunol, CA</td>
</tr>
<tr>
<td>Proposed Niles Canyon Class I Bicycle Trail:</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

Two abandoned picnic ground areas, Stonybrook Park and Sims Park, are also located within the Niles Canyon Safety Improvements Project limits. Both served as picnic parks in the Niles Canyon Corridor during the 1900-1960s. Although both parks historically served as recreation areas for the public, both areas are closed and no public access is provided. Therefore, these two areas are not included in the impact analysis.

Section 4(f) is addressed in Appendix B. Section 4(f) of this Draft EIR/EA.

**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) Historic District. 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 the town of Sunol and the community 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. The NCTR Historic District is discussed in further detail in Section 2.1.5.

**Vallejo Mill Park**
Vallejo Mill is a 10.2-acre recreational park located at the intersection of SR-238 and SR-84 in the community of Niles in Fremont. The Vallejo Mill Park is owned by the City of Fremont.

**Thermalito Trail**
The Thermalito Trail is a recreational trail owned by EBRPD that begins in downtown Sunol and ends at the Ridgeline Trail, approximately four miles north of Sunol.

**Sunol Water Temple**
The Sunol Water Temple, located at 505 Paloma Way in Sunol, was built in the early 1900s by the Spring Valley Water Company. The water temple marks the confluence of three sources of water flowing into the Sunol Valley. Over time, the temple deteriorated and community efforts eventually lead to the restoration of the temple from 1997-2001. The temple is owned by SFPUC and is open to the public Monday through Friday from 9:00 AM to 3:00 PM.
Proposed Niles Canyon Class I Bicycle Trail
The EBRPD, in cooperation with Alameda County, Alameda County Water District (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, two trail alignments would be located outside the vicinity of the Niles Canyon Safety Improvements Project limits and one would be located within the Niles Canyon Safety Improvements Project limits.

Environmental Consequences

Build Alternative
Niles Canyon Railway, Vallejo Mill, Thermalito Trail, and the Sunol Water Temple were identified as existing parks and recreational facilities located within 0.5 miles of the project vicinity. The Build Alternative would not directly or indirectly impact these parks and recreational facilities.

The Build Alternative would have no direct impacts to the passengers on 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 Niles Canyon Safety Improvements Project would not use or adversely impact the Niles Canyon Railway (refer to Appendix B. Section 4(f)).

In addition to the existing parks and recreational facilities listed above, EBRPD is in the early stages of developing a Class I Bicycle trail through the Niles Canyon Corridor. Caltrans continues to participate on a multi-agency development team for the Niles Canyon trail. Elements of the project will be altered during the design phase of the project in an effort to ensure adequate space is provided at the low-speed curve in the event that space is needed to accommodate a Niles Canyon Trail alignment in this vicinity. Environmental consequences of the Niles Canyon Safety Improvements Project on the proposed bicycle trail through the Niles Canyon Corridor are negligible given interagency coordination and communication.

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 Community Impacts
This section discusses Relocations and Real Property Acquisitions.

2.1.2.1 Relocations and Real Property Acquisition

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

All relocation services and benefits are administered without regard to race, color, national origin, or sex in compliance with Title VI of the Civil Rights Act (42 United States Code [USC] 2000d, et seq.). Refer to Appendix C for a copy of the Department’s Title VI Policy Statement.

Affected Environment
Information in this section is based on the Niles Canyon Safety Improvements Project Draft Project Report (Caltrans, 2016a). The study area is SR-84 between SR238 and I-680 (PM 10.8 to 18.0). The majority of land use surrounding the immediate project study area is open space, predominately owned by public agencies including Caltrans, Alameda County, SFPUC, and the Alameda County Flood Control and Water Conservation District (ACFCD). The nearest residential areas to the project location are the community of Niles, located at the intersection of SR-84 and Mission Boulevard (SR-238), near the City of Fremont and the town of Sunol, located at the intersection of SR-84 and Pleasanton-Sunol Road.

Environmental Consequences
Build Alternative
The Build Alternative requires permanent right of way acquisition (fee). Where construction activities would occur outside of Caltrans’ right of way, appropriate temporary construction easements (TCE) or other permits would be acquired prior to project implementation. Table 10 summarizes the proposed right of way requirements and Figures 7-13 identify the proposed locations requiring right of way from other landowners.

No-Build Alternative
The No-Build Alternative does not require right of way acquisition (fee) or TCEs.
### Table 10. Proposed Right of Way Requirements

<table>
<thead>
<tr>
<th>Owner</th>
<th>Parcel Number APN Number</th>
<th>Fee required (square feet)</th>
<th>Temporary Construction Easement (square feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private Property</td>
<td>507-70-1-12</td>
<td>None</td>
<td>9,400</td>
</tr>
<tr>
<td>Private Property</td>
<td>85A-5400-1-4</td>
<td>42,000 (26,000 and 16,000)</td>
<td>4,000</td>
</tr>
<tr>
<td>Golden Gate Primitive Baptist Church</td>
<td>85A-5500-1-19</td>
<td>None</td>
<td>11,348</td>
</tr>
<tr>
<td>County of Alameda</td>
<td>507-0762-010</td>
<td>None</td>
<td>7,350</td>
</tr>
<tr>
<td>City and County of San Francisco (Water Department)</td>
<td>96-375-5</td>
<td>11,700</td>
<td>None</td>
</tr>
<tr>
<td>City and County of San Francisco (Water Department)</td>
<td>96-375-12-2</td>
<td>None</td>
<td>16,325</td>
</tr>
<tr>
<td>City and County of San Francisco</td>
<td>507-761-2-4</td>
<td>6,490 (6,150 and 340)</td>
<td>None</td>
</tr>
<tr>
<td>Union Pacific Railroad</td>
<td>507-761-9</td>
<td>2,390</td>
<td>None</td>
</tr>
</tbody>
</table>
Figure 7. Proposed Right of Way Acquisitions within the Niles Canyon Safety Improvements Project Limits
Figure 8. Proposed Right of Way, Location 1 of 6
Figure 9. Proposed Right of Way, Location 2 of 6
Figure 10. Proposed Right of Way, Location 3 of 6
Figure 11. Proposed Right of Way, Location 4 of 6
Figure 12. Proposed Right of Way, Location 5 of 6
Figure 13. Proposed Right of Way, Location 6 of 6
Avoidance, Minimization, and/or Mitigation Measures
No avoidance, minimization, and/or mitigation measures are recommended.

2.1.3 Utilities/Emergency Services
2.1.3.1 Affected Environment
Information in this section is based on the Draft Project Report (Caltrans, 2016a) prepared for the Niles Canyon Safety Improvements Project. Power, gas, telecommunication (fiber optic), and water utilities are located within the project vicinity. Pacific Gas & Electric (PG&E) provides gas and electricity service, American Telephone & Telegraph Company (AT&T) provides telecommunication service through the project area, and SFPUC and ACWD manage water utilities located within the project limits.

The City of Fremont limits extend into the western portion of SR-84 (to approximately PM 13.2) providing police and fire protection and traffic enforcement services for the western portion of Niles Canyon. For the eastern portion of Niles Canyon, 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.

2.1.3.2 Environmental Consequences
Build Alternative
No relocations or direct impacts to water utilities are expected as a result of the Niles Canyon Safety Improvements Project. As identified in the Chapter 1, PG&E utility poles within eight feet of the edge of travelway would be relocated. These utility poles would be moved 10 feet from their current locations perpendicular to the existing roadway or across the road where limited space exists to relocate the poles. Approximately 17 poles would be relocated. AT&T also uses some of these 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.

The project would likely require five weekend closures of Niles Canyon to construct the Stonybrook Creek Bridge and replace the bridge railing on the Alameda Creek Bridge and Overhead, however movement through Niles Canyon would be provided for law enforcement, fire, and/or emergency services. The construction of spot improvements would likely require temporary lane closures for short periods of time (approximately 15 minute intervals) during off-peak hours (not during AM and PM peak periods), which may temporarily impact emergency service movement through the Niles Canyon Corridor.

No law enforcement, fire, and/or emergency services would be permanently affected by the proposed construction as access to SR-84 would not be permanently altered by the project. Temporary traffic delays associated with the construction of the spot safety improvements in the Niles Canyon Corridor are described further in Section 2.1.3.

No-Build Alternative
The No-Build Alternative would have no impact to utilities/service systems.
2.1.3.3 Avoidance, Minimization, and/or Mitigation Measures
UTL-1. Power lines will be relocated to avoid affecting power service.

2.1.4 Traffic and Transportation/Pedestrian and Bicycle Facilities
2.1.4.1 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.

2.1.4.2 Affected Environment
Information in this section is based on the Niles Canyon Safety Improvements Project Traffic Safety Analysis (Caltrans, 2016b). This report was completed on July 23, 2016. The study area established for traffic and transportation/pedestrian and bicycle facilities analysis is SR-84 between SR-238 and I-680, an area commonly referred to as the Niles Canyon Corridor.

At the intersection with SR-238 (Mission Boulevard), SR-84 transitions from the urban setting of Niles in Fremont into a two-lane rural highway that continues for approximately seven miles until reaching the town of Sunol. The roadway has narrow shoulders with generally curvilinear horizontal alignment; the eastern portion is less curvilinear with more open roadside and generally flatter sideslopes. The speed limit on the Niles Canyon section of SR-84 is 45 mph, as identified by the black numbers on white speed limit signs. However, advisory signage at some curve locations in the Niles Canyon Corridor recommend 30-35 mph, as identified by the black numbers on yellow.

As discussed in Chapter 1, Caltrans installed grooved centerline rumble strips in 2007 as part of a safety improvement project along the Niles Canyon Corridor from just east of SR-238 (Mission Boulevard) at PM 11.1 to just west of the Silver Springs Underpass at PM 16.7. Grooved Centerline rumble strips were also 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 Improvement), completed September 2016. The primary purpose of centerline rumble strip installation was to target head-on and sideswipe crashes by alerting the driver that he/she is about to cross into opposing traffic; these crashes are almost always severe or fatal injury crashes (US FHWA, 2012). In 2012, Caltrans conducted a Road Safety Assessment of the Niles Canyon Corridor. The Road Safety Assessment identified that while there was a 13% reduction in the type of crashes targeted by the centerline rumble strip project (head-on and sideswipe crashes) by 2012.
crashes), there were 37 other injury crashes that occurred post centerline rumble strip installation that were not head-on or sideswipe\(^\text{16}\). From November 1, 2007 to September 30, 2014\(^\text{17}\), 166 traffic accidents (grouped by the nearest tenth of a PM) have occurred from PM 10.8 to 18.0 (refer to Figure 2).

The Road Safety Assessment contained TASAS crash data covering a span of nearly 10 years, from January 1, 2001 through September 30, 2010 (US FHWA, 2012). A summary of yearly TASAS accident data since 2000 to the latest available data up to September 2014 along the SR-84 Niles Canyon Corridor from Mission Boulevard to Route 680 are shown in Table 11.

Table 11 shows that during the 14 years between 2000 and 2013 and the 9 months in the year 2014, there were a total of 507 traffic collisions reported on this 7.15 miles of highway. Of the 507 traffic collisions, 14 resulted in fatalities and 390 resulted in injuries. A large number of the 507 total traffic collisions were cross median (44) and run-off road (95) collisions. These types of collisions were associated with most of the fatality and serious injury accidents along the corridor. Large numbers of collision (35%) were hit object type collisions. Objects hit included cut slope or embankment, sign posts, utility poles, trees, guardrails, dikes or curbs, fences, drainage ditches, other vehicles, etc.

\(^{16}\) Post centerline rumble strip installation accident data was collected from 2008 to 2010.

\(^{17}\) As of August 26, 2016, the latest Traffic Accident Surveillance and Analysis System (TASAS) accident data is available through September 30, 2014. The time lag for the latest available values is the data processing time required to convert the California Highway Patrol’s California Statewide Integrated Traffic Records System (SWITRS) to Caltrans TASAS system.
Table 11. Niles Canyon Corridor Collision Data from PM 10.8 to PM 18.0

<table>
<thead>
<tr>
<th>Year</th>
<th>Collisions</th>
<th>Persons</th>
<th>Cross Into Opposite Lane</th>
<th>Head-On</th>
<th>Sideswipe</th>
<th>Hit Object</th>
<th>Run-off-Road</th>
<th>DUI</th>
<th>Bicycle &amp; Pedestrian Related</th>
<th>Traffic Volumes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Fatal</td>
<td>Injury</td>
<td>Killed</td>
<td>Injured</td>
<td>(No.)</td>
<td>(No.)</td>
<td>(No.)</td>
<td>(%)</td>
<td>(%)</td>
</tr>
<tr>
<td>2000</td>
<td>73</td>
<td>2</td>
<td>38</td>
<td>3</td>
<td>61</td>
<td>9</td>
<td>12.3</td>
<td>4</td>
<td>5.5</td>
<td>10</td>
</tr>
<tr>
<td>2001</td>
<td>50</td>
<td>2</td>
<td>20</td>
<td>2</td>
<td>34</td>
<td>6</td>
<td>12.0</td>
<td>3</td>
<td>6.0</td>
<td>7</td>
</tr>
<tr>
<td>2002</td>
<td>42</td>
<td>1</td>
<td>20</td>
<td>1</td>
<td>34</td>
<td>3</td>
<td>7.1</td>
<td>2</td>
<td>4.8</td>
<td>4</td>
</tr>
<tr>
<td>2003</td>
<td>46</td>
<td>0</td>
<td>21</td>
<td>0</td>
<td>31</td>
<td>7</td>
<td>15.2</td>
<td>8</td>
<td>17.4</td>
<td>5</td>
</tr>
<tr>
<td>2004</td>
<td>43</td>
<td>1</td>
<td>22</td>
<td>1</td>
<td>33</td>
<td>2</td>
<td>4.7</td>
<td>6</td>
<td>14.0</td>
<td>4</td>
</tr>
<tr>
<td>2005</td>
<td>31</td>
<td>1</td>
<td>16</td>
<td>1</td>
<td>26</td>
<td>3</td>
<td>9.7</td>
<td>7</td>
<td>22.5</td>
<td>5</td>
</tr>
<tr>
<td>2006</td>
<td>29</td>
<td>1³</td>
<td>17</td>
<td>2</td>
<td>27</td>
<td>2</td>
<td>6.9</td>
<td>4</td>
<td>13.8</td>
<td>1</td>
</tr>
<tr>
<td>2007¹</td>
<td>36²</td>
<td>2</td>
<td>22</td>
<td>2</td>
<td>28</td>
<td>1</td>
<td>2.8</td>
<td>3</td>
<td>8.3</td>
<td>3</td>
</tr>
<tr>
<td>2008</td>
<td>29</td>
<td>0</td>
<td>17</td>
<td>0</td>
<td>19</td>
<td>2</td>
<td>6.9</td>
<td>0</td>
<td>0.0</td>
<td>3</td>
</tr>
<tr>
<td>2009</td>
<td>19</td>
<td>0</td>
<td>11</td>
<td>0</td>
<td>15</td>
<td>1</td>
<td>5.3</td>
<td>1</td>
<td>5.3</td>
<td>0</td>
</tr>
<tr>
<td>2010</td>
<td>16</td>
<td>0</td>
<td>14</td>
<td>1</td>
<td>17</td>
<td>1</td>
<td>0.0</td>
<td>1</td>
<td>2.8</td>
<td>2</td>
</tr>
<tr>
<td>2011</td>
<td>17</td>
<td>0</td>
<td>10</td>
<td>0</td>
<td>14</td>
<td>2</td>
<td>11.8</td>
<td>1</td>
<td>5.9</td>
<td>1</td>
</tr>
<tr>
<td>2012</td>
<td>20</td>
<td>0</td>
<td>11</td>
<td>0</td>
<td>18</td>
<td>3</td>
<td>15.0</td>
<td>2</td>
<td>10.0</td>
<td>0</td>
</tr>
<tr>
<td>2013</td>
<td>19</td>
<td>1</td>
<td>13</td>
<td>1</td>
<td>20</td>
<td>2</td>
<td>10.5</td>
<td>3</td>
<td>15.8</td>
<td>3</td>
</tr>
<tr>
<td>2014²</td>
<td>17</td>
<td>0</td>
<td>12</td>
<td>0</td>
<td>13</td>
<td>1</td>
<td>5.9</td>
<td>1</td>
<td>5.9</td>
<td>1</td>
</tr>
<tr>
<td>2000-</td>
<td>507</td>
<td>11</td>
<td>264</td>
<td>14</td>
<td>390</td>
<td>44</td>
<td>8.7</td>
<td>46</td>
<td>9.1</td>
<td>49</td>
</tr>
<tr>
<td>2014³</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Location of Collision Data: On SR-84 between Mission Blvd. and Route 680
1 -- Median Rumble Strip installed in October 2007
2 -- Year 2014 accident data up to 9/30/2014. Reporting accident data is still in process.
3 -- Accident occurred at Mission BLSR-84 intersection area

¹ 7 of the 36 collisions occurred after the rumble strip installation (from November 1, 2007 to December 31, 2007).

Niles Canyon Safety Improvements Project
At the eastern end of the Niles Canyon Corridor (in the town of Sunol), traffic queues often extend west from the intersection at Pleasanton-Sunol Road/Water Temple entrance to and beyond Main Street during morning and evening commute times. This is due to the four-way stop control at the Water Temple, which cannot efficiently handle the peak traffic volumes. 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). LOS E or F is typically considered unacceptable by Caltrans, and indicates traffic demand is exceeding available capacity resulting in substantial traffic congestion and a need for improvements. Figure 14 identifies the acceptable Levels of Service for Unsignalized Intersections.

**Figure 14. Levels of Service for Unsignalized Intersections**

<table>
<thead>
<tr>
<th>Level of Service</th>
<th>Flow Conditions</th>
<th>Delay per Vehicle (seconds)</th>
<th>Technical Descriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td><img src="image" alt="Image of Level A" /></td>
<td>&lt;10</td>
<td>Highest quality of service. Free flow with few restrictions on maneuverability or speed. <strong>Very short delays</strong></td>
</tr>
<tr>
<td>B</td>
<td><img src="image" alt="Image of Level B" /></td>
<td>10-15</td>
<td>Stable traffic flow. Speed becoming slightly restricted. Low restriction on maneuverability. <strong>Short delays</strong></td>
</tr>
<tr>
<td>C</td>
<td><img src="image" alt="Image of Level C" /></td>
<td>16-25</td>
<td>Stable traffic flow, but less freedom to select speed, change lanes or pass. <strong>Minimal delays</strong></td>
</tr>
<tr>
<td>D</td>
<td><img src="image" alt="Image of Level D" /></td>
<td>26-35</td>
<td>Traffic flow becoming unstable. Speeds subject to sudden change. Passing is difficult. <strong>Minimal delays</strong></td>
</tr>
<tr>
<td>E</td>
<td><img src="image" alt="Image of Level E" /></td>
<td>36-50</td>
<td>Unstable traffic flow. Speeds change quickly and maneuverability is low. <strong>Significant delays</strong></td>
</tr>
<tr>
<td>F</td>
<td><img src="image" alt="Image of Level F" /></td>
<td>&gt;50</td>
<td>Heavily congested traffic. Demand exceeds capacity and speeds vary greatly. <strong>Considerable delays</strong></td>
</tr>
</tbody>
</table>

Source: 2000 HCM, Exhibit 17-22, Level of Service Criteria for AWSC Intersections
Tables 12 and 13 represent the intersection delay at SR-84 and Pleasanton-Sunol Road, level of service ranking, and queue length from observations made on January 19, 2011 and March 8, 2011.

### Table 12. Delays at Pleasanton-Sunol Road/SR-84 Intersection

<table>
<thead>
<tr>
<th>Peak</th>
<th>Existing intersection delay (seconds)</th>
<th>Level of Service</th>
<th>Queue length (feet)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>AM</td>
<td>148</td>
<td>F</td>
<td>670</td>
</tr>
<tr>
<td>PM</td>
<td>168</td>
<td>F</td>
<td>670</td>
</tr>
</tbody>
</table>

*Based on field observations made on 1/19/11 and 3/8/11

### Table 13. Delays at State Route 84/Main Street Intersection

<table>
<thead>
<tr>
<th>Peak</th>
<th>Existing intersection delay (seconds)</th>
<th>Level of Service</th>
<th>Queue length (feet)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>AM</td>
<td>48</td>
<td>E</td>
<td>590</td>
</tr>
<tr>
<td>PM</td>
<td>90</td>
<td>F</td>
<td>1,180</td>
</tr>
</tbody>
</table>

*Based on field observations made on 1/19/11 and 3/8/11

Pedestrian and bicycle travel is allowed along the Niles Canyon Corridor. With the exception of pedestrian facilities in the town of Sunol, there are no existing dedicated bicycle or pedestrian facilities within the majority of the project limits. Nonetheless, bicyclists frequently use the Niles Canyon Corridor. While shoulders are available on some segments, they are not continuously present throughout the corridor and bicyclists oftentimes need to occupy a lane with motor traffic.

In cooperation with Alameda County, the ACWD, the SFPUC, Caltrans, the Altamont Corridor Express and the PLA, EBRPD is currently in the early planning stages to develop 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 for the construction of 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, two trail alignments would be located outside the vicinity of the Niles Canyon Safety Improvements Project limits and one would be located within the Niles Canyon Safety Improvements Project limits.

### 2.1.4.3 Environmental Consequences

**Build Alternative Construction Impacts**

Motorists and bicyclists on SR-84 would experience temporary traffic delays associated with the construction of the following various spot safety improvements in the Niles Canyon Corridor:
Installation of rock drapery and dynamic rockfall fence

The construction of the rock drapery system and the dynamic rockfall fence is anticipated to require a continuous westbound SR-84 lane closure for approximately eight weeks. In addition to the westbound lane closure, both directions of SR-84 would likely need to be intermittently closed because all materials needed to construct the rock drapery and dynamic rockfall fence would be flown in by helicopter. The installation of the rock drapery and dynamic rockfall fence would also require closure of both directions of SR-84 for 15-minute intervals while the helicopter is in motion.

Low-speed Curve Improvements

Construction improvements at the low speed curve are anticipated to occur mostly at night between the hours of 9 PM to 4 AM, with one lane closed. Approximately six months would be needed for construction.

Alameda Creek Bridge and Overhead and Stonybrook Creek Bridge (Bridge 33-0039)

The replacement of the bridge railing on the Alameda Creek Bridge and Overhead (Bridge 33-0039) and the construction of the Stonybrook Creek Bridge would likely require five weekend closures of the Niles Canyon Corridor. SR-84 between PM 13.025 and PM 14.836 would be closed beginning Friday at midnight and would reopen on Monday morning at 5 AM. There are multiple residential units within the project limits and access will be provided for the residents during the closure. However, the through movement at the Alameda Creek Bridge and Overhead and Stonybrook Creek Bridge would only be provided for emergency vehicles. No residential areas or neighborhoods exist within the project limits that would have their access to emergency services severed.

Miscellaneous Improvements

Impacts associated with shoulder widening, tree removal, sign removal and installation, and other associated spot safety improvements described in Chapter 1 would likely result in shoulder closures, but would not impact the travel lanes.

Operational Impacts

The majority of the Niles Canyon spot safety improvements, including the installation of the rock drapery and rockfall systems, the construction of the Stonybrook Bridge, replacement of bridge rail on the Alameda Creek Bridge and Overhead, and utility pole/tree removal/replacement, would have no permanent impact to SR-84 operations.

The signalization of the Pleasanton-Sunol Road/SR-84 and the Main Street/SR-84 intersections would beneficially impact the operations of SR-84 by introducing a four-way stop control at the Water Temple, which can efficiently handle the peak traffic volumes (refer to Table 14).
Table 14. Level of Service Comparison

<table>
<thead>
<tr>
<th>Alternative</th>
<th>Weekday AM Peak Hour (6-9AM) LOS (Intersection Delay/Maximum Delay in seconds)</th>
<th>Weekday PM Peak Hour (4-7 PM) LOS (Intersection Delay/Maximum Delay in seconds)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing Condition</td>
<td>All way Stop</td>
<td>E (48.9/64.9)</td>
</tr>
<tr>
<td>Build</td>
<td>C (26.4/38.4)</td>
<td>D (38.6/72.2)</td>
</tr>
</tbody>
</table>

Source: Final Quantitative Road Safety Analysis Study Report for SR 84 Niles Canyon Road Corridor.

Impacts to Pedestrian and Bicycle Facilities

The project would conform to the conditions for the rumble strips implemented as part of the Niles Canyon Safety Improvements Project (Short Term Improvements); outside rumble strips would only be installed where shoulder widths are a minimum four feet for a minimum length of 400 feet. At the Niles Canyon Safety Improvements Project scoping meeting in October 2015, members of the bicycling community voiced concern about the installation of rumble strips on the SR-84 shoulder. In consideration of the bicycling community’s concerns regarding rumble strips on the SR-84 shoulder, Caltrans District 4 would implement the following measures for the construction of shoulders at spot locations on SR-84:

- Limit the width of the rumble strips to the minimum 6-inch-wide strips instead of 12 inch strips
- Implement 100-foot openings at the beginning and ends of the rumble strip area where constructing shoulders
- Implement a ‘skip’ pattern of 12-foot openings for every 60-feet of shoulder rumble strips

No-Build Alternative

Under the No-Build Alternative, no safety improvements would be made in the Niles Canyon Corridor of SR-84. Safety, operational, and structural deficiencies would persist along SR-84 from Mission Boulevard (SR-238) to I-680.

2.1.4.4 Avoidance, Minimization, and/or Mitigation Measures

TRAFFIC-1. A Traffic Management Plan (TMP) will be prepared during the detailed design phase for the Build 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. Implementing the TMP will involve the dissemination of 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.
2.1.5 Visual/Aesthetics

2.1.5.1 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]).

2.1.5.2 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 Niles Canyon Safety Improvements Project 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 Fremont, 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 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 Niles Canyon Safety Improvements Project (Caltrans, 2016c) was completed in accordance with the Visual Impact Assessment for Highway Projects. The VIA was completed on September 23, 2016. The VIA documents potential visual impacts caused by the proposed project and proposes measures to lessen impacts to aesthetic resources. The following steps were followed to assess the potential visual impacts of the proposed project:

- Define the project location and setting.
- Identify visual assessment units and key views.
- Analyze existing visual resources, resource change and viewer response.

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**
The project corridor was divided into a series of “outdoor rooms” or visual assessment units. Each visual assessment unit has its own visual character and visual quality. It is typically defined by the limits of a particular viewshed. For this project, two visual assessment units and their associated key views were identified: the Niles Canyon and Sunol Valley assessment units. Figure 15, Visual Assessment Units and Key Viewpoints, delineates the two visual assessment units and their associated key views that were used to assess visual impacts of the proposed project.

Landscape units are geographically discrete areas that are often separated by natural features such as bodies of water, ridges, or changes in vegetation.

**Niles Canyon Unit**
Three principal image types dominate the landscape of Niles Canyon: high, steep oak-grassland hillsides on the north side of the canyon; high, steep hillsides of dense oak-evergreen woodland on most of the south side of the canyon; and the Alameda Creek riparian corridor in the canyon bottom. The latter is characterized by occasional highly vivid views of the creek; and by the vivid forms of tall riparian trees including western sycamore, maple, cottonwood and black walnut, as well as abundant willow and live oak. The steep hillsides of the winding canyon always lie directly ahead in the motorist’s view, providing a sense of enclosure. The creek corridor, which parallels the roadway, is always in evidence either through views of the creek, or it’s associated riparian trees. Those trees often overhang the edge of the highway, casting dramatic patterns of light and shadow and creating a vivid driving experience of alternating enclosure and open views across the canyon.

In addition to these dominant natural images, various man-made elements are visible in the Niles Canyon Assessment Unit. The Niles Canyon Railroad closely parallels the westbound lanes of the highway, though highly evident only when the historic train, which is operated solely as a tourist attraction, is present.

Visible portions of the Sunol Aqueduct, a part of the Spring Valley Water Company National Register-eligible historic property, is another notable visual feature. The aqueduct, a square concrete structure that formerly carried water from the Sunol Reservoir, directly abuts the roadway shoulder between PM 14.0 and 14.1, and is also visible about 25 feet above the roadway to the west between Alameda Creek Bridge (Bridge 33-0036) and PM 13.9. Other notable man-made features include a gracefully curving highway bridge (Alameda Creek Bridge and Overhead, Bridge 33-0039) between PM 14.3 and 14.5, a National Register-eligible property constructed in the 1940s; and Alameda Creek Bridge (Bridge 33-0036) (PM 13.6) (not State or National Register-eligible). Views of the creek from both bridges are particularly vivid.
Key viewpoints were selected to depict those more prominent visual features that could potentially have adverse impacts to sensitive viewers. Key viewpoints in the visual assessment unit selected for this visual assessment include:
Chapter 2: Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures

Key Viewpoint 1: Existing View of Rock Drapery System Location), Looking East from the Rosewarne Underpass

Key Viewpoint 2: Existing View of Rock Drapery System Location,, Looking East

Key Viewpoint 3: Westbound View of Rock Cuts/Retaining Walls Location

Key Viewpoint 4: Existing Eastbound View of NRHP-eligible Alameda Creek Bridge and Overhead (Bridge #33-39)
Chapter 2 - Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures

Key Viewpoint 5: Existing View, Stonybrook Creek Culvert, Facing East

Sunol Valley Unit
Approximately 1-1/2-miles east of the Niles Canyon Railway yard, the steep slopes and narrow canyon landforms of Niles Canyon broaden into the level valley bottom of Sunol Valley, located at the confluence of Alameda Creek, San Antonio Creek, and Arroyo de la Laguna. The Sunol Valley, excluding the town itself, is almost entirely owned by the SFPUC, which manages it as part of the Alameda Creek watershed, a part of the city of San Francisco water system. As such, the valley (excluding the small town) is rural and open. A large gravel quarry operated by the SFPUC a short distance south of Paloma Way is hidden from the view of motorists on SR-84 by a landscaped earth berm roughly 200 feet south of the road. Land cover visible from the road is predominantly either natural grassland or pasture. Characteristic image types in the Sunol Valley assessment unit include the town of Sunol, a small, picturesque rural main street centering around a restored, historic train station; open, undeveloped oak-grassland hillsides; dense oak-evergreen woodland; riparian woodland, particularly of Arroyo de la Laguna, which passes beneath SR-84 just east of the town of Sunol; the undeveloped open fields and landscaped earthen berm of the valley bottom; and distinctive entry gates of the SFPUC’s Sunol Water Temple. Sunol’s Main Street, though picturesque, is visually isolated from SR-84 by the backs of adjoining lots and intervening trees. The Sunol Water Temple includes distinctive entrance gates abutting SR-84 at the intersection of Pleasanton-Sunol Road. The Temple structure itself, designed in a distinctive Beaux Arts style by the renowned nineteenth-century architect Willis Polk, is located one-half-mile from SR-84 and is not visually prominent from the highway. A dual allée of sycamore and walnut trees on Paloma Way, which constitutes the easternmost portion of SR-84 within the project limits, also forms a distinctive gateway/entry feature to the town of Sunol and Niles Canyon from the east.

Key Viewpoints – Key viewpoints in this visual assessment unit selected for this visual assessment include:
Figure 15 identifies the location of these key viewpoints within the Niles Canyon Corridor. The existing key viewpoint and the simulations of the Build Alternative are illustrated in Figures 16 through 33.

**Key Viewpoint 6:** Existing View of Sunol Water Temple Entrance, SR 84/ Pleasanton-Sunol Road Intersection (P.M. 17.28), Looking East

**Key Viewpoint 7:** Existing View of SR 84/Pleasanton-Sunol Road Intersection (P.M. 17.28), Looking West

**Key Viewpoint 8:** Existing Westbound View of Paloma Way Looking West (P.M. 17.3–18.0)
Figure 15. Visual Assessment Units and Key Viewpoints
Chapter 2 - Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures

Viewers and Viewer Response
The population affected by the project is composed of viewers. Viewers are people whose views of the landscape may be altered by the proposed project—either because the landscape itself has changed or their perception of the landscape has changed. 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)
Highway viewers comprise motorists and bicyclists traveling in the corridor.

Highway Neighbors (Views to the road)
The principal sensitive off-road group with views of the project would be passengers on the recreational Niles Canyon Railway. 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 not permitted. Views of the proposed project features from the Niles Canyon Railway would be highly filtered by vegetation and very limited in duration, as a result, such views were not considered highly sensitive, and representative key views from the Niles Canyon Railway were not considered necessary or informative.

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; that is, these attributes are considered neither good nor bad. However, a change in visual character can be evaluated when it is compared with the viewer response to that change. Changes in visual character can be identified by how visually compatible a proposed project would be with the existing condition by using visual character attributes as an indicator. 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, 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.
Visual Quality
Visual quality is evaluated by identifying the vividness, intactness, and unity present in the project corridor. Public attitudes are noted through public input to validate the assessed level of quality. 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
Resource change is assessed by evaluating the visual character and the 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 the two major variables in the equation that determine visual impacts (the other is viewer response, described below).

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.

Motorists (Views from the Road)
Motorists’ visual exposure to the highway is high.

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.

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 considered to have high viewer sensitivity.

Table 15 provides a reference for determining levels of visual impact by combining resource change and viewer response.

Table 15. Visual Impact Ratings Using Viewer Response and Resource Change

<table>
<thead>
<tr>
<th>Resource Change (RC)</th>
<th>Viewer Response (VR)</th>
<th>Low (L)</th>
<th>Moderate-Low (ML)</th>
<th>Moderate (M)</th>
<th>Moderate-High (MH)</th>
<th>High (H)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low (L)</td>
<td>L</td>
<td>ML</td>
<td>ML</td>
<td>M</td>
<td>M</td>
<td></td>
</tr>
<tr>
<td>Moderate-Low (ML)</td>
<td>ML</td>
<td>ML</td>
<td>M</td>
<td>M</td>
<td>MH</td>
<td></td>
</tr>
<tr>
<td>Moderate (M)</td>
<td>ML</td>
<td>M</td>
<td>M</td>
<td>MH</td>
<td>MH</td>
<td></td>
</tr>
<tr>
<td>Moderate-High (MH)</td>
<td>M</td>
<td>M</td>
<td>MH</td>
<td>MH</td>
<td>H</td>
<td></td>
</tr>
<tr>
<td>High (H)</td>
<td>M</td>
<td>MH</td>
<td>MH</td>
<td>H</td>
<td>H</td>
<td></td>
</tr>
</tbody>
</table>

2.1.5.3 Environmental Consequences

*Build Alternative*

**Impacts to State Scenic Highway**
As previously noted, the Niles Canyon Safety Improvements Project is located within an Officially Designated State Scenic Highway. The Corridor Protection Plan for Niles Canyon Road and Paloma Way Portion of California SR-84 addresses the protection and enhancement of the recreational uses and historic resources in the corridor in addition to focusing 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, the Build Alternative would have no 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.
Construction of the Build Alternative would result in tree removal as well as earthmoving and landscaping activities. Trees located in permanent impact areas would be removed during project construction. Trees located in temporary impact areas may be preserved depending on the specific activity occurring near them. Caltrans is accounting for the removal of all trees in temporary impact areas. 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 avoidable, 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.

Most of the proposed actions included as part of the Niles Canyon Safety Improvements Project would be small in scale and have minor visual effects. Several of the project components, including the uphill rock cuts and retaining wall, the dynamic rockfall fence, wire mesh rock drapery, signalization of the Pleasanton-Sunol Road intersection, and the Midwest guardrail installation along Paloma Way, are of larger scale and extent and would affect the existing visual setting of Niles Canyon. Although these elements are of larger scale and extent, the overall change to visual quality would be moderate to moderately low due to limited visual exposure to these elements by viewers, the use of context sensitive solutions, such as using black or brown mesh for the rock drapery to blend with the surrounding and underlying colors of the existing slope, and new features, such as the retaining wall and barrier at the low speed curve and signals at the Pleasanton-Sunol/SR-84 intersection, remaining subordinate to the overall setting.

The Build Alternative is consistent with the Scenic Corridor Protection Program. No impacts to land use are anticipated and no outdoor advertising would be introduced in the project vicinity. Although the Niles Canyon Safety Improvements Project would result in earthmoving and landscaping activities, the project strives to maintain the rural and aesthetic quality of the Niles Canyon Corridor by addressing spot safety concerns in the corridor. The Niles Canyon Safety Improvements Project would not adversely impact the scenic integrity of Niles Canyon and would not conflict with the Scenic Corridor Protection Plan for SR-84.

Visual Impacts by Visual Assessment Unit
Niles Canyon Visual Assessment Unit

Key ViewPoint (KVP-1) Eastbound View of Rock Drapery System
KVP-1: EXISTING CONDITION
Visual character of the larger visual setting from this viewpoint is typical of the Niles Canyon assessment unit, including views of nearby oak woodland-grassland, riparian woodland, and the steep canyon slopes that define this unit. The view was selected to depict the rock drapery system, which will contain falling rocks from the rocky exposed slope. Visual quality of all of the assessment unit is high.

Viewer Response
Viewpoint KVP-1 is representative of the motorists’ view in the vicinity of proposed rock drapery systems.
As previously noted, viewer sensitivity of motorists is considered high due to the State Scenic Highway designation of the entire project study area. 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 three seconds of viewer exposure for eastbound motorists emerging from the Rosewarnes Bridge Underpass at 25 mph, or somewhat longer for westbound motorists. Accounting for duration of view, exposure of motorists is moderately low. The Niles Canyon Railway passes directly above the photo viewpoint on the Rosewarnes Bridge. Viewer exposure of Niles Canyon Railway passengers is similar to that of motorists, except that Niles Canyon Railway views are highly filtered by tall, dense riparian tree canopy for most of the year. Eastbound train views would be negligible due to the very wide angle of view to the rock slope for viewers facing east. Overall viewer response for viewpoint KVP-1 is considered moderately low for both motorists and Niles Canyon Railway passengers.

KVP-1: PROPOSED CONDITION
Resource Change
As shown in Figure 17 (KVP-1 Simulated View), proposed wire mesh rock drapery would be attached to the top of the slope and would extend down to the roadway. Movable K-Rail would also be extended from the Rosewarnes Bridge Underpass to the end of the drapery area, with minor visual effect. Black or brown mesh would be used to blend with the surrounding and underlying colors of the existing slope. The mesh would appear transparent, shading but not completely blocking the existing view of the natural slope. Over time some vegetation would grow through the mesh, reducing visibility and contrast of the mesh further. As a result of the wire mesh, color and texture contrast would be moderate, declining over time. Consequently, intactness and unity of the view would decline slightly, but overall change to visual quality would be moderate or moderately low. Overall, this would represent a moderately low level of visual change.
Figure 16. Key Viewpoint 1 Existing Condition
Figure 17. Key Viewpoint 1 Simulated View
Chapter 2: Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures

Key ViewPoint (KVP-2) Eastbound View of Rock Drapery System

KVP-2: EXISTING CONDITION

KVP-2 is located approximately one-half-mile east of KVP-1. These views were selected to depict a rock drapery system proposed at PM 12.6, to contain falling rocks from the rocky exposed slope. Visual character and quality of these viewpoints is essentially similar to that described for KVP-1. Views in this location are dominated to a greater degree than KVP-1 by naturally exposed rock and sparse chaparral vegetation. Also, dramatic open views of Alameda Creek and a backdrop of riparian and oak forest to the south, tend to draw viewers’ attention strongly southward and away from the rock slopes in this segment. As throughout Niles Canyon, overall visual quality here is high, particularly due to the vivid open views of the creek and forest toward the south (outside of the photo frame). Visual quality of all of the assessment unit and of Niles Canyon as a whole is high.

Viewer Response

Again, viewer sensitivity of motorists and Niles Canyon Railway passengers in this location are high. Viewer exposure of motorists to the project features is also generally high; however, duration of view would be approximately seven to eight seconds at 30 mph. Accounting for this fleeting duration of view, exposure of motorists is moderately low. The Niles Canyon Railway parallels the highway approximately 300 feet to the east of KVP-2 in the creek bottom. However, views of the rock drapery from the Niles Canyon Railway would be very limited due to heavy filtering of intervening tree canopy. Exposure of Niles Canyon Railway passengers to this feature would be low. Overall viewer response for viewpoints KVP-2 is considered moderately low for motorists and low for Niles Canyon Railway passengers.

KVP-2: PROPOSED CONDITION

Resource Change

As shown in Figure 19 (KVP-2 Simulated View) proposed wire mesh rock drapery would be attached to the top of the slope and extend down to six feet above the roadway. Black or brown mesh could be used to blend with the surrounding and underlying colors of the existing slope. The mesh would appear transparent, shading but not blocking the existing view of the natural slope. Particularly beyond a viewing distance of roughly 100 yards, the mesh would appear indistinct and would not be obvious. Over time, some vegetation would grow through the mesh, reducing visibility and contrast of the mesh further. Color and texture contrast of the mesh system would be moderate, declining over time. In addition to the wire mesh, a rockfall fence would be installed 25 to 30 feet above road grade. The fence would follow the curvature of the existing slope. Due to its elevated location, the fence would only be noticed in more distant views, in which it would remain visually subordinate; as motorists approach the fenced area, its elevated position would place it above and outside the normal range of view of motorists. As a result of the wire mesh and fencing, overall intactness and unity of these views would decline slightly, but overall change to visual quality would be moderate or moderately low. Overall resource change would be moderately low. In the context of moderately low viewer response of motorists and Niles Canyon Railway passengers due to limited duration of view, this would be a moderately low impact.
Figure 18. Key Viewpoint 2 Existing Condition
Figure 19. Key Viewpoint 2 Simulated View
KEY VIEWPOINT (KVP-3) – Westbound View of Rock Cuts and Retaining Walls at Low Speed Curve Improvement

KVP-3: EXISTING CONDITION
KVP-3 is located approximately one-half-mile south of Alameda Creek Bridge (Bridge 33-0036). This view was selected to depict proposed rock cuts and retaining walls, representing the most visible components of a proposed low speed curve improvement. Visual character of this viewpoint is dominated by the adjacent, overhanging tree canopy and the very steep canyon slope abutting the road on the west. The viewpoint is located a relatively short distance from the point where the NRHP-eligible Sunol Aqueduct adjoins the highway shoulder, but that portion of the aqueduct is out of view from this viewpoint and from the proposed improvements due to the sharp curve of the road, and dense intervening vegetation. The overall visual quality is high throughout Niles Canyon.

Viewer Response
As throughout the assessment unit, viewer sensitivity of motorists and Niles Canyon Railway passengers in this location are high. Viewer exposure of motorists to the project features is also high, but as with the previous viewpoints, duration of view would be very brief due to the road’s tight curves and intervening dense vegetation, approximately eight seconds at 45 mph. Accounting for duration of view, exposure of motorists is moderately low. The Niles Canyon Railway parallels the highway approximately 300 feet to the east of KVP-3, in the creek bottom. However, views of the curve improvements from the Niles Canyon Railway would be negligible due to heavy filtering of intervening tree canopy and the fact that the train is well below grade of the roadway. Exposure of Niles Canyon Railway passengers to this feature would be low. Overall viewer response for viewpoint KVP-3 is considered moderately low for motorists and low for Niles Canyon Railway passengers.

KVP-3: PROPOSED CONDITION
Resource Change
As shown in Figure 21 (KVP-3 Simulated View), the proposed rock cuts and barriers would be small in scale, the first cut approximately 33 feet in length and eight to ten feet in height, the second cut approximately 40 feet in length and eight to ten feet in height. Between the two rock cuts, a three-foot-tall, 237-foot-long concrete retaining wall would be installed. As illustrated in Figure 21, the small area of rock cuts would remain unobtrusive, exposing a rock surface with a natural texture and color that would generally blend with the setting. The cuts and barrier would be in shade nearly all of the time, further reducing their visibility and conspicuousness. As described in VISUAL-1, the concrete barrier would be stained in dark earth-tone to reduce visual contrast and blend with the setting. The color and texture contrast of the rock cuts and barrier would be moderately low. Intactness and unity of motorists’ views would decline slightly, but to a moderately low degree. The overall visual change would be moderately low. In the context of moderately low to low viewer response of motorists and Niles Canyon Railway passengers due to limited duration of view, this would be a moderately low impact.
Figure 20. Key Viewpoint 3 Existing Condition
Figure 21. Key Viewpoint 3 Simulated View
KEY VIEWPOINT (KVP-4)—Eastbound View of Widening and Rail Replacements on Alameda Creek Bridge and Overhead (33-0039)

KVP-4: EXISTING CONDITION
Figure 22 depicts the existing view at KVP-4. KVP-4 is located at the western terminus of NRHP-eligible Alameda Creek Bridge and Overhead (Bridge 33-0039), approximately 0.9-mile east of Alameda Creek Bridge (Bridge 33-0036). KVP-4 was selected to depict proposed widening and barrier rail replacement on the bridge. The visual quality at this location is high. Visual character is similar as the previous viewpoints. Views from the bridge tend to be more expansive than in the rest of the corridor due to the elevated viewing position above the nearby tree canopy. Views of open water of Alameda Creek are also visible from the bridge. KVP-4 is of concern because of the bridge’s status as a NRHP-eligible property.

Viewer Response
As discussed above, viewer sensitivity of motorists and Niles Canyon Railway passengers throughout this assessment unit are high. Viewer exposure of motorists to the project features at this location is also high. The replacement railing would be in the immediate foreground of the view, at a distance of a few feet. Because the bridge is relatively long, (over 1,000 feet), duration of view of the proposed changes would be longer than at other viewpoints, roughly 14 seconds at 30 mph. Overall, viewer response of motorists on the bridge is thus considered high. The Niles Canyon Railway closely parallels the highway to the west of the bridge at a distance of between roughly 50 and 300 feet. However, the proposed railing change would be visually inconspicuous to Niles Canyon Railway viewers, and roadway widening would be unnoticed. Overall viewer response of NCR passengers to these changes would be low.

KVP-4: PROPOSED CONDITION
Resource Change
Proposed changes to Alameda Creek Bridge and Overhead (Bridge 33-0039) would include removal of the existing three-foot-wide concrete curb to provide shoulders; replacement of the existing tubular steel rail with a contemporary Type ST-20S see-through metal safety rail. Alternatively, a ST-70 see-through metal rail could be used. The two proposed railing types are depicted in Figures 23 and 24, respectively.

As depicted in Figures 23 and 24 (KVP-4 Simulated Views), the change in visual character and quality of views of the replacement bridge from the eastbound approach would be minor. From the perspective of most viewers, the changes to the bridge railing would be subtle and would likely go unnoticed. The existing and proposed railing types are both open see-through metal designs and appear similar to lay observers. The lane widening and railing replacement would contribute to a less historic character than the existing bridge for some observers, but this change would be subtle. Visibility of the landscape from the bridge would not be affected by the railing replacement. The overall change to visual character and quality would be low. Effects on Niles Canyon Railway viewers would be negligible.
Figure 22. Key Viewpoint 4 Existing Condition
Chapter 2- Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures

Figure 23. Key Viewpoint 4 Simulated View ST-20S Rail
Figure 24. Key Viewpoint 4 Simulated View with ST-70 Rail
KEY VIEWPOINT (KVP-5)—Stonybrook Creek Culvert Replacement

KVP-5: EXISTING CONDITION
Figure 25 depicts the existing view at KVP-5. KVP-5 is located at Stonybrook Creek, just west of the intersection of Palomares Road and SR 84, and the Farwell Railroad Crossing/Underpass (at PM 12.91). The existing culvert is located beneath this section of roadway and is not visible from the road. Figure 26 depicts the existing structure, and Figure 27 the proposed structure as it would appear from the Alameda Creek channel. However, because recreational use of Alameda Creek is not permitted, no viewers would actually see the structure from this viewpoint, but rather, would see only the portions of the project visible from the roadway — i.e., widening of the road for a new turn-lane, and introduction of concrete barriers.

Here, as elsewhere in the Niles Canyon Assessment Unit, visual quality is high. Visual character is as described for the previous viewpoints.

Viewer Response
Viewer sensitivity of motorists and Niles Canyon Railway passengers throughout this assessment unit is high. Viewer exposure of both motorists and Niles Canyon Railway passengers to both the existing culvert and proposed bridge, however, is limited or nonexistent due to the position of the structure below the roadway, its limited visual exposure due to the tightly curving highway alignment, and abundant intervening vegetation.

The vertical faces of the proposed bridge structure and associated retaining walls, like the existing structure, would be below the level of the roadway and would not be visible from the angle of view of motorists. Visible features of the project would include up to approximately 240 feet of new Type 736 concrete barrier with painted tubular steel bicycle railing on top, located on either side of the roadway outside the shoulder. In addition, as part of the Niles Canyon Safety Improvements Project (Short Term Improvements) approximately 80 feet of the roadway would be widened to accommodate a third left-turn lane at Palomares Road. These features would be evident to passing motorists very briefly (approximately 4 seconds at 40 mph).

The Farwell Crossing of the Niles Canyon Railway over Alameda Creek passes above SR 84 roughly 130 feet to the east of the existing and proposed Stonybrook Creek Bridge. The proposed structure would be fleetingly visible to north/west-facing passengers on the Niles Canyon Railway. Because intervening terrain and dense vegetation block views of the creekbed from the Niles Canyon Railway on both approaches to the Farwell crossing, open views to the Stonybrook Creek structure would also last only a few seconds and would be visually subordinate due to its position far below the railroad line.

Viewer exposure of the project would be limited primarily to brief views of a wider roadway and new concrete barriers. Overall viewer response to this minimal level of exposure would be low.

KVP-5: PROPOSED CONDITION
Resource Change
As described above, the vertical faces of the proposed bridge and associated abutments and retaining walls would not be visible to motorists on SR 84, and would be only momentarily visible.
to Niles Canyon Railway passengers. Approximately 100 feet of new Type 736 concrete barriers with painted tubular steel bicycle railing on top would be visible on both sides of the bridge to passing motorists briefly (approximately 4 seconds at 40 mph). Visual intactness and unity of the scene in the immediate vicinity of the new barrier would be lowered to a minor degree; but the low height and limited scale of the barrier would remain visually subordinate to the surrounding tree canopies and canyon slopes. The visual character of the concrete barrier would contrast with the natural surroundings, but is also a typical and characteristic feature of any public roadway and not a highly conspicuous or incongruous feature. Similarly, the existing two-lane roadway would be widened to accommodate a third left-turn lane at Palomares Road for a distance of approximately 80 feet. This widening would increase the visual prominence of the roadway slightly, but over a very small distance that would not be noticed by most observers. For these reasons – the typical character of the proposed features and their very limited scale – visual simulations from the roadway were not necessary for this analysis of the proposed culvert replacement. Simulation of the proposed structure is provided in Figure 27. The purpose of simulating the proposed structure is to serve as a visual aid to better illustrate the fish passage improvements that would occur with the replacement of the Stonybrook Creek culvert with a clear span bridge. The barriers, railing and widening would represent a moderately low level of overall visual resource change for motorists. Similarly, the momentary visibility of all bridge features to Niles Canyon Railway passengers would represent a low level of overall visual resource change. In the context of low viewer response due to limited viewer exposure, this would be a moderately low impact for motorists. Impacts to Niles Canyon Railway passengers would be negligible.

Temporary visual impacts due to construction would be expected in this location, but would be relatively short-term. Some vegetation removal within Alameda Creek would be required on both sides of the roadway for construction of the new bridge and associated retaining walls. The visual character and quality of the vicinity would not be strongly affected because views of remaining adjacent trees and shrubs, as well as natural canyon slopes would remain visually dominant, and visual quality would remain high. Any removed riparian vegetation would be replanted and/or would be restored naturally over time. Related long-term visual change would be negligible.
Figure 25. KVP-5 – Existing Condition from SR-84 at Stonybrook Creek, looking east.
Figure 26. KVP-5 - Existing Condition at Stonybrook Creek Culvert, seen from south of SR-84
Figure 27. KVP-5 Simulated View of Stonybrook Creek Bridge, seen from south of SR-84
SUNOL VALLEY VISUAL ASSESSMENT UNIT

KEY VIEWPOINTs (KVP-6, KVP-7) – Eastbound (KVP-6) and Westbound (KVP-7) SR-84 at the Pleasanton-Sunol Road/Sunol Water Temple intersection

KVP-6, KVP-7: EXISTING CONDITION
KVP-6 and KVP-7 depict the intersection of Niles Canyon Road/SR 84, Pleasanton-Sunol Road, Paloma Way, and the entry lane to the Sunol Water Temple, viewed from eastbound and westbound directions. The juncture of roads forms a wide, almost circular crossroads immediately east of the bridge crossing Arroyo de la Laguna and the Main Street entry to the town of Sunol. The entry gates visible in the photo are contributing elements of the Sunol Water Temple, a NRHP-property. Their distinctive period style, together with the large, very old oak tree framing the entry, form a visually striking landmark that is an integral part of the historic property, and which lends the intersection high vividness and visual quality. The view was selected to depict the various safety improvements proposed at this intersection.

VIEWER RESPONSE
As discussed above, viewer sensitivity of motorists throughout this assessment unit are high. Viewer exposure of motorists to the project features at this location is also high. Motorists must stop at the three-way intersection at stop signs, extending the duration of their view. Overall viewer response of motorists is considered high.

KVP-6, KVP-7: PROPOSED CONDITION
Resource Change (PM 17.28)
Proposed project actions in the intersection would include installation of seven new traffic signals, addition of a right turn pocket on Pleasanton-Sunol Road (to the left of this photo frame), and removal of two large trees in the central intersection (the trees adjoining the Sunol Water Temple gates would not be affected). Refer to Figures 29 and 31 for simulations of the proposed improvements. As shown in Figure 31 (KVP-7 Simulated View), this would result in an overall change to a somewhat less rural character. The loss of a large oak tree in the intersection would mark a decline in existing vividness. However, the intersection character would remain dominated by numerous other mature trees in the near foreground, views of distant hills would remain, and new features such as signals and signs would remain visually subordinate to the predominantly natural setting character.

With retention of some of the large oaks within the intersection as proposed, the vertical and horizontal lines of the signal poles would remain co-dominant or subordinate to the existing tree canopies. The removal of one large oak near the Sunol Corners Little Market would represent a decline in vividness. In addition to removal of the two trees in the central intersection, removal of approximately six other smaller trees north of the intersection on Pleasanton-Sunol Road would have less effect, leaving highly intact views of the natural landscape behind them, and overall visual quality from this approach is high. The newly constructed project features would remain subordinate within the overall setting at this location, with large tree canopies in the immediate foreground, and views of the Sunol Water Temple, intact hills, and open fields continuing to dominate views. Visual quality would remain moderately high, and the overall resource change would be moderate or moderately low. With recommended measure VISUAL-2, oak trees
removed in and around the intersection would be replaced. Though vividness and intactness would not be fully restored until approximately 20-25 years, they would be partially restored in approximately 10-15 years, reducing the overall impact at the intersection over the long term to a moderately low level. Even in the context of moderately high viewer response of motorists, this level of resource change would remain moderate.
Figure 28. Key Viewpoint 6 Existing Condition
Figure 29. Key Viewpoint 6 Simulated View
Figure 30. Key Viewpoint 7 Existing Condition
Figure 31. Key Viewpoint 7 Simulated View
KEY VIEWPOINT (KVP-8) – Westbound SR-84 on Paloma Way, Looking West

KVP-8: EXISTING CONDITION
KVP-8 depicts the view from Paloma Way approaching the town of Sunol and the Sunol Water Temple entrance from I-680 to the east. This segment is marked by a visually striking tree allee of walnut, oak and sycamore trees (an allee is a walkway or path lined with trees or tall shrubs). The allee was investigated as a possible historic resource, but was not found to be an eligible historic property or contributing element. However, it remains a highly distinctive and important landscape element, contributing to a high degree of vividness, intactness and unity in the view from the road, and serving as an important community landmark marking the approach and entry to the town of Sunol. Younger sycamore trees make up the allee’s south side, and are in good condition. The trees on the north side, mainly older native black walnut, are intermittent, with several missing, damaged, or disfigured trees, and some trimmed to clear adjacent power lines.

VIEWER RESPONSE
As discussed above, viewer sensitivity of motorists throughout this assessment unit are high. Viewer exposure of motorists to the project features at this location is also high. Motorists must stop at the intersection, extending the duration of their view. Overall viewer response of motorists is considered high.

KVP-8: PROPOSED CONDITION
Resource Change
As depicted in Figure 33 (KVP-8 Simulated View) of westbound SR 84 on Paloma Way, proposed project actions in this section of Paloma Way would include only the addition of a MGS barrier. The tree allee would not be affected and project visual effects would be negligible.
Figure 32. Key Viewpoint 8 Existing Condition
Figure 33. Key Viewpoint 8 Simulated View
**No-Build Alternative**
The No-Build Alternative would have no impact to aesthetics.

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

**VISUAL-1: Cut slope and rock drapery measures**
- Overall height of cut slopes will be minimized to the greatest extent feasible.
- Color staining of concrete walls will be employed to blend in with the surrounding setting and reduce overall contrast.
- Maintain consistent aesthetic treatments throughout the entire corridor.
- Wire mesh will match the color and value of the underlying soil substrate to the greatest feasible extent to minimize visual contrast.

**VISUAL-2: Tree and Vegetation removal measures**
- Protect existing vegetation outside of clearing and grubbing limits from the contractor’s operations, equipment, and materials storage.
- Limit clearing and grubbing behind upslope retaining walls to a maximum of five feet from the back of the wall.
- All disturbed areas will be reseeded with permanent erosion-control grasses.

**VISUAL-3: Construction Impact Measures**
- Place unsightly material, equipment storage and staging so that they are not visible within the foreground of the highway corridor. Where siting is unavoidable, material and equipment would 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.
- Limit 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 would be removed and contour graded to provide a natural appearance and bend with the adjacent landform.

**VISUAL-4: Color Signal Poles**
- Signal poles at the Pleasanton-Sunol Road shall be painted a low-gloss color to reduce glare and enhance blending with natural surroundings.

### 2.1.6 Cultural Resources

#### 2.1.6.1 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 National Register of Historic Places. 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). On January 1, 2004 (amended January 1, 2014), a Section 106 Programmatic Agreement (PA) between the Advisory Council, the Federal Highway Administration (FHWA), State Historic Preservation Officer (SHPO), and Caltrans went into effect for Department 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).

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

Historical resources are considered under the California Environmental Quality Act (CEQA), as well as CA Public Resources Code (PRC) Section 5024.1, which established the California Register of Historical Resources. PRC Section 5024 requires state agencies to identify and protect state-owned resources that meet National Register of Historic Places 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 State Historic Preservation Officer (SHPO) before altering, transferring, relocating, or demolishing state-owned historical resources that are listed on or are eligible for inclusion in the National Register or are registered or eligible for registration as California Historical Landmarks.

### 2.1.6.2 Affected Environment

A Historic Property Survey Report (HPSR) for the Niles Canyon Safety Improvements Project was completed November 15, 2007 (Caltrans, 2007). The HPSR is a summary document used as Caltrans’ decision-making document for cultural resource determinations; the HPSR includes an Archaeological Study Report (ASR) and a Historic Resources Evaluation Report (HRER). The ASR documents both positive and negative archaeological study results and demonstrates that a reasonable level of effort occurred to identify archaeological properties. The HRER documents identification and evaluation efforts for historical built environment resources. Additional archaeological surveys were undertaken in 2014 resulting in a newly identified archaeological site. Archaeological testing and evaluation of the newly identified archaeological site was completed in August 2015 (Caltrans, 2015c). Consultation with the SHPO on the Finding of Effect is ongoing and is anticipated to be finalized in the winter of 2017.

The affected environment for Cultural Resources is defined as the project study limits on SR-84 from PM 10.8 to PM 18.0, which includes all known boundaries of cultural resources which may be affected by the undertaking. 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 each of the SR-84 centerline from PM 10.8 to 18.0. The cultural study area, also called the Area of Potential Effects (APE), was developed to identify cultural resources within the entire project footprint.
The discussion of cultural resources identified within the APE is split into two sections: Built/Architectural Resources and Archeological Resources.

**Built/Architectural Resources**

Several historic resources are located within the APE, including the Niles Canyon Transcontinental Historic District, the Union Pacific Railroad, the Spring Valley Water Company’s Alameda Creek System Historic District (including the Sunol Aqueduct and the Sunol Water Temple Entry Gates), the Alameda Creek Bridge and Overhead (Bridge 33-0039), and the Vallejo Aqueduct System.

**Niles Canyon Transcontinental Railroad Historic District**

The NCTR Historic District has been listed on the NRHP since October 13, 2010. The NRHP nomination for the NCTR Historic District 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 on SR-84.

**Union Pacific Railroad**

The Union Pacific Railroad is eligible for the NRHP 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 Union Pacific Railroad consists of approximately six miles of track between Niles and Pleasanton, the 1907 Silver Springs truss bridge, Tunnels #1 and #2, and the railroad from Niles Junction to Sunol.

**Spring Valley Water Company’s Alameda Creek System Historic District (including the Sunol Aqueduct and the Sunol Water Temple Entry Gates)**

The Spring Valley Water Company’s Alameda Creek System Historic District (which includes the Sunol Aqueduct and the Sunol Water Temple Entry Gates) is eligible for the NRHP 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 Spring Valley Water Company’s Alameda Creek System consists of the water conveyance system developed along the Alameda Creek as well as the several properties associated with the functioning of that system.
Chapter 2- Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures

Sunol Aqueduct
The Sunol Aqueduct is eligible for the NRHP under Criterion A for its association with the history of urban water supply in California. 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 Sunol Aqueduct is a 4.9-mile long water conveyance device, which parallels Alameda Creek in Niles Canyon between the communities of Sunol and the Niles District of Fremont in southern Alameda County. It is one part of a larger whole, the Alameda Creek System developed by the Spring Valley Water Company (SVWC), which is now part of the Hetch Hetchy System administered by the Water Supply Division of the SFPUC.

Sunol Water Temple Entry Gates
The Sunol Water Temple Entry Gates are eligible for the NRHP under Criterion C for its architecture and as a work of master architect Willis Polk. Criterion C of the NHPA qualifies a property for inclusion to the NRHP by embodying the distinctive characteristics of a type, period, or method of construction or that represents the work of a master, or that possesses high artistic values, or that represents a significant and distinguishable entity whose components may lack individual distinction. The Sunol Water Temple Entry Gates are located at the intersection of Paloma Way and Niles Canyon Road. The Gates mark the entrance to the long straight paved drive that leads to the Sunol Water Temple. They are constructed of reinforced concrete curved pylons with metal gates. The pylons are concave with a tripartite design that sits on a simple pedestal, topped with simple capitals. The pylons are also adorned with polychrome relief.

Alameda Creek Bridge and Overhead (Bridge 330039)
The Alameda Creek Bridge and Overhead is eligible for the NRHP under Criterion C, at the local level of significance. The significance of the Alameda Creek Bridge and Overhead is concentrated on its concrete box girder design. Constructed in 1948, the Alameda Creek Bridge and Overhead is the oldest surviving, and possibly the first, box-girder bridge in the San Francisco Bay Area. It is the only one in the Bay Area dating to the pre-1950 period when the type was still uncommon. The bridge has not undergone significant alterations since it was constructed in 1948.

Vallejo Aqueduct System
Vallejo Aqueduct System is eligible for the NRHP under Criteria A and C. The Vallejo Aqueduct and Turn-out Structure was determined eligible under Criterion A, as a historic property associated with events that have made a significant contribution to the broad patterns of our history as well as Criterion C, as a resource that embodies the distinctive characteristics of a type, period, or method of construction. This water-conveyance system, originally built in about 1841, possibly altered between 1853 and 1856, and altered in 1887, was made up of three components: the diversion structure or dam, the turnout and gatehouse, and the conduit or aqueduct. The system was abandoned in 1900.

Archaeological Resources
Cultural resource testing identified an archaeological site within the APE. The archaeological site, located adjacent to Caltrans right of way and is eligible for the NRHP under Criterion D, as a historic property that has yielded or may be likely to yield information important in prehistory or history.
Chapter 2- Affected Environment, Environmental Consequences, and
Avoidance, Minimization, and/or Mitigation Measures

The Native American Heritage Committee (NAHC) was contacted on September 25, 2007 and again on September 18, 2014 regarding the presence of sacred lands in the project area and a list of Native American contacts. The NAHC response 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 archaeological and Native American resources. Letters were sent to individuals and organizations listed below:

- Ms. Jakki Kehl, letter was sent on October 29, 2007 and September 22, 2014
- Ms. Katherine Erolinda Perez, letter was sent on October 29, 2007 and September 22, 2014
- Ms. Linda G. Yamane, letter was sent on October 20, 2014
- Ms. Irene Zwierlein, Amah Mutsun Tribal Band of Mission San Juan Bautista, letter was sent on October 29, 2007 and September 22, 2014
- Ms. Michelle Zimmer, Amah Mutsun Tribal Band of Mission San Juan Bautista, letter was sent on September 22, 2014
- Mr. Tony Cerda, Costanoan Rumsen Carmel Tribe, letter was sent on October 20, 2014
- Ms. Ann Marie Sayers, Indian Canyon Mutsun Band of Costanoan, letter was sent on October 29, 2007 and September 22, 2014
- Ms. Rosemary Cambra, Muwekma Ohlone Indian Tribe of the SF Bay Area, letter was sent on October 29, 2007 and September 22, 2014
- Mr. Andrew Galvan, The Ohlone Indian Tribe, letter was sent on October 29, 2007 and September 22, 2014
- Ms. Ramona Garibay, Trina Marine Ruano Family, letter was sent on October 29, 2007 and September 22, 2014

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

If human remains are discovered, 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 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-Archaeology 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. Impacts to human remains would be less-than-significant given the implementation of Caltrans standard avoidance and minimization practices.

2.1.6.3 Environmental Consequences

Build Alternative

The project would result in no substantial adverse change to the Niles Canyon Transcontinental Railroad Historic District, the Union Pacific Railroad, the SVWC’s Alameda Creek System Historic District (including the Sunol Aqueduct and the Sunol Water Temple Entry Gates), or the Vallejo Aqueduct System. Caltrans is currently consulting with the SHPO on Section 106 No Historic Properties Affected determination for these properties.
Chapter 2: Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures

The Build Alternative would have a Section 106 determination of No Adverse Effect to the Alameda Creek Bridge and Overhead (Bridge 33-0039) and Vallejo’s Aqueduct and a Section 106 determination of Adverse Effect to an archaeological site within the project limits. Both are discussed in further detail below.

**Built/Architectural Resources**

**Alameda Creek Bridge and Overhead (Bridge 33-0039)**

The Niles Canyon Safety Improvement Project would remove the curb and replace the barrier rail on the Alameda Creek Bridge and Overhead. Work at the Alameda Creek Bridge and Overhead includes installing overhead protection under the existing bridge, removing the existing bridge rails and overhangs, drilling and bonding dowels, placing concrete formwork, pouring the concrete for the overhangs, curing the new concrete to the required strength; placing carbon fiber reinforced polymer strips in the new overhangs, forming and pouring concrete for the new bridge rails, installing new electrical conduit and pull boxes on the outside face of the bridge girders; removing and repairing unsound concrete in the bridge; cleaning and replacing the expansion joints; placing polyester concrete overlay on the bridge deck; structure excavation and backfill at the abutments; and reconstruction of the bridge abutments and wingwalls.

The significance of the Alameda Creek Bridge and Overhead is concentrated on its concrete box girder design. The bridge has not undergone significant alterations since it was constructed in 1948. The Niles Canyon Safety Improvements Project would require formwork to be attached to the box girder with bolts. Once construction is complete and the formwork is removed, the holes in the box girder would be patched and stained to match the color of the surrounding concrete. The proposed bridge railing replacement would maintain the see-through appearance of the existing Alameda Creek Bridge and Overhead. At either end of the bridge rail, concrete end blocks with etchings that mimic the Art Moderne styling of the existing bridge rail end points would be installed. The project would not result in physical damage to any portion of the bridge that contributes to its eligibility for the NRHP. As of September 2016, Caltrans is consulting with the SHPO on a No Adverse Effect determination.

This property is considered a Section 4(f) resource, however, the Niles Canyon Safety Improvements Project would not adversely impact the Alameda Creek Bridge and Overhead (refer to Appendix B, Section 4(f)).

**Vallejo’s Aqueduct**

The Niles Canyon Safety Improvements Project would construct rockfall protection systems in the vicinity of Vallejo’s Aqueduct, however, there would be no adverse impact to the aqueduct during construction. As of September 2016, Caltrans is consulting with the SHPO on No Adverse Effect determination.

This property is considered a Section 4(f) resource, however, the Niles Canyon Safety Improvements Project would not use or adversely impact Vallejo’s Aqueduct (refer to Appendix B, Section 4(f)).

**Archaeological Resources**

Niles Canyon Safety Improvements Project
Construction of the Build Alternative would adversely affect one archaeological property. As of September 2016, Caltrans is consulting with the SHPO on an Adverse Effect determination and developing a Memorandum of Agreement (MOA) for the treatment of the archaeological site. Caltrans is also consulting with Native American tribes in the area regarding the treatment of the archaeological site.

Section 4(f) does not apply to the archaeological site because the site is important for what can be learned by data recovery and has minimal value for preservation in place. For more information, refer to Appendix B. Section(f).

**No-Build Alternative**

The No-Build Alternative would have no impact to cultural resources.

2.1.6.4 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-Archaeology 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.** If archaeological resources cannot be avoided, a pre-construction Phase III Data Recovery Plan will be implemented by a qualified archaeologist for the significant archaeological site that is directly affected. Data Recovery will only occur in the portion of the site being directly affected.

**CULTURAL-4.** Caltrans is preparing an Archaeological Monitoring plan to be implemented during construction. This would include establishing an archaeological monitoring area and having an archaeologist monitor job site activities within the archaeological monitoring area to reduce the project’s impacts to the resource within the project limits. Caltrans will have an archaeologist monitor job site activities within the archaeological monitoring area (AMA). No work can be conducted within the AMA unless the archeological monitor is present. Reference Caltrans Standard Specification 14-2.03 (Caltrans, 2015a).

**CULTURAL-5.** Caltrans will establish an Environmentally Sensitive Area around the Vallejo Aqueduct System to protect this resource from inadvertent damage during construction activities.

**CULTURAL-6.** Caltrans will rehabilitate the Alameda Creek Bridge and Overhead according to the guidance provided by the Secretary of the Interior’s Standards for Rehabilitation in order to ensure that this resource retains its historically significant features.
Chapter 2- Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures

CULTURAL-7. 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 Storm Water 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 Niles Canyon Safety Improvements Project Location Hydraulic Study (Caltrans, 2014a) and Niles Canyon Safety Improvements Project Location Hydraulic Study (Supplemental) (Caltrans, 2015d). The Niles Canyon Safety Improvements Project Location Hydraulic Study was completed on December 29, 2014 and the Niles Canyon Safety Improvements Project Location Hydraulic Study (Supplemental) was completed on November 4, 2015. The affected environment for the Hydrology and Floodplains analysis is defined as the project study limits on SR-84 from PM 10.8 to PM 18.0.

Typical of watersheds in the central and southern California areas, the Alameda Creek watershed (refer to Figure 38 in Section 2.2.2) 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. 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 Niles Canyon Safety Improvements 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.

Relevant FIRMs of the project location are identified in Figures 34 to 37.
Figure 34. Flood Insurance Rate Map, from Mission Boulevard (SR-238) to the Alameda Creek Bridge (33-0036)
Figure 35. Flood Insurance Rate Map, from just east of the Alameda Creek Bridge (33-0036) to east of Sunol
Figure 36. Flood Insurance Rate Map, town of Sunol
Figure 37. Flood Insurance Rate Map, from east of the town of Sunol to I-680
2.2.1.3 Environmental Consequences

**Build Alternative**

All elements of the Niles Canyon Safety Improvements Project are located outside of the Base Floodplain and therefore, would not involve any of the following construction or flood-related impacts:

- A significant risk (to life or property).
- The practicability of alternatives to any longitudinal encroachments.
- Support of any incompatible floodplain development.
- A significant potential for interruption or termination of a transportation facility that is needed for emergency vehicles or provides a community’s only evacuation route.
- A significant adverse impact on natural and beneficial floodplain values. Natural and beneficial floodplain values include fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, aquaculture, forestry, natural moderation of floods, water quality maintenance, and groundwater recharge.

**No-Build Alternative**

The No-Build Alternative would have no impact to hydrology and floodplains.

2.2.1.4 Avoidance, Minimization, and/or Mitigation Measures

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

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

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

State Water Resources Control Board and Regional Water Quality Control Boards
The SWRCB administers water rights, sets water pollution control policy, and issues water board orders on matters of statewide application, and oversees water quality functions throughout the state by approving Basin Plans, TMDLs, and NPDES permits. 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’s MS4 permit covers all Department rights-of-way, properties, facilities, and activities in the state. The SWRCB or the RWQCB issues NPDES permits for five years, and permit requirements remain active until a new permit has been adopted.

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

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

To comply with the permit, the Department is developing a Statewide Storm Water Management Plan (SWMP) to address storm water pollution controls related to highway planning, design, construction, and maintenance activities throughout California. The SWMP assigns responsibilities within the Department for implementing storm water management procedures and practices as well as training, public education and participation, monitoring and research, program
evaluation, and reporting activities. The SWMP describes the minimum procedures and practices the Department uses to reduce pollutants in storm water and non-storm water discharges. It outlines procedures and responsibilities for protecting water quality, including the selection and implementation of BMPs. The proposed project will be programmed to follow the guidelines and procedures outlined in the latest SWMP to address storm water runoff.

Construction General Permit

Construction General Permit, Order No. 2009-2009-DWQ (adopted on September 2, 2009 and effective on July 1, 2010), as amended by Order No. 2010-0014-DWQ (effective February 14, 2011) and Order No. 2012-0006-DWQ (effective on July 17, 2012). 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 (SWPPPs); to implement sediment, erosion, and pollution prevention control measures; and to obtain coverage under the Construction General Permit.

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

Section 401 Permitting

Under Section 401 of the 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 Niles Canyon Safety Improvements Project (Caltrans, 2016d) 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 September 1, 2016. The affected environment for the Water Quality Study is defined as the project study limits on SR-84 from PM 10.8 to PM 18.0.

The project site is within Hydrologic Sub-Area (HSA) 204.20 from PM 10.8 to 11.86, and HSA 204.30 from PM 11.86 to 18.0. Specifically, the project is located within the Lower Alameda Creek sub-watershed (Hydrologic Unit Code (HUC) 180500040603) from PM 10.8 to 16.88, the Arroyo de la Laguna sub-watershed (HUC 180500040503) from PM 16.88 to 17.34, and the Upper Alameda Creek sub-watershed (HUC 180500040602) from PM 17.34 to 18.0. Runoff from the site directly discharges to Arroyo de la Laguna, and Alameda and Stonybrook Creeks. Arroyo de la Laguna crosses SR 84 at PM 17.23, Alameda Creek flows approximately parallel to SR 84 from the start of the project to PM 16.2 and Stonybrook Creek crosses SR 84 at approximate PM 12.9. Both Arroyo de la Laguna and Alameda Creek are CWA Section 303(d) listed as water bodies with limited water quality segments. Lastly, the project is located within the boundary of the Alameda County Municipal Separate Storm Sewer System (MS4).

The Region 2 Basin Plan establishes beneficial uses for waterways and water bodies within the region. Beneficial Uses include: Agricultural Supply (AGR), Areas of Special Biological Significance (ASBS), Municipal and Domestic Supply (MUN), Freshwater Replenishment (FRSH), Groundwater Recharge (GWR), Industrial Service Supply (IND), Industrial Process Supply (PRO), Commercial and Sport Fishing (COMM), Shellfish Harvesting (SHELL), Cold Freshwater Habitat (COLD), Estuarine Habitat (EST), Marine Habitat (MAR), Fish Migration (MIGR), Preservation of Rare and Endangered Species (RARE), Fish Spawning (SPWN), Warm Freshwater Habitat (WARM), Wildlife Habitat (WILD), Contact/Non-Contact Water Recreation (REC1/REC2), and Navigation (NAV). Beneficial uses are listed for Arroyo de la Laguna, and Alameda and Stonybrook Creeks. Table 16, on the following page, summarizes these beneficial uses.\(^{19}\)

**Table 16. Beneficial Uses of Water Bodies in the Niles Canyon Safety Improvements Project limits**

<table>
<thead>
<tr>
<th>Water Body</th>
<th>Beneficial Uses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AGR</td>
</tr>
<tr>
<td>Alameda Creek</td>
<td>X</td>
</tr>
<tr>
<td>Arroyo de la Laguna</td>
<td>X</td>
</tr>
<tr>
<td>Stonybrook Creek</td>
<td>X</td>
</tr>
</tbody>
</table>

The Alameda Creek watershed area is approximately 40,500 acres (approximately 633 square miles), with an average annual rainfall of 21 inches (refer to Figure 38). Runoff from much of the southern Alameda Creek watershed is collected in Calaveras and San Antonio Reservoirs (ACWD, 2014). Runoff from much of the southeast portion of the 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 some is used for groundwater recharge.

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.
Figure 38. Alameda Creek Watershed Map

2.2.2.3 Environmental Consequences

**Build Alternative**

**Construction (Temporary) Impacts**

Potential temporary impacts to existing water quality would result from staging and active construction areas, which could result in the release of fluids, concrete material, construction debris, sediment, and litter beyond the perimeter of the site. Impacts may include a change in localized pH and turbidity of Arroyo de la Laguna, Alameda Creek, and/or Stonybrook Creek. This can occur by a variety of means, including, but not exclusive to: concrete operations, unstabilized land surface, uncovered stock piles, poor equipment maintenance, careless material handling (including debris from reinforced concrete box culvert removal), and lack of perimeter control.

The Niles Canyon Safety Improvements Project also involves the replacement of the bridge railing on the Alameda Creek Bridge and Overhead with project activities occurring entirely on the bridge deck.

**Long-Term Impacts**

Potential long-term impacts to existing water quality are the same for the existing facility; the deposition and transport of sediment and vehicular-related pollutants. The project includes a net increase of impervious surface, by virtue of widening locations and reinforced concrete box culvert replacement with a clear span structure. As of September 2016, the net increase is approximately 2.27 acres (1.63 acres of new impervious area and the 0.64 acres of reworked impervious area). As this quantity includes more-than 1.0 acre of new impervious surface, hydromodification management would be required, pursuant to the Caltrans Statewide NPDES General Permit. Permanent impacts would occur through grading of the banks and bed of Stonybrook Creek.

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.

**No-Build Alternative**

The No-Build Alternative would have no impact to water quality and stormwater runoff.

2.2.2.4 Avoidance, Minimization, and/or Mitigation Measures

**WATER-1.** Prior to commencement of construction activities, a SWPPP must be prepared by the Contractor and approved by Caltrans, pursuant to Caltrans’ 2015 Standard Specification 13-3. The SWPPP addresses potential temporary impacts via implementation of appropriate BMPs to the Maximum Extent Practicable (MEP). In addition, a risk level determination is required based upon sediment and receiving water risks. At this time, the Risk Level has been determined to be “3”; requirements for this are found in Attachment E of the CGP. Further, sampling and monitoring of construction site discharge point(s) would be required. As stated above, the primary concern is unintended discharge beyond the perimeter of the construction site, especially given the number of crossings throughout the project limits. Temporary Construction Site
BMPs, such as silt fence, fiber roll, drainage inlet protection, concrete wash-out, street sweeping, and construction entrance would be deployed for sediment control and material management. These BMPs are representative of those that may be recommended during the subsequent design phase.

WATER-2. Additionally, a creek diversion would be implemented, in order to provide for a dry working environment within the channel of Stonybrook Creek. This can take different forms, such as gravel bag cofferdams. An option requiring a smaller footprint, thus lessening the lateral extent of temporary impacts, would be the installation of sheet-pile cofferdams. Sheet-pile cofferdams would be installed via vibratory hammer, as opposed to an impact hammer, to reduce decibel levels. Selection of sheet-pile cofferdams is also contingent upon existing soils. The underlying geology may be anticipated to be sandstone and shale, with silts and loam at the surface. As a result, installing sheet-piles may be feasible, depending on the depth to sandstone-type material; a site-specific geotechnical investigation would confirm conditions.

WATER-3. Implementation of permanent stormwater treatment measures would be included as a condition of the CWA 401 certification. Treatment measures would be equivalent to the net new impervious surface of 2.27 acres. A requirement of this condition would be the use of local stormwater treatment design guidance, specifically the Alameda County Clean Water Program “C.3 Stormwater Technical Guidance” (Version 5.1, May 2, 2016). The preferred Treatment BMP type is bioretention, which may be designed as either a basin or swale configuration. Whereas the soils seem to provide less-than adequate infiltration, site soils may not be suitable for the required infiltration rate. As a result, soil would have to be imported for any bioretention system. Lastly, if determined that available Right-of-Way is not adequate to site a Treatment BMP(s), an alternative compliance option (i.e. off-site treatment) would have to be investigated. For source and sediment control, erosion control BMPs would be implemented to stabilize disturbed soil areas and maximize vegetated surfaces. Erosion control measures, such as fiber rolls, hydroseeding, and coir netting, would be provided on all disturbed areas.

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’s Office of Earthquake Engineering is responsible for assessing the seismic hazard for Department projects. Structures are designed using Caltrans’s Seismic Design Criteria (SDC). The SDC provides the minimum seismic requirements for highway bridges designed in California. A bridge’s category and classification will determine its seismic performance level and which methods are used for estimating the seismic demands and structural capabilities. For more information, please see Caltrans’s Division of Engineering Services, Office of Earthquake Engineering, SDC.
2.2.3.2 Affected Environment
A District Preliminary Geotechnical Design Report for the Niles Canyon Safety Improvements Project was prepared by the Caltrans Office of Geotechnical Design – West (Caltrans, 2015e) to present existing geologic and geotechnical information. This report was completed on December 3, 2015. 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, refer to Caltrans’ Division of Engineering Services, Office of Earthquake Engineering, SDC.

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 Panocoche 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 Panocoche Formation rocks in and adjacent to the present-day channel of Alameda Creek.

Site Geology
The project site is located in Niles Canyon, a narrow gap in the East Bay hills that connects the Sunol Valley with the San Francisco Bay depression. Niles Canyon walls consist of steeply dipping Cretaceous and Tertiary sedimentary rocks. Bedding varies slightly throughout the project area, but can generally be described as steeply dipping to either the northwest or southwest. The Niles Canyon floor contain Quaternary undivided surficial deposits and large boulders of locally derived sandstone and shale. Based on the USGS Geologic Map (USGS, OFR 996-252), the project area contains the following geologic units (refer to Figure 39 in Section 2.2.4):

- Surficial deposits (Qu), undivided (Holocene and Pleistocene)
- Livermore gravels (QTI) (Pliocene and Pleistocene)
- Briones Formation (Tbr) (Middle and late Miocene), includes massive feldspathic sandstone (Tbi) as a formation member
- Claremont Shale (Tcs) Claremont Shale (middle Miocene)
- Great Valley Sequence:
  - Unnamed sedimentary rocsk (Ku) – greywacke and lithic wacke, siltstone, and mustone (late Cretaceous)
  - Oakland Sandstone (Ko) (Late Cretaceous)
  -Unnamed sandstone and shale (Ks) (Cretaceous)
  - Knoxville Formation (KJK) (Late Jurassic)
Chapter 2 - Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures

Soils
There are several soil types within the project limits: Riverwash, Los Gatos- Los Osos Complex, rock land, Yolo Loam, Los Osos and Millsholm, Los Osos Loam, Zomara Silt Loam, and Positas gravelly loam.

Riverwash is a land type that occurs through the valleys. The areas are typically very gravelly or stony. It is hard when dry and medium acid, but becomes moderately alkaline with depth.

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 silt 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 upper part is brown, slightly hard 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.

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.

Yolo Loam occurs mostly in large bodies or nearly level valley floors. The surface soil is grayish-brown, massive, mildly alkaline loam. The subsoil is brown, very fine sandy loam and very dark grayish-brown fine sandy loam. The texture ranges from sandy loam to light clay loam. The depth of lime ranges from 24 inches to five feet or more. The soil is moderately permeable and runoff is very slow. The erosion hazard is slight in cultivated areas.

Los Osos and Millsholm soil consist of Los Osos silt loam and Millsholm silt loam in proportions that vary from place to place. Los Osos soil consists of silty loam and silt loam soils on strongly sloping to very steep uplands. These soils formed from interbedded fine-grained sandstone, from shale, and in places from grained sandstone, from shale, and in places, from conglomerate rocks. Depth to bedrock, ranges from 18 to 48 inches. Millsholm soils are shallow silt loam soils on steep and very steep uplands. These soils formed from interbedded fine-grained sandstone and shale. Depth to bedrock, ranges from 12 to 26 inches. The Los Osos and Millsholm soils erosion hazard is severe and runoff is rapid.

Los Osos Loam is formed from soft sandstone and some alluvial material from sedimentary rock. The texture of the surface soil ranges from fine sandy loam to silt loam. Seepage may cause a temporarily high water table during winter and early in the summer. In some areas, the soil is drained by deep gullies. Bedrock crops out in places, permeability is moderately slow, and runoff is slow to medium. The erosion hazard is slight to moderate.

Zomara Silt Loam consists of well-drained, very deep, loamy soils on nearly level floodplain. The soils were formed in alluvium from sedimentary rock. The surface soil is light silty clay loam. When dry, it breaks to a subangular blocky structure. This layer grades to moderately alkaline.
heavy clay loam subsoil. The substratum is massive, moderately alkaline clay loam. The texture
ranges from heavy silt loam or silty clay loam to clay loam. Permeability is moderately slow and
runoff is slow as well. The erosion hazard is slight in cultivated areas.

Erosion/Slope Stability
The entire Niles Canyon Corridor is notorious for having numerous areas of rockfall and
landslides. The Niles Canyon Safety Improvements Project area contains soils that are
caracterized by very severe to severe erosion hazard. Many of the soil units in the project limits
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.

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 17 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 17. Fault Data

<table>
<thead>
<tr>
<th>FAULT</th>
<th>DISTANCE FROM PROJECT (MILES)</th>
<th>FAULT TYPE</th>
<th>MAXIMUM MAGNITUDE (MMAX)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calaveras</td>
<td>Within project limits (near SR-84 and I-680 interchange)</td>
<td>Strike Slip</td>
<td>6.9</td>
</tr>
<tr>
<td>Hayward</td>
<td>Within project limits (near SR-84 and SR-238 intersection)</td>
<td>Strike Slip</td>
<td>7.3</td>
</tr>
<tr>
<td>Pleasanton</td>
<td>1</td>
<td>Strike Slip</td>
<td>6.6</td>
</tr>
</tbody>
</table>

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).

Pleasanton Ridge and Sunol Ridge

During the past five million years, most of the areas of the present Coast Ranges, including Pleasanton and Sunol ridges, have uplifted. Geological faulting intensified, causing sedimentary strata (the erosion deposits of an earlier time) to fold, overturn, and break up. Parallel faults lie on both sides of Pleasanton Ridge, the Stonybrook/Palomares Fault to the west, and the Calaveras and Sunol Faults to the east.

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 Niles Canyon Safety Improvements 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.
Chapter 2- Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures

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 the latest uniform Building Code would be expected to withstand the ground shaking induced by an 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 the 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

Build Alternative

Northern California is within the most tectonically active area of the North American continent. The North American Plate grinding past the Pacific Plate along the San Andreas Fault has created a series of semi-parallel faults covering 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. The Calaveras Fault crosses the project at the eastern end of the project limits, near the town of Sunol. There is potential for fault rupture within the project limits, however, the Niles Canyon Safety Improvements Project does not involve the construction of any major structures (bridges or rigid structures) in this location, therefore, fault rupture is not a major concern.

There is also a potential for liquefaction within the project limits where SR-84 rests on terrace deposits above Alameda Creek. Two sites, between PMs 14.6 and 15.2 and PMs 17.0 and 17.9 are defined as having a high level of susceptibility for liquefaction. Construction activities within these specific project limits include shoulder widening, replacement of metal-beam-guardrail, the signalization of the Pleasanton-Sunol intersection, and the relocation/installation of traffic signs/utility poles. No structures will be constructed in these areas that would require specifically designed foundations. As with fault rupture, the lack of large structure construction in these specific areas does not constitute a major concern regarding liquefaction.

In the event of an earthquake, construction workers will be exposed to shaking and lurching during the construction of the Niles Canyon Safety Improvements Project. The project will not expose the traveling public to any new geologic hazards using existing baseline conditions and will not result in the project area being more susceptible to erosion or geologic hazards.

The entire Niles Canyon Corridor is notorious for rockfall and landslides. The soils within the project limits include Los-Gatos-Los Osos Complex, rockland, Yolo Loam, Los Osos and Millsholm Soils, Los Osos Loam, Zomara Silt Loam, and Positas Gravelly Loam. These soils are characterized as being slight, moderate, and severe erosion hazards. The Niles Canyon Safety Improvements Project proposes to install two rockfall systems to address the severe rockfall at these locations on SR-84. Project construction activities, such as grading and excavation, could temporarily impact the stability of existing soils and increase the overall potential for soil erosion.

No-Build Alternative
The No-Build Alternative would have no impact geology/soils.

2.2.3.4 Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, and/or mitigation measures are recommended.
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 PM 10.8 to 18.0. Paleontological information is based on the Paleontological Identification Report (PIR) for the Niles Canyon Safety Improvements Project (Caltrans, 2015f) and the Paleontological Evaluation Report (PER) (Caltrans, 2016e), prepared by the Office of Geotechnical Design-West. The PIR was completed on March 26, 2015 and the PER was completed on April 18, 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.

According to the Berkeley Natural History Fossil Museum, the following geologic units are fossil bearers and are found within the project limits: Livermore Gravels of the Pleistocene, Brions Formation of the Micoene, and the Great Valley Sequence sedimentary rocks of Late Jurassic. 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 Panoche Formation is a widely distributed geologic unit in which many scientifically important fossils over 70 million years old have been found, including vertebrates, invertebrates, and plants. Quaternary surficial deposits overlay Panoche rocks adjacent to the present-day channel of Alameda Creek. The Panoche Formation is exposed in the walls of Niles Canyon and is generally well-bedded and composed predominately of micaceous shale, with minor interbedded sandstone and local conglomerates.

The project corridor is located in the East Bay Hills portion of the Coast Ranges along SR-84 in Niles Canyon, a steep-walled gap between Sunol Valley and the San Francisco Bay depression. Interior portions of Niles Canyon tend to be narrower and the western and eastern ends are wider. Sections of Alameda Creek have at least two alluvial terraces including a low inset terrace approximately 10 to 20 feet above the creek level. The terraces are covered with clayey sand with gravel and littered with cobbles and boulders. Stream alluvium is composed of sand with clay and sandstone cobbles that are sub-angular to rounded up to 1.5 feet in diameter. Figure 39 identifies the geologic units within the project limits.
Figure 39. Geology Units in the Project Vicinity
2.2.4.3 Environmental Consequences

Build Alternative

As described above, the proposed project is located in an area with geologic units containing high sensitivity for producing paleontological resources. The proposed Niles Canyon Safety Improvements Project could potentially impact paleontological resources in the Panoche Formation as a result of excavation or ground disturbance during construction activities. Construction activities in the Panoche Formation could potentially impact paleontologically sensitive geologic units when drilling large diameter piles, trenching, or rock cutting, or impact previously undisturbed sediments by excavating, grading, or crushing bedrock exposed in or underlying one of the spot improvement locations. Paleontological resources within the Panoche Formation could exist at any layer or depth of ground disturbing activities. The installation of the rock drapery, rockfall fence and traffic signs, construction of the low speed curve improvements, as well as fixed object relocations are all located within Panoche Formation. These project elements involve ground disturbing activities of varying depths in native soils, which could impact paleontological resources.

**Dynamic Rockfall Fence**

The dynamic rockfall fence requires the installation of post foundations which would be constructed by drilling a series of three inch holes at each post location (to be determined during the PS&E phase of the project), no more than 10 feet deep into original ground.

**Dynamic Rock Drapery System**

The dynamic rock drapery system requires anchoring of the drapery to the slope. Anchors would be strategically placed across the 250 foot wide to 40 foot tall rock drapery system. Anchors would be drilled approximately six feet into the face of the slope.

**Fixed Object Relocation or Removal/installation of MBGR/shoulder paving**

Utility poles within eight feet of the edge of travel way throughout the project area will be removed and will be moved approximately 10 feet from current locations perpendicular to the existing roadway. The diameter of each new pole is 18 inches and would be located approximately six feet into native materials.

**Low Speed Curve Improvements**

A retaining wall with a safety shape barrier as well as rock cuts and installation of a concrete barrier are proposed at the low-speed curve. Construction of these project elements would require no more than three feet of excavation into original ground for approximately 250 feet.

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.
Excavations and ground disturbing activities outside of the Panoche Formation, in locations such as portions of the valley bottoms, streambeds, and stream embankments, are not likely to affect paleontologically sensitive sediments. Additionally, shallow excavations within the roadway or travelway are unlikely to contain paleontologically sensitive material as these areas contain artificial fill from roadway construction.

**No-Build Alternative**
The No-Build Alternative would have no impact to cultural and paleontological resources.

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

**PALEONTOLOGY-1.** A Paleontological Mitigation Plan (PMP) defining specific measures and methods, will be prepared and implemented before construction begins. 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.

---

20 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 design 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.
Chapter 2 - Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures

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
- Clean Air Act
- Safe Drinking Water Act
- Occupational Safety and Health Act (OSHA)
- Atomic Energy Act
- Toxic Substances Control Act (TSCA)
- Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)

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

California regulates hazardous materials, waste, and substances under the authority of the CA Health and Safety Code and is also authorized by the federal government to implement RCRA in the state. California law also addresses specific handling, storage, transportation, disposal, treatment, reduction, cleanup, and emergency planning of hazardous waste. The Porter-Cologne Water Quality Control Act also restricts disposal of wastes and requires 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 and materials affected environment is defined as the entire project footprint, SR-84 from PM 10.8 to 18.0. The Site Investigation Report, State Route 84, Alameda County California (Caltrans, 2004) for Caltrans’ SR-84 Niles Canyon Widening Project was used to assess the probable levels of aerially deposited lead (ADL) in the Niles Canyon Safety Improvements 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. In addition to the 2004 Site Investigation Report, Caltrans’ Office of Environmental Engineering reviewed environmental regulatory databases (Geotracker and Envirostor) and summarized findings in technical Memorandums, completed on November 6, 2014 (Caltrans, 2014b) and on January 14, 2016 (Caltrans, 2016f).

A search of environmental regulatory databases (State Water Resources Control Board’s Geotracker and the Department of Toxic Substances Control’s Envirostor databases) reveals that there are no known hazardous materials sites, such as gasoline storage tank sites, which could negatively affect the project, within the project area. Moreover, the search reveals the absence of contaminated properties listed under Section 65962.5 of the California Government Code, also known as the Cortese list, which includes, but is not limited to, lists of hazardous waste facilities, land designated as hazardous waste property, and hazardous waste disposal sites. Additionally, the project location is not within an area of asbestos-containing geologic formations where naturally occurring asbestos is likely present.

Aerially deposited lead (ADL) from historic gasoline emissions is likely present in the roadside shallow soils within the project limits. A preliminary site investigation conducted in 2004 for the SR-84 improvement project known as “Caltrans’ Niles 1” found that the roadside shallow soils within SR-84 between PM 12.2 and 13.4 had fairly low levels of ADL. Given that the source of the ADL contamination, leaded gasoline, was extirpated from automobile fuel by 1985, meaning that the accumulation of lead contamination ended about thirty years ago, it is expected that the levels of lead within the project location soils today would be similar to those found during the nearby 2004 site investigation.

The reinforced concrete box culvert at Stonybrook Creek and the bridge railing of the Alameda Creek Bridge and Overhead are subject to removal and replacement. Asbestos-containing material (ACM) and lead-based paint (LBP) might be present in the bridge railing of the Alameda Creek Bridge and Overhead, constructed in 1948, and ACM might be present in the reinforced concrete box culvert at Stonybrook Creek.

### 2.2.5.3 Environmental Consequences

**Build Alternative**

The Build Alternative proposes roadway and shoulder widening at various locations within the project limits, which would disturb existing roadside soils potentially containing ADL. Lead can be hazardous to humans as excessive exposure can adversely affect the nervous, circulatory, and reproductive systems and can severely damage the brain and kidneys. During construction, workers could be exposed to ADL due to disturbance of the shallow soils adjacent to the roadway.

The Build Alternative proposes the removal and replacement of the reinforced concrete box culvert at Stonybrook Creek and the bridge railing of the Alameda Creek Bridge and Overhead. ACM and LBP might be present in the bridge railing of the Alameda Creek Bridge and Overhead, and ACM might be present in the reinforced concrete box culvert at Stonybrook Creek. Lead and asbestos are State-recognized carcinogens, and lead is a reproductive toxin. Asbestos fibers and lead
Chapter 2- Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures

particles emitted to the air during demolition activities could pose a risk to human health and the environment.

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. The Build Alternative would have a negligible impact to hazardous waste/materials.

There are Caltrans restrictions on the practices involving the transport, storage, minimization, and use of hazardous materials and hazardous wastes on the Niles Canyon section of SR-84. During construction of the Niles Canyon Safety Improvements Project, any transportation of hazardous materials, such as fuel, through the project limits must comply with Caltrans Standard Specifications in Section 13-4 (Caltrans, 2015a). Section 13-4 identifies specifications for performing job site management, including hazardous material storage, spill prevention, spill containment, vehicle fueling and maintenance practices, and waste management to promote the protection of storm drain systems and receiving waters.

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. A site investigation would be conducted during the PS&E phase of project development to assess the contaminant levels in the soils that would be disturbed by the Build Alternative. The 2004 site investigation completed for Caltrans’ Niles 1 Project found that the average level of lead in the shallow soils was below regulatory-defined hazardous waste levels. The scope of the new site investigation for the Build Alternative would include screening for CA Title 22 metals (including lead), diesel, gasoline, and motor oil to confirm that there are no contamination issues related to them. The analytical results would be compared against applicable hazardous waste criteria and environmental screening levels. Soils found to contain contaminants 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 project’s PS&E package. Regardless of the lead levels in the project area soils, the construction contractor would be required to utilize a certified industrial hygienist-approved lead compliance plan to disclose the presence of lead-impacted soil and to provide measures and practices for minimizing worker exposure.

HAZ-2. An ACM and LBP survey for the bridge railing of the Alameda Creek Bridge and Overhead and the reinforced concrete box culvert at Stonybrook Creek would be conducted during the project’s PS&E phase. If identified during the survey, ACM and LBP would be managed per the construction contract specifications before the commencement of demolition activities.
Chapter 2: Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures

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 PM 10.8 to PM 18.0.

2.2.6.3 Environmental Consequences
Build Alternative
The Niles Canyon Safety Improvements Project would not result in an increase in long-term energy consumption rates from existing baseline conditions. The new facility would construct spot safety improvements throughout the Niles Canyon Corridor that would reduce the frequency and intensity of traffic accidents on SR-84. A reduction in vehicular accidents would indirectly contribute to energy savings in terms of vehicles idling and public resources spent responding to the accidents.

Energy use would increase as a result of Niles Canyon Safety Improvements 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 Species, 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 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 Niles Canyon Safety Improvements Project (Caltrans, 2016g). The Natural Environment Study was completed on September 6, 2016. The affected environment is discussed in the context of nine land cover types that exist within the project area. These include California annual grasslands, California Bay/Coast Live Oak, Coastal scrub, Valley Foothill Riparian, Fresh Emergent Wetland, Creek Channel, Urban, and Road.

The land cover types within the project limits are identified in Table 18 and described in further detail below.

#### Table 18. Land Cover Types and Acreages within the Project Limits

<table>
<thead>
<tr>
<th>Land Cover Type</th>
<th>Total within Project Area (Acres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barren</td>
<td>0.24</td>
</tr>
<tr>
<td>California Annual Grassland</td>
<td>1.56</td>
</tr>
<tr>
<td>California Bay/Coast Live Oak</td>
<td>5.42</td>
</tr>
<tr>
<td>Coastal Scrub</td>
<td>4.37</td>
</tr>
<tr>
<td>Valley Foothill Riparian</td>
<td>7.76</td>
</tr>
<tr>
<td>Fresh Emergent Wetland</td>
<td>0.03</td>
</tr>
<tr>
<td>Creek Channel</td>
<td>0.43</td>
</tr>
<tr>
<td>Urban-Landscaped</td>
<td>12.85</td>
</tr>
<tr>
<td>Urban-Railroad</td>
<td>0.17</td>
</tr>
<tr>
<td>Road</td>
<td>28.30</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>61.13</strong></td>
</tr>
</tbody>
</table>

**California Annual Grassland**

The California Department of Fish and Wildlife’s Guide to Wildlife Habitats of California (Mayer and Laudenslayer 1988) describes annual grasslands as a compilation of exotic grass species derived from Europe and introduced during the North American settlement of the late 1800s. Common annual grass species include various brome species (*Bromus* spp.), wild oats (*Avena fatua*), and foxtail barley (*Hordeum murinum*). Common forbs include broadleaf filaree (*Erodium botrys*), redstem filaree (*Erodium cicutarium*), bur clover (*Medicago polymorpha*), and popcorn flower (*Plagiobothrys* spp.). It sometimes includes remnants of native perennial grasses, and often includes a diverse assemblage of native annual forbs (wildflowers).

California annual grasslands are found in small sections throughout the project limits in isolated, disturbed sites along SR 84, in patches between coast live oak woodland, and on steep hillsides. Common non-native grass species in these patches include various brome species, wild oats, Italian
ryegrass (*Festuca perennis*), and Smilagrass (*Piptatherum miliaceum*). Annual grassland comprises 1.56 acres of the project limits.

Many wildlife species use grasslands for foraging, but some require special habitat features such as cliffs, caves, ponds, or habitats with woody plants within or nearby the grassland for breeding, resting, and cover. Other species may avoid small patches of grassland, preferring larger areas of unbroken grassland. Characteristic reptiles that breed in grassland habitats include the western fence lizard (*Sceloporus occidentalis*), common garter snake (*Thamnophis sirtalis*), and western rattlesnake (*Crotalus oreganus*). 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*), and coyote (*Canis latrans*). In sufficiently large swathes, this habitat also provides important foraging habitat for raptors (Mayer and Laudenslayer 1988).

**California Bay/Coast Live Oak**

California bay/coast live oak forest is an uncommon hardwood habitat comprised of a pronounced hardwood layer dominated by California bay (*Umbellularia californica*) and coast live oak (*Quercus agrifolia*). This upland hardwood community is typically found on north- and west-facing slopes with soils derived from sandstone. Understory vegetation is mostly scattered woody shrubs such as poison oak (*Toxicodendron diversilobum*), mountain mahogany (*Cercocarpus montanus*), manzanita (*Arctostaphylos spp.*), and ceanothus (*Ceanothus spp.*). In California, most large stands of this habitat have been cut and cleared for urban uses such as agriculture and housing over the past century.

California bay/coast live oak forest habitat occurs throughout the western and central portions of the project limits dominating the north- and west-facing slopes. Buckeye (*Aesculus californica*) is a common tree associate in this habitat. Poison oak, ocean spray (*Holodiscus discolor*), honeysuckle (*Lonicera hispidula*), and snowberry (*Symphoricarpos spp.*) were common understory associates. Approximately 5.42 acres of this habitat occurs within the limits of the project limits.

The dense understory and thick layer of leaf litter common to oak woodlands 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).

**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 costal 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. Coastal scrub comprises approximately 4.37 acres of the project limits.

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.*), goopher 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.

**Valley Foothill Riparian**

The valley foothill riparian community within the project limits is characterized by mature riparian forest with 40 to 80 percent canopy cover, often dominated by winter deciduous trees. The majority of the community occurs along the edges of Alameda Creek. Dominant over-story species include California sycamore (*Platanus racemosa*), Fremont’s cottonwood (*Populus fremontii*), big leaf maple (*Acer macrophyllum*), and white alder (*Alnus rhombifolia*). Sub-canopy species include arroyo willow (*Salix lasiolepis*), red willow (*Salix laevigata*), and narrowleaf willow (*Salix exigua*). Understory species include poison oak, Himalayan blackberry (*Rubus armeniacus*), and wild grape (*Vitis californica*). Valley foothill riparian comprises approximately 7.76 acres of the project limits.

Riparian habitats provide food, water, migration and dispersal corridors, and escape, nesting, and thermal cover for an abundance of wildlife. At least 50 amphibians and reptiles occur in lowland riparian systems throughout California. Many are permanent residents, while others are transient or temporary visitors. Hundreds of bird and mammal species may also use riparian communities, which are particularly attractive due to the presence of nearby water (Mayer and Laudenslayer 1988).

**Fresh Emergent Wetland**

The fresh emergent wetland vegetation community 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 limits are restricted to areas where the riparian and riverine habitats converge. Dominant species within the fresh emergent wetland in the project limits include monocots such as common tule (*Schoenoplectus acutus var. occidentalis*), torrent rush (*Carex nudata*), and bur reed (*Sparganium eurycarpum ssp. eurycarpum*). Fresh emergent wetland comprises approximately 0.03 acre of the current project limits.
Common wildlife that could be expected to occur in freshwater marsh habitat includes wading birds such as great blue heron \((Ardea herodias)\) and great egret \((Ardea alba)\), as well as passerines such as sparrows and towhees. Fresh emergent wetland can provide breeding habitat for many amphibian species, including Sierran tree frog \((Pseudacris sierrae)\) and western toad \((Bufo boreas)\). Reptiles such as aquatic garter snakes \((Thamnophis atratus)\) spend the majority of their life cycles in and around freshwater marsh habitats (Mayer and Laudenslayer 1988).

**Creek Channel**

Creek channel habitat is typically characterized by intermittent or continually running water. The creek channel within the project limits is restricted to the active channel of Alameda Creek at the two bridge crossings. Creek habitat may contain vegetation such as torrent sedge shadowed by over-story trees, including white alder \((Alnus rhombifolia)\), Northern California black walnut \((Juglans hindsii)\), Fremont cottonwood \((Populus fremontii)\), and California sycamore. Tules, sedges \((Carex spp.)\), rushes \((Juncus spp.)\), and a variety of strictly hydrophytic vegetation may also occur within this habitat. Creek channel comprises approximately 0.43 acre of the project limits.

Open waters provide foraging habitat for many species of birds, including wading birds such as herons and egrets, belted kingfisher \((Ceryle alcyon)\), and American dipper \((Cinclus mexicanus)\). Many bird species will also capture small insects over water, including swallows, swifts, and flycatchers. Mammals found in creek habitats include river otter \((Lutra canadensis)\), mink \((Mustela vison)\), muskrat \((Ondatra zibethicus)\), and beaver \((Castor canadensis)\) (Mayer and Laudenslayer 1988). Bats are also highly associated with open creek areas, where they hunt nocturnal insects that congregate over water.

**Urban**

Within the project limits, urban areas include unpaved road shoulders that are maintained by Caltrans. These areas may include limited landscaping vegetation or may be relatively barren. The railroad tracks pass through the project limits near the intersection of Niles Canyon Road and Palomares Road, and are also considered an urban habitat type. A barren lot adjacent to Palomares Road is also considered an urban habitat type. Urban areas total 13.02 acres of the current project limits.

As it exists within the project limits, urban habitat is not likely to be used by wildlife species due to the lack of vegetation and the continual disturbance from traffic on the immediately adjacent Niles Canyon Road.

**Road**

Paved road surfaces comprise 28.30 acres of the project limits. The majority of the paved road surface within the project limits is SR 84, though some short sections of adjacent roads are also included where they intersect with SR 84.

Wildlife species are not expected to use paved road surfaces due to the constant presence of traffic and lack of cover. Wildlife may be forced to cross the road during dispersal, and it is likely that traffic causes mortality during these movements.
Habitat Connectivity/Wildlife Corridor
The Niles Canyon Corridor serves as a continuous habitat corridor for natural communities. Oak woodland and riparian habitats within the Niles Canyon Corridor serve important functions in the ecosystem by preventing erosion and providing habitat, shade, and cover to wildlife. The creek channel habitat at Stonybrook Creek serves as a wildlife corridor for wildlife to move between Alameda Creek and Stonybrook Creek. The creek channel habitat also serves as a movement corridor from one side of SR-84 to the other. Steelhead historically have been reported using the Alameda Creek watershed, including its tributaries for spawning.

2.3.1.2 Environmental Consequences
Build Alternative
The Build Alternative would result in impacts to the assorted natural communities within the project limits. The types and extent of temporary and permanent impacts to land cover types are identified in Table 19 and described in further detail below.

Table 19. Build Alternative Impacts to Natural Communities

<table>
<thead>
<tr>
<th>Land Cover Type</th>
<th>Temporary Impacts (Acres)</th>
<th>Permanent Impacts (Acres)</th>
<th>Total Impacts (Acres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barren</td>
<td>0.24</td>
<td>0.00</td>
<td>0.24</td>
</tr>
<tr>
<td>California Annual Grassland</td>
<td>0.07</td>
<td>0.01</td>
<td>0.08</td>
</tr>
<tr>
<td>California Bay/Coast Live Oak</td>
<td>0.66</td>
<td>0.68</td>
<td>1.34</td>
</tr>
<tr>
<td>Coastal Scrub</td>
<td>2.75</td>
<td>0.47</td>
<td>3.22</td>
</tr>
<tr>
<td>Valley Foothill Riparian</td>
<td>1.61</td>
<td>0.35</td>
<td>1.96</td>
</tr>
<tr>
<td>Fresh Emergent Wetland</td>
<td>0.01</td>
<td>0.00</td>
<td>0.01</td>
</tr>
<tr>
<td>Creek Channel</td>
<td>0.00</td>
<td>0.01</td>
<td>0.01</td>
</tr>
<tr>
<td>Urban-Landscaped</td>
<td>2.14</td>
<td>0.95</td>
<td>3.09</td>
</tr>
<tr>
<td>Urban-Railroad</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Road</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>7.48</strong></td>
<td><strong>2.47</strong></td>
<td><strong>9.95</strong></td>
</tr>
</tbody>
</table>

California Annual Grassland
The project would have approximately 0.07 acres of temporary impacts and 0.01 acres of permanent impacts to annual grassland habitat. Areas of permanent impact would result in habitat conversion. Areas of temporary impact would result in short-term habitat fragmentation during construction activities. These activities would result in the exclusion of and disturbance to the Alameda whipsnake, California red-legged frog, and western pond turtle. The Alameda whipsnake uses annual grassland for hunting and foraging, the California red-legged frog uses annual grassland for burrows and western pond turtle uses the annual grassland for nesting habitat. Migratory birds also use annual grasslands for breeding and foraging. The Niles Canyon Safety Improvements Project would minimally impact annual grassland function on foraging habitat and also habitats that provide breeding, resting, and escape cover. The electrical trenching, pole installation or removal, metal beam guard rail installation, and sign installation activities planned
to occur within grassland habitat would be located adjacent to the roadway on marginal grassland habitat. As this work is within individual isolated areas located along a heavily trafficked state highway, impacts to California annual grassland are anticipated to be minimal.

**California Bay/Coast Live Oak**
The project would have approximately 0.66 acres of temporary impacts and 0.68 acres of permanent impacts to California Bay/Coast Live Oak. Areas of permanent impact would result in habitat conversion. Areas of temporary impact would result in short-term habitat fragmentation during construction activities. California Bay/Coast Live Oak habitat provide breeding and foraging habitat for nesting birds, foraging habitat for bats, and shelter and foraging habitat for San Francisco dusky-footed woodrat. These activities would result in the exclusion of and disturbance to the San Francisco dusky-footed woodrat, bats, and nesting birds. The majority of impacts anticipated for California Bay/Coast Live Oak habitat would result from the cut and fill activities along the road. The installation of the rock drapery system would impact California bay/coast live oak habitat, including temporary impacts to areas within Alameda whipsnake critical habitat. Additional impacts anticipated to this habitat type are from Stonybrook culvert replacement, which would require the removal of California bay and coast live oak trees for construction access, culvert demolition, and bridge installation.

**Coastal scrub**
The project would have approximately 2.75 acres of temporary impacts and 0.47 acres of permanent impacts to coastal scrub habitat. Areas of permanent impact would result in habitat conversion. Areas of temporary impact would result in short-term habitat fragmentation during construction activities. Coastal oak scrub habitat provides breeding and foraging habitat for the Alameda whipsnake and for nesting birds. Areas of temporary impact would result in habitat fragmentation during construction activities through exclusion of and disturbance to Alameda whipsnake and migratory birds. The majority of permanent impacts to coastal scrub habitat would occur as a result of the rock drapery and rockfall fence installation. The rock drapery system planned for installation along SR-84 would temporarily impact coastal scrub habitat designated as critical Alameda whipsnake habitat. All other work in coastal scrub habitat, including electrical trenching, removal of trees or roadway signs, and the installation/replacement of roadway signs, would occur immediately adjacent to the roadway in marginal quality habitat.

**Valley Foothill Riparian**
The project would have approximately 1.61 acres of temporary impacts and 0.35 acres of permanent impacts to Valley foothill riparian. Areas of permanent impact would result in habitat conversion. Areas of temporary impact would result in short-term habitat fragmentation during construction activities. 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 nesting 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 and associated tributaries for potential steelhead rearing habitat. 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 ACFCFD. 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. ACWD is scheduled to install a fish ladder that will circumvent this BART weir structure. Construction of the fish ladder is scheduled for 2019 (ACWD, 2014).

The primary impact to valley foothill riparian habitat would be from the Stonybrook Culvert replacement. The Stonybrook Culvert Replacement would result in a wider creek channel and provide improved fish passage through the area. The project would permanently alter the riparian habitat around Stonybrook Creek. In the process of removing the existing concrete culvert, the substrate underneath would be graded to conform to the existing creek bed upstream and downstream of the culvert. This 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. Riparian trees currently providing shade to Stonybrook Creek would need to be removed to demolish the existing culvert and install the new bridge. These trees would be carefully removed to allow for the preservation of remaining trees after the installation of the bridge. The combination of the wider bridge and the large canopy trees remaining within the riparian habitat would provide adequate shading after the completion of the project. The project would permanently impact the existing habitat through the removal of riparian trees. During construction, Caltrans would make an effort to reduce impacts to trees in temporary impact areas to the greatest extent possible.

**Fresh Emergent Wetland**
Implementation of the project would result in 0.01 acres of temporary impacts and approximately 0.001 acres of permanent impacts to wetland features within the project footprint. Although there are no permanent impacts to the fresh emergent wetland land cover type, there are impacts to jurisdictional wetland features because the criteria for identifying jurisdictional features are different from those used to identify land cover types. Areas of permanent impact would result in habitat conversion. Areas of temporary impact would result in short-term habitat fragmentation during construction activities. 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 temporary impact could result in habitat fragmentation during construction activities through the exclusion of and disturbance to California red-legged frog, western pond turtle, and nesting birds. The Niles Canyon Safety Improvements Project would minimally impact an isolated wetland. The work planned within fresh emergent wetland habitat consists of metal beam guardrail installation, which would occur adjacent to the roadway and on the edge of the fresh emergent wetland habitat. All other activities are planned to occur in areas away from fresh emergent wetland habitat.

**Creek Channel**
The project would have approximately 0.01 acres of permanent impacts and no temporary impacts to creek channel habitat. Implementation of the project will result in 0.26 acres of temporary impacts and 0.03 acres of permanent impacts to creek channel land cover type. Although there are no temporary impacts to the creek channel land cover type, there are impacts to jurisdictional water features because the criteria for identifying jurisdictional features are different from those used to identify land cover types. Areas of permanent impact would result in habitat conversion. Creek channel is an important functional habitat associated with the Alameda Creek watershed. 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. Temporary impacts to riverine habitat would occur from the temporary creek diversion of Stonybrook creek, and from the removal of the existing Stonybrook culvert. The Build Alternative would not impact the creek channel or creek banks during normal flow periods.

The proposed project would provide long-term benefits to creek channel habitat as the project involves the removal of the existing concrete culvert at Stonybrook Creek, which is a barrier to fish passage. Steelhead have been reported historically using the Alameda Creek watershed, including its tributaries for spawning. The replacement of the culvert with a single-span bridge would allow Stonybrook Creek to take on a more natural morphology and remove a barrier to fish passage. For the Stonybrook Creek culvert replacement, Caltrans would install a bridge wider than the active channel width and restore the creek bed to conditions similar to upstream and downstream conditions using native materials. This would allow the creek bed to aggrade or degrade naturally over time. The project would have an overall net benefit to the creek channel habitat by removing a fish barrier and facilitating passage of steelhead and lamprey from Alameda Creek to Stonybrook Creek.

**Urban**

The project would have approximately 2.14 acres of temporary impacts and 0.95 acres of permanent impacts to urban habitat. Areas of permanent impact would result in habitat conversion. Areas of temporary impact would result in short-term habitat fragmentation during construction activities. As mentioned in Section 2.3.1.1, urban habitat is less likely to be used by wildlife species due to the lack of vegetation and the continual disturbance from traffic on the immediately adjacent Niles Canyon Road.

**Road**

Paved road surfaces comprise 28.30 acres of the project limits. The majority of the paved road surface within the project limits is SR 84, though some short sections of adjacent roads are also included where they intersect with SR-84. Wildlife species are not expected to use paved road surfaces due to the constant presence of traffic. Wildlife may be forced to cross the road during dispersal, and it is likely that traffic causes mortality during these movements.

**Impacts to Wildlife Corridors in Niles Canyon**

The Niles Canyon Safety Improvements Project would not create any barriers to existing wildlife corridors in the Niles Canyon Corridor but rather, would ultimately benefit riparian and riverine wildlife habitat by removing the Stonybrook Creek culvert. The Stonybrook culvert is currently

---

21 As of September 2016, fish passage between Alameda Creek and San Francisco Bay is blocked within the City of Fremont by a concrete grade control structure, commonly referred to as the “BART weir” due to its proximity to the Bay Area Rapid Transportation (BART) tracks. As a result, these fish are considered landlocked rainbow trout and are not currently considered to be anadromous Central California Coast DPS steelhead, meaning they do not receive protection under the Federal Endangered Species Act. ACWD is scheduled to install a fish ladder that will circumvent this structure. Construction of the fish ladder is scheduled for 2019 (ACWD, 2014). When the fish ladder is complete, 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. As of September 2016, 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. If the fish ladder at the BART weir is installed prior to the start of the Niles Canyon Safety Improvements Project construction, Caltrans will pursue a Biological Opinion from NMFS as fish within Alameda Creek will be included by NMFS as part of the federally threatened Central California Coast steelhead DPS.
a complete barrier to the upstream migration of aquatic species, such as Central California Coast DPS steelhead and lamprey. With the replacement of the Stonybrook Creek culvert, aquatic species would be able to access the Stonybrook Creek from the Alameda Creek confluence as a migration corridor. Even though fish passage between Alameda Creek and San Francisco Bay is currently blocked within the City of Fremont by a concrete grade control structure (commonly referred to as the “BART weir”), the removal of reinforced concrete box culvert within Stonybrook Creek would contribute to the continued removal of obstacles preventing Central California Coast DPS steelhead from migrating upstream to Stonybrook Creek.

**Impacts to Trees within the Project Limits**
A total of 1,121 trees were recorded within the project limits, with the majority considered native to California. Table 20 identifies native and non-native trees of four inches or larger Diameter at Breast Height (DBH) located within the permanent and temporary impact areas that are likely to be impacted during construction. Table 21 identifies the native trees that are within the permanent and temporary impact areas that have a DBH of 20 or greater. Trees located in permanent impact areas would 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 all trees in temporary impact areas. During construction, Caltrans will make an effort to reduce impacts to trees in temporary impact areas to the greatest extent possible.

Two large western sycamore trees within the riparian corridor downstream of the Stonybrook Creek culvert would be removed as a result of the proposed project (refer to Figure 40).

**Figure 40. Western Sycamore Tree proposed for removal as part of the Stonybrook Creek culvert demolition**

---

22 DBH is the standard method of expressing the diameter of the trunk or bole of a standing tree. DBH is measured to the nearest tenth of an inch.
These trees were previously cut during the Route 84 Safety Improvements Project (Niles 1) and have since resprouted, providing a substantial amount of shade along Stonybrook Creek. The two California sycamore trees will need to be permanently removed as a part of Caltrans’ efforts to replace the Stonybrook Creek culvert with a clear span bridge.

Table 20. Tree Abundance and Impacts within the Project Limits

<table>
<thead>
<tr>
<th>Species Common Name</th>
<th>Species Scientific Name</th>
<th>Total in Project Limits</th>
<th>Temporary Impacts</th>
<th>Permanent Impacts</th>
<th>Total Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Native Trees</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arroyo willow</td>
<td>Salix lasiolepis</td>
<td>29</td>
<td>4</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Big leaf maple</td>
<td>Acer macrophyllum</td>
<td>112</td>
<td>16</td>
<td>9</td>
<td>25</td>
</tr>
<tr>
<td>Bishop pine</td>
<td>Pinus muricata</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Blue elderberry</td>
<td>Sambucus mexicana</td>
<td>17</td>
<td>4</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Blue oak</td>
<td>Quercus douglasii</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>California bay tree</td>
<td>Umbellularia californica</td>
<td>104</td>
<td>28</td>
<td>15</td>
<td>43</td>
</tr>
<tr>
<td>California buckeye</td>
<td>Aesculus californica</td>
<td>45</td>
<td>7</td>
<td>4</td>
<td>11</td>
</tr>
<tr>
<td>Canyon live oak</td>
<td>Quercus chrysolepis</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Coast live oak</td>
<td>Quercus agrifolia</td>
<td>361</td>
<td>66</td>
<td>21</td>
<td>87</td>
</tr>
<tr>
<td>Fremont cottonwood</td>
<td>Populus fremontii</td>
<td>50</td>
<td>4</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Madrone</td>
<td>Arbutus menziesii</td>
<td>4</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Monterey pine</td>
<td>Pinus radiata</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Northern California black walnut</td>
<td>Juglans hindsi</td>
<td>67</td>
<td>16</td>
<td>0</td>
<td>16</td>
</tr>
<tr>
<td>Red willow</td>
<td>Salix laevigata</td>
<td>59</td>
<td>9</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>Oak species</td>
<td>Quercus spp.</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Ponderosa pine</td>
<td>Pinus ponderosa</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Red willow</td>
<td>Salix laevigata</td>
<td>59</td>
<td>9</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>Valley oak</td>
<td>Quercus lobata</td>
<td>60</td>
<td>18</td>
<td>4</td>
<td>22</td>
</tr>
<tr>
<td>Western sycamore</td>
<td>Platanus racemosa</td>
<td>97</td>
<td>36</td>
<td>14</td>
<td>50</td>
</tr>
<tr>
<td>White alder</td>
<td>Alnus rhombifolia</td>
<td>76</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Willow</td>
<td>Salix spp.</td>
<td>26</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total Native Trees</strong></td>
<td></td>
<td>1,121</td>
<td>213</td>
<td>68</td>
<td>281</td>
</tr>
<tr>
<td><strong>Non-Native Trees</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Almond</td>
<td>Prunus dulcis</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Black acacia</td>
<td>Acacia melanoxylon</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Black locust</td>
<td>Robinia pseudoacacia</td>
<td>16</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Canary Islands pine</td>
<td>Pinus canariensis</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Casuarina species</td>
<td>Causarina spp.</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Cork oak</td>
<td>Quercus suber</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Eucalyptus</td>
<td>Eucalyptus globulus</td>
<td>18</td>
<td>13</td>
<td>0</td>
<td>13</td>
</tr>
<tr>
<td>Glossy privet</td>
<td>Ligustrum lucidum</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Italian alder</td>
<td>Alnus cordata</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Olive</td>
<td>Olea spp.</td>
<td>11</td>
<td>6</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Other-unknown</td>
<td>n/a</td>
<td>5</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Peruvian pepper</td>
<td>Schinus molle</td>
<td>4</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Plum</td>
<td>Prunus sp.</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Red bud</td>
<td>Cercis canadensis</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Tree of heaven</td>
<td>Ailanthus altissima</td>
<td>9</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Non-Native Trees</strong></td>
<td></td>
<td>80</td>
<td>27</td>
<td>2</td>
<td>29</td>
</tr>
<tr>
<td><strong>Total Trees</strong></td>
<td></td>
<td>1,201</td>
<td>240</td>
<td>70</td>
<td>310</td>
</tr>
</tbody>
</table>
Chapter 2- Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures

Table 21. Impacts to Native Trees with Diameter at Breast Height of 20 or Greater

<table>
<thead>
<tr>
<th>Species Common Name</th>
<th>Temporary Impacts</th>
<th>Permanent Impacts</th>
<th>Total Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>California bay tree</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>California buckeye</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Coast live oak</td>
<td>4</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Fremont cottonwood</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Northern California black walnut</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Red willow</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Valley Oak</td>
<td>4</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Western Sycamore</td>
<td>22</td>
<td>10</td>
<td>32</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>38</strong></td>
<td><strong>12</strong></td>
<td><strong>50</strong></td>
</tr>
</tbody>
</table>

No-Build Alternative
The No-Build Alternative would have no impact to natural communities.

2.3.1.3 Avoidance, Minimization, and/or Mitigation Measures

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 given space available. Caltrans anticipates a need for off-site upland tree planting as of September 2016. Potential planting locations would be identified working with local stakeholders, private landholders, and public agencies including, but not limited to, EBRPD, Alameda County, and SFPUC. Upland trees would be planted within two years of completion of the Niles Canyon Safety Improvements 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 further 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. As of September 2016, Caltrans anticipates a need for off-site riparian planting. Potential planting locations within the Alameda Creek watershed would be identified working with local stakeholders, private landholders, and public agencies including, but not limited to, EBRPD, Alameda County, and SFPUC. On-site riparian trees would be planted within two years of completion of the Niles Canyon Safety Improvements 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).
Chapter 2- Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures

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 mitigation banks, in-lieu fee arrangements, or separate project-specific activities such as on-site restoration. Caltrans proposes to compensate through on-site restoration of wetlands within the Niles Canyon Corridor. The wetlands temporarily impacted will be revegetated with native wetland plant species and monitored for success.

NATURAL COMMUNITIES-1. Permits. 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 U.S. Fish and Wildlife Service (USFWS) Biological Opinion (BO) and the California Department of Fish and Wildlife (CDFW) Incidental Take Permit.

NATURAL COMMUNITIES-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.

NATURAL COMMUNITIES-3. Biological Monitoring. The agency-approved biologist(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 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 48 hours.

NATURAL COMMUNITIES-4. 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.

NATURAL COMMUNITIES-5. Pre-construction Surveys. Prior to any ground disturbance, pre-construction surveys will be conducted by an agency-approved biologist for listed 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 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.

NATURAL COMMUNITIES-6. 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 48 hours.

NATURAL COMMUNITIES-7. Wildlife Exclusion Fencing. The limits of construction zones within suitable habitat for listed species will be delineated with high visibility 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 limits. Wildlife exclusion fencing is not required for construction activities occurring outside of suitable habitat for listed species.

NATURAL COMMUNITIES-8. Listed Species On Site. The Resident Engineer will immediately contact the agency-approved project biologist(s) in the event that an Alameda whipsnake or California red-legged frog 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 an agency approved protocol for removal has been established. In the event that a California tiger salamander or other listed species is observed within a construction zone, all construction activities will stop and the USFWS and/or CDFW will be contacted to reinitiate consultation.

NATURAL COMMUNITIES-9. Work Window. All work within suitable upland habitat for California red-legged frog and Alameda whipsnake will occur between March 1 and November 30. During this time, Alameda whipsnakes are typically active and able to move away from construction activities to avoid harm, and California red-legged frogs will have a lower potential for movements across upland habitat.

NATURAL COMMUNITIES-10. Work Window for Nesting Birds. To the extent practicable, tree removal, vegetation removal, and clearing and grubbing activities will be conducted during the non-nesting season, from September 1 to February 14.

NATURAL COMMUNITIES-11. 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 nesting season (February 15 to August 31).

NATURAL COMMUNITIES-12. 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.
Chapter 2- Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures

NATURAL COMMUNITIES-13. Pre-construction Surveys for Tree-roosting Bats. 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 limits 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.

NATURAL COMMUNITIES-14. Water Quality Inspection. Water quality inspector(s) will inspect the site after a rain event to ensure that the stormwater Best Management Practices (BMPs) are adequate.

NATURAL COMMUNITIES-15. 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-16. Night Work. To the extent practicable, nighttime construction will be minimized.

NATURAL COMMUNITIES-17. Night Lighting. Artificial lighting of the proposed project limits during nighttime hours will be minimized to the maximum extent practicable.

NATURAL COMMUNITIES-18. 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-19. Firearms. No firearms will be allowed in the project limits except for those carried by authorized security personnel, or local, State, or Federal law enforcement officials.

NATURAL COMMUNITIES-20. Pets. To prevent harassment, injury or mortality of sensitive species, no pets will be permitted on the project site.

NATURAL COMMUNITIES-21. Caltrans Standard BMPs. The potential for adverse effects to water quality will be avoided by implementing temporary and permanent BMPs outlined in Section 7-1.01G of the 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:

Niles Canyon Safety Improvements Project
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.

NATURAL COMMUNITIES-22. Prohibition of Monofilament Erosion Control. 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.

NATURAL COMMUNITIES-23. 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-24. 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 limits to the maximum extent practicable, pursuant to Executive Order 13112.

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 Clean Water Act (CWA) (33 United States Code [USC] 1344), is the primary law regulating wetlands and surface waters. One purpose of the CWA is to regulate the discharge of dredged or fill material into waters of the U.S., including wetlands. Waters of the U.S. include navigable waters, interstate waters, territorial seas and other waters that may be used in interstate or foreign commerce. 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 Federal Highway Administration (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 State Water Resources Control Board (SWRCB), the Regional Water Quality Control Boards (RWQCB) and the California Department of Fish and Wildlife (CDFW). Sections 1600-1607 of the California Fish and Game Code require any agency that proposes a project that will substantially divert or obstruct the natural flow of or substantially change the bed or bank of a river, stream, or lake to notify CDFW before beginning construction. If CDFW determines that the project may substantially and adversely affect fish or wildlife resources, a Lake or Streambed Alteration Agreement will be required. CDFW jurisdictional limits are usually defined by the tops of the stream or lake banks, or the outer edge of riparian vegetation, whichever is wider. Wetlands under jurisdiction of the USACE may or may not be included in the area covered by a Streambed Alteration Agreement obtained from the CDFW.

The RWQCBs were established under the Porter-Cologne Water Quality Control Act to oversee water quality. Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements (WDRs) and may be required even when the discharge is already permitted or
exempt under the CWA. In compliance with Section 401 of the CWA, the RWQCBs also issue water quality certifications for activities which may result in a discharge to waters of the U.S. This is most frequently required in tandem with a Section 404 permit request. Please see the Water Quality section for more details.

2.3.2.2 Affected Environment
The following analysis is based on the Natural Environmental Study prepared for the Niles Canyon Safety Improvements Project (Caltrans, 2016g). The Natural Environmental Study was completed on September 6, 2016. A wetland delineation was conducted in September 2014 and an aquatic resource report was completed in July 2016 for the Stonybrook culvert replacement portion of the project. 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 the presence of wetlands under the low-precipitation conditions. A total of approximately 3.09 acres of potential waters of the U.S., including wetlands, were delineated within the 61.13 acres of the project limits. Table 22 identifies the wetlands and other waters features identified within the Niles Canyon Safety Improvements Project limits.

Table 22. Wetlands and Other Waters Located Within the Project Limits

<table>
<thead>
<tr>
<th>Feature Type</th>
<th>Total Area (Acres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Features</td>
<td>3.06</td>
</tr>
<tr>
<td>Wetlands</td>
<td>0.03</td>
</tr>
<tr>
<td>Total Waters of the U.S.</td>
<td>3.09</td>
</tr>
</tbody>
</table>

2.3.2.3 Environmental Consequences
Build Alternative
Within the project study limits, there are 3.09 acres of potentially jurisdictional wetland or water features. The Build Alternative would result in temporary and permanent impacts to wetlands and other waters within the project limits, as identified in Table 23.

Table 23. Build Alternative Impacts to Wetlands and Other Waters

<table>
<thead>
<tr>
<th>Feature Type</th>
<th>Total Area (Acres)</th>
<th>Temporary Impacts (Acres)</th>
<th>Permanent Impacts (Acres)</th>
<th>Total Impacts (Acres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Features</td>
<td>3.0590</td>
<td>0.2589</td>
<td>0.0329</td>
<td>0.2918</td>
</tr>
<tr>
<td>Wetlands</td>
<td>0.0347</td>
<td>0.0082</td>
<td>0.0012</td>
<td>0.0094</td>
</tr>
<tr>
<td>Total Waters of the U.S.</td>
<td>3.0937</td>
<td>0.2671</td>
<td>0.0341</td>
<td>0.3012</td>
</tr>
</tbody>
</table>

Figures 41 to 53 identify the impacts of the Build Alternative to wetlands and other waters in the project limits.
Figure 41. Build Alternative Impacts to Jurisdictional Wetlands and Other Waters (Map 1 of 13)
Figure 42. Build Alternative Impacts to Jurisdictional Wetlands and Other Waters (Map 2 of 13)
Figure 43. Build Alternative Impacts to Jurisdictional Wetlands and Other Waters (Map 3 of 13)
Figure 44. Build Alternative Impacts to Jurisdictional Wetlands and Other Waters (Map 4 of 13)
Figure 45. Build Alternative Impacts to Jurisdictional Wetlands and Other Waters (Map 5 of 13)
Figure 46. Build Alternative Impacts to Jurisdictional Wetlands and Other Waters (Map 6 of 13)
Figure 47. Build Alternative Impacts to Jurisdictional Wetlands and Other Waters (Map 7 of 13)
Chapter 2 - Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures

Figure 48. Build Alternative Impacts to Jurisdictional Wetlands and Other Waters (Map 8 of 13)
Figure 49. Build Alternative Impacts to Jurisdictional Wetlands and Other Waters (Map 9 of 13)
Figure 50. Build Alternative Impacts to Jurisdictional Wetlands and Other Waters (Map 10 of 13)
Figure 51. Build Alternative Impacts to Jurisdictional Wetlands and Other Waters (Map 11 of 13)
Figure 52. Build Alternative Impacts to Jurisdictional Wetlands and Other Waters (Map 12 of 13)
Figure 53. Build Alternative Impacts to Jurisdictional Wetlands and Other Waters (Map 13 of 13)
The Niles Canyon Safety Improvements Project would result in temporary impacts to wetlands and other waters, adjacent to SR-84. Permanent impacts to waters are anticipated for Stonybrook Creek. These impacts would result from the demolition of the reinforced concrete box culvert to build a clear span bridge in its place. As a part of the project, the reinforced concrete box culvert concrete bottom would be replaced with native material imitating upstream and downstream conditions, and the bridge would span wider than the active channel width. The alignment of the creek would also be improved with the inclusion of a wider bridge. This project would benefit the creek and riparian environments by removing barriers to fish migration and allowing the creek to naturally aggrade and degrade over time. The wider bridge would allow unimpeded bed-load transport under the bridge. Temporary impacts are also anticipated from the installation and removal of a temporary creek diversion upstream and downstream of the Stonybrook Creek culvert. In addition to the work at Stonybrook Creek, approximately 0.0082 acres of wetlands and other waters are anticipated to be temporarily impacted from metal beam guardrail installation work along SR 84. These areas would be restored and revegetated following construction activities.

Although the project would result in temporary and permanent impacts to wetlands and other waters, the Niles Canyon Safety Improvements Project would not permanently impair the function or value of wetlands and other waters within the project limits.

**No-Build Alternative**

The No-Build Alternative would result in no wetland or other waters loss. Under the No-Build Alternative, the Stonybrook Creek would not be restored to a more natural morphology.

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

**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 mitigation banks, in-lieu fee arrangements, or separate project-specific activities such as on-site restoration. Caltrans proposes to compensate through on-site restoration of wetlands within the Niles Canyon Corridor. The wetlands temporarily impacted will be revegetated with native wetland plant species and monitored for success.

**WETLANDS-2.** Permits. Caltrans will include a copy of all relevant permits, which include the CWA 401 Certification (RWQCB), Biological Opinion(s)\(^{23}\), 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.

---

\(^{23}\) As of September 2016, a Biological Opinion from National Marine Fisheries Service (NMFS) is not currently required, as fish passage between Alameda Creek and San Francisco Bay is blocked by the BART weir. Landlocked rainbow trout prevented from leaving the watershed are not currently considered to be anadromous Central California Coast DPS steelhead. If the fish ladder at the BART weir is installed prior to the start of the Niles Canyon Safety Improvements Project construction, Caltrans will pursue a Biological Opinion from NMFS as fish within Alameda Creek will be included by NMFS as part of the federally threatened Central California Coast steelhead DPS.
2.3.3 Plant Species
2.3.3.1 Regulatory Setting
The USFWS and CDFW have regulatory responsibility for the protection of special-status plant species. “Special-status” species are selected for protection because they are rare and/or subject to population and habitat declines. Special status is a general term for species that are provided varying levels of regulatory protection. 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 FESA and/or 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 21000-21177.

2.3.3.2 Affected Environment
The following analysis is based on the Natural Environment Study prepared for the Niles Canyon Safety Improvements Project (Caltrans, 2016g). The Natural Environmental Study was completed on September 6, 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 potential to occur within the project limits. Rare plant species occurrences within five miles of the project limits include alkali milk-vetch (Astragalus tener var. tener), San Joaquin spearscale (Atriplex joaquinana), chaparral harebell (Campanula exigua), Congdon’s tarplant (Centromadia parryi ssp. congdonii), Santa Clara red ribbons (Clarkia concinna ssp. automixa), Diablo helianthella (Helianthella castanea), Contra Costa goldfields (Lasthenia conjugens), hairless popcorn flower (Plagiobothrys glaber), Oregon polemonium (Polemonium carneum), most beautiful jewelflower (Streptanthus albidus ssp. peramoenus), and slender-leaved pondweed (Stuckenia filiformis ssp. alpina).

In 2007, Caltrans completed a rare plant survey within portions of the project limits for a previous project that did not go to construction, and no rare plants were documented (Caltrans, 2016g). Late season protocol-level surveys were conducted for the current project on August 7 and 8, 2014 in areas of natural vegetation types (which excludes paved roadways and urban/railroad areas). This range of survey dates only encompasses the blooming times of late blooming special-status plants potentially occurring within the project area. Another site visit was conducted on December 2, 2014 in areas totaling 2.78 acres that were added to the project limits after the late season surveys were completed. No federally listed plants, state listed plants, or plants with California Rare Plant Ranks were observed in the sections of the project limits in which protocol-level surveys were completed. Two areas of extreme cut slopes (approximately 4.12 acres) were not surveyed on foot due to safety concerns (these are the locations were the rockfall fence and rock drapery system are proposed). However, indirect observations were made of these hillsides from adjacent accessible...
areas, and observations were assisted by using binoculars. These indirect observations were sufficient to determine that no special-status plant species were present. The completion of this survey indicates there is a low potential for rare plants to be in the project limits.

A special-status plant survey was conducted within the project limits in March, May, and August 2015, and again in March, May, and August 2016 with the inclusion of Stonybrook Creek culvert replacement project. Completion of this survey and past surveys indicates there is a low potential for rare plants to be in the project limits. The following plants (identified by vegetation type) in Table 24 are located in the proposed project limits.

**Table 24. Plant Species by Vegetation Type**

<table>
<thead>
<tr>
<th>Vegetation Type</th>
<th>Potentially impacted plant species within the vegetation type</th>
</tr>
</thead>
<tbody>
<tr>
<td>California annual grasslands</td>
<td>Various brome species (<em>Bromus</em> spp.), wild oats (<em>Avena fatua</em>), foxtail barley (<em>Hordeum marinum</em> ssp. <em>gussoneanum</em>), yellow star thistle (<em>Centaurea solstitialis</em>), poison hemlock (<em>Conium maculatum</em>), other non-native herbs, and native annual forbs (wildflowers).</td>
</tr>
<tr>
<td>California Bay/Coast Live Oak</td>
<td>Buckeye (<em>Aesculus californica</em>) is a common tree associated in this habitat. Poison oak, ocean spray (<em>Holodiscus discolor</em>), honeysuckle (<em>Lonicera hispidula</em>), and snowberry (<em>Symphoricarpos spp.</em>) were common understory associates.</td>
</tr>
<tr>
<td>Valley foothill riparian</td>
<td>Dominant over-story species include western sycamore (<em>Platanus racemosa</em>), Fremont cottonwood (<em>Populus fremontii</em>), big leaf maple, and coast live oak. Sub-canopy species include arroyo willow (<em>Salix lasiolepis</em>), red willow (<em>Salix laevigata</em>), and blue elderberry (<em>Sambucus mexicana</em>). Understory species include poison oak, Himalayan blackberry (<em>Rubus discolor</em>), and wild grape (<em>Vitis californica</em>).</td>
</tr>
<tr>
<td>Coastal scrub</td>
<td>Coyote brush (<em>Baccharis pilularis</em>) scrub and California sagebrush (<em>Artemisia californica</em>) scrub</td>
</tr>
<tr>
<td>Fresh emergent wetland</td>
<td>Dominant species within the fresh emergent wetland are typically monocots such as tule, chairmaker’s bulrush (<em>Schoenoplectus americanus</em>), and bur reed (<em>Sparganium eurycarpum</em> ssp. <em>eurycarpum</em>).</td>
</tr>
<tr>
<td>Creek Channel</td>
<td>Creek habitat may contain vegetation such as torrent sedge shadowed by over-story trees, including white alder (<em>Alnus rhombifolia</em>), Northern California black walnut (<em>Juglans hindsii</em>), Fremont cottonwood (<em>Populus fremontii</em>), and California sycamore. Tules, sedges (<em>Carex</em> spp.), rushes (<em>Juncus</em> spp.), and a variety of strictly hydrophytic vegetation may also occur within this habitat.</td>
</tr>
</tbody>
</table>
2.3.3.3 Environmental Consequences

**Build Alternative**
The results of the 2007, August 2014, March 2015, May 2015, August 2015, March 2016, May 2016, and August 2016 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 Niles Canyon Safety Improvements Project limits contain several natural communities including California annual grasslands, California Bay/Coast Live Oak, Valley foothill riparian, Coastal scrub, Fresh emergent wetland, and Creek Channel. Table 19 in Section 2.3.1.2 identified the Build Alternative’s permanent and temporary impacts to these natural communities within the project limits. The Build Alternative would impact the indicated plant species in each land cover type.

**No-Build Alternative**
The No-Build Alternative would not change existing conditions and would not result in impacts to plant species.

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.

2.3.4 Animal Species

2.3.4.1 Regulatory Setting

Many state and federal laws regulate impacts to wildlife. The USFWS, 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 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 Niles Canyon Safety Improvements Project (Caltrans, 2016g). The Natural Environment Study was completed on September 6, 2016. A wildlife habitat assessment was conducted within the project limits in 2014 and 2016 (Caltrans, 2016g). Based on literature and database searches, past wildlife studies, and familiarity with the region, a total of 66 wildlife species were initially considered to have potential to occur within the project limits. Following the wildlife studies, 29 of these species were dropped from consideration based on a lack of suitable habitat. Four federally and/or state-listed threatened or endangered species (discussed in Section 2.3.5), and eight state species of special concern, were considered to have at least a moderate potential to occur in the project limits.

Figure 54. State Species of Special Concern with Moderate or High Potential to Occur

River lamprey (*Lampetra ayresii*), state species of special concern
Image source: http://fishbull.noaa.gov/1132/weitkamp.pdf

Western pond turtle (*Emys marmorata*), state species of special concern
Image source: Melanie Hunt, Caltrans

Yellow warbler (*Setophaga petechia*), state species of special concern
Image source: Alan Roseto, Garcia and Associates

Pallid bat (*Antrozous pallidus*), state species of special concern
Chapter 2- Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures

Townsend’s big-eared bat (*Corynorhinus townsendii*), state species of special concern
Image source: Denis Coghlan, Garcia and Associates

Western mastiff bat (*Eumops perotis californicus*), state species of special concern
Image source: [http://drecp.org/documents/docs/baseline_biology_report/10_Appendix_B_Species](http://drecp.org/documents/docs/baseline_biology_report/10_Appendix_B_Species)

Western red bat (*Lasiurus blossevillii*), state species of special concern

San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*), state species of special concern

Other Special-Status Animals with Moderate/High Potential to Occur

- Pacific Lamprey, CDFW Special Animal
- Hoary Bat, CDFW Special Animal
- Long-eared myotis, CDFW Special Animal
- Fringed myotis, CDFW Special Animal
- Yuma myotis, CDFW Special Animal
- Migratory birds, Migratory Bird Treaty Act and California Fish and Game Code (including Cooper’s Hawk, White-tailed Kite, and heron and egret rookeries)

River Lamprey (State Species of Special Concern) and Pacific Lamprey (CDFW Special Animal)
The river lamprey (*Lampetra ayersi*) is a California Species of Special Concern, and the Pacific lamprey (*Entosphenus tridentatus*) is on CDFW’s Special Animals List. Both of these species are anadromous fish. The most recent confirmed observation of a river lamprey in Alameda Creek...
Chapter 2- Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures

occurred in 1966. However, anadromous Pacific lampreys have been regularly documented in the Alameda Creek watershed both upstream and downstream of the BART weir (Caltrans, 2016g). The BART weir is a concrete grade control structure operated by ACWD; it is referred to as the “BART weir” because of its proximity to the BART system tracks. Pacific and river lamprey are difficult to differentiate from one another morphologically, and therefore it is possible that some of the sightings of Pacific lamprey in Alameda Creek may have been river lamprey.

Based on the presence of suitable spawning and rearing habitat within Alameda Creek, both species are considered to have a moderate potential to occur within the project limits. The planned restoration of fish passage at the BART weir would allow these species greater access to Alameda Creek, and the removal of the Stonybrook Creek culvert would allow upstream migration into Stonybrook Creek from the Alameda Creek confluence. Stonybrook Creek provides suitable spawning habitat to lamprey if they can regain access to the stream. Due to the presence of the Stonybrook Creek culvert, lamprey are unable to gain access to Stonybrook Creek north of the culvert. Permanent and temporary impacts are anticipated for the area between the Stonybrook Creek culvert outflow and the confluence, where lamprey currently have access. In-water work would be required for the Stonybrook Creek culvert demolition and bridge installation, but these activities would be restricted to the dry season when there is typically no water flow within Stonybrook Creek. For the remaining work, temporary construction access would be required in the floodplain of Alameda Creek, but no in-water work would occur. Project activity at these locations would be restricted to work on the railings of the bridges, which would all occur on the bridge deck well above the creek channel. No in-water work within Alameda Creek is anticipated as part of this project. Indirect impacts are not anticipated from water quality degradation from erosion or sediment loading. Caltrans would implement Standard Water Quality Best Management Practices (BMPs) to ensure there would be no adverse impact to lamprey. The proposed project would have no impact to river lamprey or Pacific lamprey. Replacing the Stonybrook Creek culvert with a clear span bridge would have a beneficial impact to river lamprey and Pacific lamprey.

Western pond turtle (State Species of Special Concern)
The western pond turtle (*Emys marmorata*) is a California Species of Special Concern. Western pond turtles range throughout California, from southern coastal California and the Central Valley, east to the Cascade and 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 650 feet.

Within the project limits, foraging and basking habitat is restricted to the two areas where Alameda Creek flows through the project limits. Heavily shaded areas under the tree canopy are generally not suitable for this species, though they may cross through during upland movements while seeking more suitable habitat. Suitable nesting habitat is also present in the project limits in south-facing areas with low-growing vegetation and compact, dry soil with high clay or silt fractions (Caltrans, 2016g). Low growing vegetation on south facing slopes occurs in several areas within the project limits, but they are immediately adjacent to the SR-84 roadway and are marginally suitable at best as nesting locations for western pond turtles due to the continual disturbance from
vehicular traffic. Although habitat within the project limits is generally marginal and the probability of western pond turtles occurring in any given location is low, based on the large geographic reach of the project limits and the proximity to Alameda Creek, this species is considered to have a moderate potential to occur within the project limits. Direct impacts to western pond turtle may result from earth-moving activities that could impacts nests and the potential relocation of individuals that wander into work areas. Impacts to nests are not expected to occur due to the limited areas and roadside location of suitable nesting habitat within the construction areas. The probability of individuals wandering into work areas is also very low since western pond turtles spend the majority of their lives in or immediately adjacent to aquatic habitat.

Minimal permanent impacts to 0.03 acre of creek channel at Stonybrook Creek would occur as the existing concrete box culvert is recontoured to a natural bottom and the passage barrier is removed to allow improved aquatic species passage. There will be 0.07 acre of temporary impacts to the creek channel due to the installation of the creek diversion, removal of an old road crossing element and abutment, and regrading of the creek bed. These permanent impacts are expected to improve habitat for western pond turtles by increasing wildlife corridor access along Stonybrook Creek. Indirect impacts may result from upland habitat exclusion and water quality degradation from erosion or sediment loading due to construction activities. Impacts to water quality would be negligible given the implementation of the proposed avoidance and minimization measures and Caltrans water quality BMPs. Impacts from the proposed project would not affect the persistence of local populations of western pond turtle in the Alameda Creek watershed.

Yellow Warbler (State Species of Special Concern and Migratory Bird Treaty Act)
The yellow warbler (*Setophaga petechia*) is a California Species of Special Concern that typically inhabits riparian areas. There are no occurrences of yellow warbler recorded in the California Natural Diversity Database (CNDDB) within five miles of the project limits (Caltrans, 2016g). 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 limits. Based on the presence of suitable nesting and foraging habitat, yellow warblers are considered to have a moderate potential to occur within the project limits. Standard project avoidance and minimization measures including work windows for nesting yellow warblers, pre-construction nesting bird surveys and implementation of nest buffers would reduce potential effects to the yellow warbler during project construction. The Niles Canyon Safety Improvements Project would result in some tree removal and impacts to various land cover types. The selected removal of isolated trees and spot location impacts to land cover types along the Niles Canyon Corridor would not impact the continuous Niles Canyon habitat corridor and would not significantly degrade the function of the natural communities used by the yellow warbler. The project would have no long-term permanent impacts to the yellow warbler as the project would not result in a significant impact to the habitats used by the yellow warbler.

San Francisco Dusky-Footed Woodrat (State Species of Special Concern)
The San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*) 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). Riparian and oak woodland habitats within the project
limits provide habitat for woodrats and active woodrat houses are well distributed throughout the project limits. A total of 20 houses were located within the project limits. These houses were constructed primarily at the bases of large trees. In addition, there is a CNDD occurrence immediately south of the project limits at the eastern end of Niles Canyon, where many houses and individuals were recorded along Alameda Creek in 2006 (Caltrans, 2016g). Based on the presence of numerous woodrat houses, this species is considered to have a high potential to occur within the project limits.

**Roosting Bats**

**Pallid Bat (State Species of Special Concern)**

The pallid bat (*Antrozous pallidus*) 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. Pallid bats make day roosts within crevices and cavities in caves, rock 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, 2016g). There is one occurrence of pallid bat recorded within five miles of the project limits. It was recorded in 2001, but this occurrence is considered sensitive, and its specific locality is suppressed by the CNDD. At least 13 pallid bats were observed using the Alameda Creek Bridge for night roosting during Caltrans’ bat survey (Caltrans, 2016g), and the riparian corridor within the project limits is suitable foraging habitat for this species. Suitable roosting habitat may also occur in trees within the project limits. Based on their confirmed presence within the project limits and the presence of suitable foraging habitat, pallid bats are considered to have a high potential to occur.

**Townsend’s big-eared bat (State Species of Special Concern)**

Townsend’s big-eared bat (*Corynorhinus townsendii*) 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. 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, roosting habitat on the bridge is considered marginal due to the significant evidence of human activity in this space, which greatly reduces the probability that this space would be used for roosting due to the species’ sensitivity to disturbance. No suitable semi-enclosed spaces for Townsend’s big-eared bat were observed on the Alameda Creek Bridge Overhead. Trees within the project limits may have more suitable habitat for this species, and suitable foraging habitat is present throughout the project limits and the rest of Niles Canyon. Based on their known presence in the region and the presence of suitable foraging and roosting habitat, Townsend’s big-eared bat is considered to have a high potential to occur within the project limits.

**Western mastiff bat**

The western mastiff bat (*Eumops perotis californicus*) is found primarily within southern California, with scattered populations present within the Coast Ranges south of San Francisco and the Sierra Nevada Mountains north to Butte County. They may occur in a variety of grassland,
scrub, and woodland habitats if there are suitable roost features in the vicinity. Roosts are made in crevasses in cliffs, boulders, caves, and buildings. Western mastiff bats may forage throughout the project limits, but this species’ preferred roosting habitat of crevices in cliff faces is not present. The rocky outcrops on the north wall of Niles Canyon are not high enough or vertical enough to support western mastiff bat roosts. Marginally suitable roosting habitat is present in the bridges and in trees. Based on the presence of suitable foraging habitat and marginal roosting habitat, western mastiff bats are considered to have a moderate potential to occur within the project limits.

Western red bat

The western red bat (*Lasiurus blossevillii*) 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, 2016g). This non-colonial species roosts in foliage, under overhanging leaves. Western red bats are commonly associated with cottonwood/sycamore and willow riparian habitats (Caltrans, 2016g). There are no recorded occurrences of western red bat in the CNDDB within five miles of the project limits (Caltrans, 2016g). Western red bats may forage throughout the project limits, 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 bridges or structures. 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 limits.

Hoary bat

The hoary bat (*Lasiurus cinereus*) 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, 2016g). 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, 2016g). There are no recorded occurrences of hoary bat in the CNDDB within five miles of the project limits (Caltrans, 2016g). Hoary bats may forage throughout the project limits, and they may roost in trees within any of the vegetated habitats. Larger, more mature trees are more likely to be used by this species than smaller trees. Because this species roosts exclusively in foliage, they are not expected to roost on bridges or structures. Based on the presence of suitable foraging and roosting habitat, hoary bats are considered to have a moderate potential to occur within the project limits.

Long-Eared Myotis

The long-eared myotis (*Myotis evotis*) 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. There are no recorded occurrences of long-eared myotis in the CNDDB within five miles of the project limits (Caltrans, 2016g). Long-eared myotis may roost in crevices within either of the two bridges, or in tree crevices or cavities throughout the project limits. This species may also forage throughout the project limits. Five acoustic detections that are
attributed to either long-eared myotis or fringed myotis were recorded within the project limits. Based on the presence of suitable roosting and foraging habitat, and the unconfirmed acoustic detection of this species, long-eared myotis is considered to have a moderate potential to occur within the project limits.

Fringed Myotis

The fringed myotis (*Myotis thysanodes*) range 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 preferred. Caves, mines, buildings, and crevices are all used for roosting, and maternity colonies can contain up to 200 individuals. There are no recorded occurrences of fringed myotis in the CNDDB within five miles of the project limits (Caltrans, 2016g). Fringed myotis may roost in crevices within either of the two bridges, or in tree crevices or cavities throughout the project limits. This species may also forage throughout the project limits. Five acoustic detections that are attributed to either long-eared myotis or fringed myotis were recorded within the project limits. Based on the presence of suitable roosting and foraging habitat, and the unconfirmed acoustic detection of this species, fringed myotis is considered to have a moderate potential to occur within the project limits.

Small-footed Myotis

The small-footed myotis (*Myotis ciliolabrum*) occurs primarily in arid woodlands and brushy areas near water. There are no recorded occurrences of small-footed myotis in the CNDDB within five miles of the project limits (Caltrans, 2016g). Small-footed myotis may forage throughout the project limits, and could roost in either of the two bridges or in tree crevices. Based on the presence of suitable roosting and foraging habitat, small-footed myotis is considered to have a moderate potential to occur within the project limits.

Yuma Myotis

The Yuma myotis (*Myotis yumanensis*) is a common species occurring throughout California except in the arid Mojave and Colorado Desert regions. There is one occurrence of Yuma myotis recorded within five miles of the project limits. It was recorded in 2006 approximately 0.6 miles southeast of the project limits, in a drainage in the hills just south of Niles Canyon (Caltrans, 2016g). Three roost locations were found in expansion joints of the Alameda Creek Bridge, which are used by a maternity colony of Yuma myotis. They may also be present in the expansion joints of the Alameda Creek Bridge and Overhead. In addition to these bridge roosts, Yuma myotis may also roost in trees within the project limits. Three acoustic detections that are attributed to either Yuma myotis or California myotis were recorded at the Stonybrook Creek culvert. This species typically feeds over water, but they may also forage in any of the vegetated habitats within the project limits. Based on their confirmed presence, the Yuma myotis is considered to have a high potential to occur.
Migratory Birds

Cooper’s Hawk, Migratory Bird Treaty Act

Cooper hawks (Accipiter cooperii) are included on CDFW’s Special Animals List. These are relatively common hawks occurring in forested areas. There are three CNDDB occurrences of nesting Cooper’s hawks recorded within five miles of the project limits. All three were recorded in 2006 in the hills just south of Niles Canyon, and the closest occurrence is approximately 0.35 mile southeast of the project limits (Caltrans, 2016g). Cooper’s hawks may nest in any of the tall trees in the oak woodland and riparian habitats within the project limits, 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 limits.

White-tailed Kite, Migratory Bird Treaty Act

White-tailed kites (Elanus leucurus) inhabit open areas and forage in grasslands. There are no CNDDB records of white-tailed kites nesting within five miles of the project limits (Caltrans, 2016g). However, these are common nesting and winter resident birds in the Bay Area, and they may nest in trees throughout the project limits. Although grasslands are present within the project limits, 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 limits 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 limits.

Heron and Egret Rookeries, Migratory Bird Treaty Act

There are several heron and egret species whose nesting colonies are included on CDFW’s Special Animals List and are tracked by the CNDDB. These include:

- Great blue heron (Ardea herodias)
- Great egret (Ardea alba)
- Snowy egret (Egretta thula)
- Black-crowned night heron (Nycticorax nycticorax)

There are two occurrences of great blue heron rookeries recorded in the CNDDB within five miles of the project limits. The first is located approximately 0.1 mile to the south 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 1.2 miles southwest of the project limits (Caltrans, 2016g). Another great blue heron rookery with an unknown number of nests has been documented near the Sunol Water Temple, 0.5 mile south of the project limits (Audubon Canyon Ranch 2014), and a large rookery used by over one hundred nesting pairs of black-crowned night herons, great egrets, and snowy egrets is located at Lake Elizabeth, approximately 1.8 miles to the south (Caltrans, 2016g). Suitable nesting habitat for these species is present in tall trees throughout the project limits and the rest of Niles Canyon, and suitable foraging habitat is present along the banks of Alameda Creek. No heron or egret rookeries were observed during the site reconnaissance, and there are no indications that any colonies have traditionally nested within the project limits. 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 limits.
Chapter 2- Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures

2.3.4.3 Environmental Consequences

Build Alternative

River Lamprey and Pacific Lamprey
Direct effects to both river lamprey and pacific lamprey are not anticipated from the proposed project. Project activity at the Alameda Creek Bridge and Overhead is restricted to work on the bridge railings, which would occur entirely on the bridge decks well above the creek channel. Temporary construction access is required in the floodplain of Alameda Creek, however no in-water work would occur, and therefore indirect impacts are not anticipated from water quality degradation from erosion or sediment loading.

During the replacement of the existing concrete box culvert at Stonybrook Creek, 0.03 acre of the creek channel would be permanently impacted as the new bridge is constructed, the creek bottom is recontoured with a natural bottom, and the passage barrier is removed. These activities are planned to occur during the dry season, when Stonybrook Creek is typically devoid of water. The current Stonybrook Creek culvert under SR-84 represents a complete passage barrier to these species. The replacement of this structure with a single-span bridge and contoured creek would allow these species to access upstream reaches of Stonybrook Creek that contain additional spawning areas. There would be 0.07 acre of temporary impacts to the creek channel due to the installation of the creek diversion, removal of an old road crossing element and abutment, and regrading of the creek bed. Caltrans would implement Standard Water Quality BMPs to ensure there would be no adverse impact to River Lamprey and Pacific Lamprey.

Western Pond Turtle
Direct impacts to western pond turtle may result from earth-moving activities that could impact nests and the potential relocation of individuals that wander into work areas. Impacts to nests are not expected to occur due to the limited areas and roadside location of suitable nesting habitat within the project limits. The probability of individuals wandering into work areas is also very low since western pond turtles spend the majority of their lives in or immediately adjacent to aquatic habitat. Permanent impacts to 0.03 acre of creek channel at Stonybrook Creek would occur as the existing concrete box culvert is recontoured to a natural bottom and the passage barrier is removed to allow improved aquatic species passage. There would be 0.07 acre of temporary impacts to the creek channel due to the installation of the creek diversion, removal of an old road crossing element and abutment, and regrading of the creek bed. Indirect impacts may result from upland habitat exclusion and water quality degradation from erosion or sediment loading due to construction activities. The removal of potential basking habitat would be minimal due to a substantial amount of alternative basking habitat available in the surrounding area. The water quality impacts are highly unlikely, given the proposed avoidance and minimization measures and Caltrans BMPs. Impacts from the proposed project would not affect the persistence of local populations of western pond turtle in the Alameda Creek watershed.

San Francisco Dusky-Footed Woodrat
Riparian and oak woodland habitats within the project limits provide habitat for woodrats. There are no woodrat houses located in permanent impact areas, and there are three located in temporary impact areas. Nests located in temporary impact areas 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. If there is a considerable risk of nest abandonment due to project
activity, then nests may have to be removed and/or relocated.

Roosting Bats
Project-related construction work within riparian woodland habitats would impact roosting bats through the removal and disturbance of potential tree roosts. Larger, more mature trees are more likely to provide suitable habitat for tree-roosting bats than smaller trees. Due to the cryptic nature of these species and the difficulty in locating and identifying tree roosts, impacts are difficult to quantify. Tree-roosting bats are likely to be present in low densities within the project limits, although it is not possible to tell exactly where they will occur. Trees that are likely to be removed for this project also represent a very small portion of the overall roosting habitat in Niles Canyon and the surrounding region.

No impacts to known roosts are expected at the Alameda Creek Bridge and Overhead (Bridge 33-3309) and Stonybrook culvert. All work would occur on the upper sides of the Alameda Creek Bridge and Overhead (on the decks and railings) and the Stonybrook culvert does not have any potential roosting sites. During construction, avoidance and minimization measures would be implemented to reduce impacts to night roosting bats within the vicinity of the work.

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 and disturb a small amount of habitat used by nesting or foraging migratory birds. This impact would be temporary and limited to a relatively small area in relationship to the extensive nesting and foraging habitat adjacent to the project limits. Standard project avoidance and minimization measures including work windows for nesting birds, pre-construction nesting bird surveys and implementation of nest buffers would reduce potential effects to migratory birds during project construction. The project would have no long-term permanent impacts to migratory birds as the project would not severely impact habitats used by migratory birds.

No-Build Alternative
The No-Build Alternative would have no impact to animal species in the project limits.

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 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, and NATURAL COMMUNITIES-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, and NATURAL COMMUNITIES-6.
WOOD RAT-1. Caltrans proposes a woodrat house relocation plan to be implemented outside the breeding season for San Francisco dusky-footed woodrat houses located in the impact areas. The woodrat house relocation plan involves the relocation of woodrat houses during the non-breeding season from areas that would be impacted to areas within Caltrans right of way. These houses would be located outside the project footprint, but as close to the original woodrat house locations as possible. 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 house relocation plan would undergo review with CDFW as Caltrans would be requesting a Memorandum of Understanding (MOU) on the woodrat house 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.

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. 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 work occurring at the Alameda Creek Bridge and Overhead and the Stonybrook Creek Culvert.

2.3.5 Threatened and Endangered Species
2.3.5.1 Regulatory Setting
The primary federal law protecting threatened and endangered species is the 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. 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 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 Niles Canyon Safety Improvements Project (Caltrans, 2016g). The Natural Environment Study was completed on September 6, 2016. Three federally and/or state-listed threatened or endangered species (steelhead Central California Coast DPS24, California red-legged frog, and Alameda whipsnake) are considered to have at least a moderate potential to occur within the project limits. The California tiger salamander is considered to have a low potential to occur within the project limits, but is discussed because of its prominence in the current regulatory environment.

24 As of September 2016, a Biological Opinion from NMFS is not currently required, as fish passage between Alameda Creek and San Francisco Bay is blocked by the BART weir. Landlocked rainbow trout prevented from leaving the watershed are not currently considered to be anadromous Central California Coast DPS steelhead. They are instead considered landlocked rainbow trout. Caltrans will pursue a Biological Opinion from NMFS once the planned fish ladder is installed for the BART weir, and fish within Alameda Creek are included by NMFS as part of the federally threatened Central California Coast steelhead DPS.
Figure 55. Threatened and Endangered Species within the Niles Canyon Safety Improvements Project limits

California Tiger Salamander, Central Distinct Population Segment, (Ambystoma californiense), federally threatened, state threatened

Steelhead, Central California Coast Distinct Population Segment [DPS] (Oncorhynchus mykiss irideus), federally threatened, state species of special concern

California Red-Legged Frog (Rana draytonii), federally threatened, state species of concern

Alameda Whipsnake (Masticophis lateralis euryxanthus), federally threatened, state threatened
California tiger salamander (*Ambystoma californiense*)
The Central Distinct Population Segment (DPS) of California tiger salamander (*Ambystoma californiense*) is federally and state listed as a threatened species. They breed in vernal pools and other seasonal or permanent ponds, and spend almost all of their lives underground in upland habitats. California tiger salamanders typically occur in grassland and oak savanna habitats where rodent burrows or deep soil crevices are used as long-term refuge sites. Adults migrate from upland habitats to breeding ponds on rainy nights during late fall and early winter. The aquatic larvae hatch and develop in pools during winter and spring, and typically take four to five months to complete their development and metamorphosis. There are a total of 50 CNDDB occurrences of California tiger salamander recorded within five miles of the project limits (Caltrans, 2016g), ten of which are within the species’ known 1.3-mile dispersal range (Caltrans, 2016g). The majority of these occurrences are located in the hills south of Niles Canyon Road or in the hills east of I-680.

Steelhead (Central California Coast DPS; *Oncorhynchus mykiss irideus*)
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 ACWD. This structure, located approximately 1.2 miles downstream from the western extent of the project limits, is commonly referred to as “the BART weir” because of its proximity to the BART system tracks. *O. mykiss* are known to occur within the Alameda Creek watershed (Caltrans, 2016g). Because these fish are prevented from leaving 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. However, ACWD is scheduled to install a fish ladder that will circumvent this structure in 2019 (Caltrans, 2016g). Habitat for steelhead within the boundaries of the project limits is not present due to fish passage barriers downstream.

California Red-Legged Frog (*Rana draytonii*)
The proposed project is located outside of Critical Habitat Unit ALA-2, located approximately 1.7 miles southwest of the project limits. Although this species is documented within Alameda Creek upstream of the project limits, the majority of occurrences are located in ponds in upland areas. Within the project limits, Alameda Creek is generally too swift-flowing to provide suitable breeding habitat for California red-legged frogs, though slower-moving eddies and pools at the margins may provide places for egg attachment. However, egg masses placed in these areas are still susceptible to being washed away during high flows, and breeding habitat for California red-legged frogs is generally marginal in the main channel of Alameda Creek. The pool on the south side of SR-84 at the Stonybrook Creek culvert is relatively still compared to the flow rate of the main Alameda Creek channel, and could represent suitable breeding habitat for California red-legged frog. Because the project limits does not contain suitable breeding habitat it is unlikely to support a high density of California red-legged frogs. However, California red-legged frogs may be present in low numbers during periods of movement in the aquatic and upland habitats of the project limits. Upland communities suitable for California red-legged frog within the project limits include California annual grassland, oak woodlands, coastal scrub, and valley foothill riparian areas within the project limits as cover.
Chapter 2 - Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures

Alameda whipsnake (*Masticophis lateralis euryxanthus*)
Suitable Alameda whipsnake habitat exists within the project limits. Two sections of the project limits, located on steep, southeast-facing hillsides covered by coastal scrub vegetation are particularly noteworthy for their suitability as habitat for Alameda whipsnake (the two sections of the project limits are where the dynamic rockfall fence and the rock drapery system are proposed for installation). These areas may be used for all life functions of the Alameda whipsnake including foraging, refuge, dispersal, and breeding. The remaining upland communities within the project limits including 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 Alameda whipsnake may use during overland movements from March through November. These communities also likely support a population of western fence lizards that could serve as a prey base for Alameda whipsnake. 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 I-680 (Caltrans, 2016g). Alameda whipsnake may access Alameda Creek and travel east-west along the stream corridor from areas immediately outside of the project limits.

2.3.5.3 Environmental Consequences
Appendix G includes the USFWS and NMFS species lists with the potential to occur in the project limits. Caltrans has determined that the Build Alternative 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 (*Callophryis 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*)
Western snowy plover (*Charadrius alexandrines nivosus*)
Ridgway’s rail (*Rallus longirostris obsoletus*)
California least tern (*Sternula antillarum browni*)
Salt-marsh harvest mouse (*Reithrodontomys raviventris*)
San Joaquin kit fox (*Vulpes macrotis mutica*)

**California Tiger Salamander**
The Niles Canyon Safety Improvements Project would occur in highly disturbed habitat that contains only marginally suitable dispersal habitat for the species. Despite an abundance of occurrences in the region, California tiger salamanders are not expected to occur within the western portions of the project limits due to the heavily wooded land cover and steep walls of Niles Canyon. The steep, densely wooded canyon walls likely represent a passage barrier for this species, which is typically found in flat areas or rolling hills dominated by grasslands. Alameda Creek is not suitable breeding habitat for California tiger salamander as this species requires still, ponded water for larval development. The pool immediately downstream of the Stonybrook Creek culvert is also not suitable for breeding due to the presence of flowing water through this area. California tiger salamanders are also not expected to occur in the eastern portion of the project limits (along Paloma Way) due to barriers between known California tiger salamander occurrences and the project limits. This section of the project limits along Paloma Road is isolated from potential breeding ponds and other areas of more suitable upland habitat so the species is unlikely to disperse through the project limits at this location.

Caltrans concludes that the Niles Canyon Safety Improvements Project may affect, but is not likely to adversely affect the California Tiger Salamander.

**Steelhead**
Direct effects to steelhead are not anticipated from the Niles Canyon Safety Improvements Project. Temporary construction access is required in the floodplain of Alameda Creek, however no in-water work will occur, and therefore indirect impacts are not anticipated from water quality degradation from erosion or sediment loading. During the replacement of the existing reinforced concrete box culvert at Stonybrook Creek, 0.03 acre of the creek channel will be permanently impacted as the new bridge is constructed, the creek bottom is recontoured with a natural bottom, and the passage barrier is removed. There will be 0.07 acre of temporary impacts to the creek channel due to the installation of the creek diversion, removal of an old road crossing element and abutment, and regrading of the creek bed. Caltrans would implement Standard Water Quality BMPs to ensure there will be no adverse impact to steelhead habitat. Several riparian trees currently providing shade to Stonybrook Creek would need to be removed to demolish the existing culvert and install the new bridge. These trees would be carefully removed to allow for the preservation of remaining trees after the installation of the bridge. The combination of the wider bridge and the large canopy trees remaining within the riparian habitat would provide adequate shading for steelhead after the completion of the project.
Caltrans concludes that the Niles Canyon Safety Improvements Project would have no effect to steelhead\(^{25}\), and will have a beneficial effect for steelhead when fish passage is restored at the BART weir.

**California Red-Legged Frog**

Direct effects to individual California red-legged frogs may occur throughout the project limits as a result of construction activities, including site preparation, use of heavy equipment, excavation, grading, and other ground disturbance within dispersal and upland habitat. Activities during construction could result in injury or death to individual California red-legged frogs. Habitat effects to land cover types used by California red-legged frogs are summarized in Table 25. The urban and paved areas within the project limits are not considered suitable habitat for the species.

Caltrans does not anticipate any effects to breeding habitat, due to absence of suitable breeding habitat within the project limits. The work will be conducted during the dry season, when adult California red-legged frogs are not expected to be dispersing. Work will be conducted on the bridge deck and railing of the Alameda Creek Bridge and Overhead deck and temporary impacts to area within the OHWM are expected during the dry season. No in-water work in Alameda Creek will be conducted as part of this project. Limited impacts to non-breeding aquatic habitat will occur due to temporary impacts to a small roadside wetland. California red-legged frog is not expected to occur in this wetland since it is located between SR 84 and a steep rock wall.

**Table 25. Summary of Impacts to California Red-Legged Frog Habitat**

<table>
<thead>
<tr>
<th>Land Cover Type</th>
<th>Temporary Impacts (Acres)</th>
<th>Permanent Impacts (Acres)</th>
<th>Total Impacts (Acres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>California Annual Grassland</td>
<td>0.07</td>
<td>0.01</td>
<td>0.08</td>
</tr>
<tr>
<td>California Bay/Coast Live Oak</td>
<td>0.66</td>
<td>0.68</td>
<td>1.34</td>
</tr>
<tr>
<td>Coastal Scrub</td>
<td>2.75</td>
<td>0.47</td>
<td>3.22</td>
</tr>
<tr>
<td>Valley Foothill Riparian</td>
<td>1.61</td>
<td>0.35</td>
<td>1.96</td>
</tr>
<tr>
<td>Fresh Emergent Wetland</td>
<td>0.01</td>
<td>0.00</td>
<td>0.01</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>5.10</strong></td>
<td><strong>1.51</strong></td>
<td><strong>6.61</strong></td>
</tr>
</tbody>
</table>

Replacement of the Stonybrook Creek culvert is not likely to impact the California red-legged frog as the pool has limited connectivity to more suitable habitat on the north side of SR-84 due to the presence of the road itself, which would likely cause substantial mortality of frogs attempting to cross. The vertical drop at the culvert is a barrier to frogs attempting to move upstream, forcing them up the adjacent embankment and onto the road should they attempt to disperse northward. Additionally, any frogs using the adjacent riparian corridor for cover would be relegated to a narrow band between SR-84 and Alameda Creek, much of which is subject to winter flooding. For these reasons, if any California red-legged frogs use the pool for breeding, they likely do so in low

---

\(^{25}\) As of September 2016, a Biological Opinion from NMFS is not currently required, as fish passage between Alameda Creek and San Francisco Bay is blocked by the BART weir. Landlocked rainbow trout prevented from leaving the watershed are not currently considered to be anadromous Central California Coast DPS steelhead. If the fish ladder at the BART weir is installed prior to the start of the Niles Canyon Safety Improvements Project construction, Caltrans will pursue a Biological Opinion from NMFS as fish within Alameda Creek will be included by NMFS as part of the federally threatened Central California Coast steelhead DPS.
numbers and with limited success compared to those using stock ponds in nearby upland areas. Furthermore, construction activities are planned to occur during the dry season, when Stonybrook Creek is typically devoid of water. As a result, work within Stonybrook Creek is not likely to impact California red-legged frog.

To further reduce impacts to California red-legged frog, Caltrans will provide compensation for impacts through on-site restoration of temporarily impacted areas (at a 1:1 ratio), and off-site compensation for permanently impacted areas (at a 3:1 ratio). Proposed compensatory mitigation is shown in Table 27 in Section 2.3.5.4. This compensation may be used to satisfy the conditions of multiple agencies and jurisdictions, including FESA and CESA. The final compensation may be subject to change during the consultation and permitting processes.

Caltrans concludes that the Niles Canyon Safety Improvements Project may affect, and is likely to adversely affect the California red-legged frog.

Alameda Whipsnake
Direct effects to individual Alameda whipsnakes may occur throughout the project limits as a result of construction activities, including site preparation, use of heavy equipment, excavation, grading, and other ground disturbance within suitable habitat. Activities during construction could result in injury or death in the construction area. All efforts to minimize direct effects would be made with the implementation of avoidance and minimization measures. Although direct mortality of individual Alameda whipsnakes is not anticipated, it is possible due to the cryptic nature of the species. Indirect impacts may result from temporary habitat exclusion and degradation for the duration of construction activities.

The Niles Canyon Corridor intersects a large tract of relatively undisturbed habitat within Alameda County that contains suitable habitat and is known to support Alameda whipsnake. Because they are a highly mobile species and use a wide variety of habitats adjacent to scrub habitat, all vegetated upland communities within the project limits have the potential to be used by Alameda whipsnake. Within the project construction areas, temporary and permanent impacts to Alameda whipsnake habitat are anticipated. Refer to Table 26 for a summary of impacts to Alameda whipsnake habitat.

Table 26. Summary of Impacts to Alameda Whipsnake Habitat

<table>
<thead>
<tr>
<th>Land Cover Type</th>
<th>Temporary Impacts (Acres)</th>
<th>Permanent Impacts (Acres)</th>
<th>Total Impacts (Acres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>California Annual Grassland</td>
<td>0.07</td>
<td>0.01</td>
<td>0.08</td>
</tr>
<tr>
<td>California Bay/Coast Live Oak</td>
<td>0.66</td>
<td>0.68</td>
<td>1.34</td>
</tr>
<tr>
<td>Coastal Scrub</td>
<td>2.75</td>
<td>0.47</td>
<td>3.22</td>
</tr>
<tr>
<td>Valley Foothill Riparian</td>
<td>1.61</td>
<td>0.35</td>
<td>1.96</td>
</tr>
<tr>
<td>Fresh Emergent Wetland</td>
<td>0.01</td>
<td>0.00</td>
<td>0.01</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>5.10</strong></td>
<td><strong>1.51</strong></td>
<td><strong>6.61</strong></td>
</tr>
</tbody>
</table>
Chapter 2 - Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures

The Niles Canyon corridor intersects a large tract of relatively undisturbed habitat within Alameda County that contains suitable habitat and is known to support Alameda whipsnake. Because they are a highly mobile species and use a wide variety of habitats adjacent to scrub habitat, all vegetated upland communities within the project limits have the potential to be used by Alameda whipsnake. The urbanized areas within the project limits are not included in this calculation, because these areas do not provide habitat for the species.

The proposed project is anticipated to cause approximately 1.05 acres of temporary impacts to Alameda whipsnake Critical Habitat Unit 3. No permanent impacts to critical habitat are expected. Less than 0.001 acre of permanent impacts to critical habitat in the California Bay/Coast Live Oak landcover type is expected\(^{26}\). Due to the nominal disturbance to critical habitat as a result of construction staging and access activities, Caltrans does not anticipate an adverse modification to critical habitat for Alameda whipsnake.

To further reduce impacts to the Alameda whipsnake, Caltrans will provide compensation for impacts through on-site restoration of temporarily impacted areas (at a 1:1 ratio), and off-site compensation for permanently impacted areas (at a 3:1 ratio). Proposed compensatory mitigation is shown in Table 28 in Section 2.3.5.4. This compensation may be used to satisfy the conditions of multiple agencies and jurisdictions, including FESA and CESA. The final compensation may be subject to change during the consultation and permitting processes.

Caltrans concludes that the Niles Canyon Safety Improvements Project may affect, and is likely to adversely affect Alameda whipsnake.

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 2.3.4.4 (NATURAL COMMUNITIES 1 through NATURAL COMMUNITIES 24) 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 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 for the Build Alternative is shown in Table 27. 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. Caltrans anticipates a need for off-site compensation and plans to purchase multi-species bank credits from Ohlone West or Ohlone Preserve Conservation Banks.

\(^{26}\) The fresh emergent wetland land cover type was included in Alameda whipsnake impact calculations due to its proximity to typical upland Alameda whipsnake habitat types. The sites include two small roadside wetlands that are embedded within a matrix of other habitat types that are typical for the species. One of the two wetlands is located adjacent to coastal scrub habitat within close proximity to Alameda whipsnake critical habitat, and the second wetland is surrounded by valley foothill riparian habitat along the Alameda Creek, which is considered a corridor for the species. Neither small wetland patch could be considered isolated or inaccessible to Alameda whipsnake, so they were included as potential habitat for Alameda whipsnake.
As of September 2016, 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 2018 construction), Caltrans would purchase bank credits from Ohlone West. Ohlone West is currently anticipating agency approval late 2016. 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 construction. If Ohlone West is not yet approved by the time of the credit purchase, or does not have adequate mitigation credits available for purchase by the start of project construction, Caltrans would increase the mitigation ratio by 10% for permanent impacts over two years until credits become available. In the event that bank credits are not available, Caltrans would purchase and conserve habitat to address the species’ requirement.

Table 27. Proposed Compensatory Mitigation for Impacts to California Red-Legged Frog

<table>
<thead>
<tr>
<th>Impacts</th>
<th>Impacts (Acres)</th>
<th>Compensation Ratio</th>
<th>Compensation (Acres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temporary</td>
<td>5.10</td>
<td>1:1</td>
<td>5.10</td>
</tr>
<tr>
<td>Permanent</td>
<td>1.51</td>
<td>3:1</td>
<td>4.53</td>
</tr>
<tr>
<td>Total</td>
<td>6.61</td>
<td>n/a</td>
<td>9.63</td>
</tr>
</tbody>
</table>

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 permanently impacted areas (at a 3:1 ratio) outside Critical Habitat through a combination of off-site habitat preservation and on-site restoration and enhancement activities. Proposed compensation is shown in Table 28. 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, valley foothill riparian, and coastal scrub habitat. 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 September 2016, 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 2018 construction), Caltrans would purchase bank credits from Ohlone West. Ohlone West is currently anticipating agency approval late 2016. 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 construction phase. If Ohlone West is not yet approved by the time of the credit purchase, or does not have adequate mitigation credits available for purchase by the start of project construction, Caltrans would increase the mitigation ratio by 10% for permanent impacts over two years until credits become available. In the event that bank credits are not available, Caltrans would purchase and conserve habitat to address the species’ requirement.
Table 28. Proposed Compensatory Mitigation for Impacts to Alameda Whipsnake

<table>
<thead>
<tr>
<th>Impacts</th>
<th>Impacts (Acres)</th>
<th>Compensation Ratio</th>
<th>Compensation (Acres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temporary</td>
<td>5.10</td>
<td>1:1</td>
<td>5.10</td>
</tr>
<tr>
<td>Permanent</td>
<td>1.51</td>
<td>3:1</td>
<td>4.53</td>
</tr>
<tr>
<td>Total</td>
<td>6.61</td>
<td>n/a</td>
<td>9.63</td>
</tr>
</tbody>
</table>

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 Niles Canyon Safety Improvements Project (Caltrans, 2016g). The Natural Environment Study was completed on September 6, 2016. 1,201 trees (DBH 4 inches or greater) were recorded within the project study limits of which 80 non-native trees were identified; these included scattered individuals of nine non-invasive varieties (e.g. Italian alder, Canary Islands 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 Niles Canyon Corridor.

2.3.6.3 Environmental Consequences

Build Alternative
The Build Alternative would have a minimal impact on spreading 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. All equipment and materials would be inspected for the presence of invasive species.

Specifications regarding vegetation and tree replacement would be provided during the design phase of the project (estimated to be completed in 2017). Caltrans Standard Specifications will control the spread or introduction of invasive species in the project vicinity (Caltrans, 2015a). 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 have no impact to invasive species.

2.3.6.4 Avoidance, Minimization, and/or Mitigation Measures

INVASIVE-1. 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
Chapter 2- Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures

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-2. 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.

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.

CEQA Guidelines Section 15130 describes when a cumulative impact analysis is necessary and what elements are necessary for an adequate discussion of cumulative impacts. The definition of cumulative impacts under CEQA can be found in Section 15355 of the CEQA Guidelines which defines cumulative impacts as two or more individual effects which when considered together, are considerable or which compound or increase other environmental impacts. The individual effects may be changes resulting from a single project or a number of separate projects. The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.

The No-Build Alternative is not a project. This section evaluates only the cumulative effects of the Build Alternative. The No-Build Alternative would not contribute to cumulative environmental effects in combination with other projects.

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 the project is included in Table 29, List of Projects Considered for 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.
This page is intentionally left blank.
### Table 29. List of Projects Considered for Cumulative Impact Analysis

<table>
<thead>
<tr>
<th>Project Proponent/Name</th>
<th>Project Status</th>
<th>Location</th>
<th>Project Description</th>
<th>Resource Areas Considered for Cumulative Impact Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caltrans/Niles Canyon Safety Improvements Project (Short Term Improvements)</td>
<td>Current project; project is currently in construction and will be complete by November 2016.</td>
<td>Niles Canyon Corridor, SR-84 from Mission Boulevard (SR-238) to I-680.</td>
<td>The project will construct various safety improvements along the Niles Canyon Corridor; all improvements will be made on paved surfaces. Off pavement work is not authorized.</td>
<td>Visual/Aesthetics</td>
</tr>
<tr>
<td>Caltrans/Alameda Creek Bridge Replacement Project</td>
<td>Future project; project is currently in the environmental phase.</td>
<td>Niles Canyon Corridor, SR-84, approximately three miles east of Mission Boulevard (SR-238).</td>
<td>The project proposes to replace the functionally obsolete Alameda Creek Bridge.</td>
<td>Visual/Aesthetics, Cultural Resources (Architectural History), Water Quality and Stormwater Runoff, Biological Environment: Wetlands and Other Waters, Natural Communities, Alameda Whipsnake, and California Red-Legged Frog</td>
</tr>
<tr>
<td>Caltrans/Niles 1</td>
<td>Past project; project was terminated.</td>
<td>Western portion of the Niles Canyon Corridor, SR-84 from Mission Boulevard (SR-238) to the Alameda Creek Bridge.</td>
<td>The project was terminated in 2011. However, prior to construction, approximately 150 native trees in the project limits were removed.</td>
<td>Visual/Aesthetics, Natural Communities, and Alameda Whipsnake</td>
</tr>
<tr>
<td>Caltrans/Arroyo de la Laguna Bridge Scour Project</td>
<td>Future project; project is currently in the environmental phase.</td>
<td>SR-84, near the town of Sunol.</td>
<td>The project proposes to widen the bridge by three feet. Widening will be done to the extent feasible without adding any additional substructures.</td>
<td>Visual/Aesthetics, Cultural Resources (Architectural History), Water Quality and Stormwater Runoff, Biological Environment: Wetlands and Other Waters, Natural Communities, Alameda Whipsnake, and California Red-Legged Frog</td>
</tr>
<tr>
<td>Caltrans/I-680 Northbound HOV/Express Lane Project</td>
<td>Future project; project is currently in the design phase. The Final Environmental Document was signed in July 2015.</td>
<td>I-680, from Calaveras Road (SR-237) to Vallecitos Road (SR-84).</td>
<td>The project proposes to reduce traffic congestion along northbound I-680 from Stoneridge Drive Interchange in the City of Pleasanton to SR-237 in the City of Milpitas through construction of a HOV lane from SR-84 to SR-237. The construction of auxiliary lanes will occur from Washington Boulevard to Auto Mall Parkway, from South Mission Blvd (SR-262) to Scott Creek Road, and from Scott Creek Road to Jacklin Road. Additionally, there will be installation of ramp metering facilities on southbound on-ramps from Stoneridge Drive to Jacklin Road.</td>
<td>Water Quality and Stormwater Runoff and Biological Environment: Wetlands and Other Waters, Alameda Whipsnake and California Red-Legged Frog</td>
</tr>
<tr>
<td>Caltrans; I-680 Alameda Freeway Performance Initiative</td>
<td>Future project; project is currently in the environmental phase.</td>
<td>I-680 in Alameda County from Scott Creek Road Undercrossing in the City of Fremont to Alcosta Boulevard Overcrossing in the City of Dublin.</td>
<td>The project proposes to install a ramp system for 16 on-ramps/connections in the project limits along I-680. These on-ramps/connections would be widened to provide for High Occupancy Vehicle preferential lanes and/or additional mixed-flow lanes.</td>
<td>Biological Environment: Alameda Whipsnake and California Red-Legged frog</td>
</tr>
<tr>
<td>Alameda County Water District/R2 Decommissioning</td>
<td>Past project; construction completed in November 2009.</td>
<td>The project is located between the BART Bridge and Isherwood Bridge.</td>
<td>The project consisted of the removal of an inflatable rubber dam fabric and the modification of the dam’s foundation to provide for fish passage.</td>
<td>Water Quality and Biological Environment: Wetlands and Other Waters</td>
</tr>
<tr>
<td>Alameda County Water District/Bunting Fish Screen</td>
<td>Past project; construction completed in November 2009.</td>
<td>In the City of Fremont, along the south side of the ACFCFD Channel, upstream of ACWD Rubber Dam Number 3.</td>
<td>The project consisted of the installation of a fish screen for an existing diversion</td>
<td>Water Quality and Biological Environment: Wetlands and Other Waters</td>
</tr>
<tr>
<td>Project Proponent/Name</td>
<td>Project Status</td>
<td>Location</td>
<td>Project Description</td>
<td>Resource Areas Considered for Cumulative Impact Analysis</td>
</tr>
<tr>
<td>------------------------</td>
<td>---------------</td>
<td>----------</td>
<td>---------------------</td>
<td>--------------------------------------------------------</td>
</tr>
<tr>
<td>Alameda County Water District/Kaiser Fish Screen Project</td>
<td>Past project; construction completed in spring 2014.</td>
<td>The project is located on the south side of the ACFCD channel.</td>
<td>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 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 is to prevent fish in the vicinity of this diversion from being entrained into ACWD's ground water recharge basins.</td>
<td>Water Quality and Stormwater Runoff and Biological Environment: Wetlands and Other Waters</td>
</tr>
<tr>
<td>Alameda County Water District /Alameda County Flood Control District - Joint Lower Alameda Creek Fish passage improvements</td>
<td>Future project; construction planned for Summer 2019</td>
<td>Alameda Creek, between Mission Boulevard and the Alameda County Flood Control District drop structure between the Union Pacific Railroad and BART Bridge.</td>
<td>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 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 decomin the existing unscreened. The purpose of these actions is to allow fish to migrate past the rubber dams, drop structure and diversion pipes in the reach of Alameda Creek between Mission Boulevard and Fernwood Court, Fremont, CA.</td>
<td>Water Quality and Stormwater Runoff and Biological Environment: Wetlands and Other Waters</td>
</tr>
<tr>
<td>City of Fremont/Old Canyon Road Bridge Foundation Protection Repair Project</td>
<td>Future project; Environmental Document circulated August 2014 for public comment.</td>
<td>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.</td>
<td>The project would stabilize the Old Canyon Bridge footings by replacing the rock rip-rap and installing the cobbles in the Alameda Creek channel.</td>
<td>Water Quality and Stormwater Runoff and Biological Environment: Wetlands and Other Waters</td>
</tr>
<tr>
<td>City of Fremont/Mission Clay Quarry Amended Reclamation Plan</td>
<td>Past project; construction completed.</td>
<td>Mission Clay Products Quarry, 2225 Old Canyon Road, Fremont</td>
<td>The project was 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 affected 19-acres of the property and dismantled all remaining structures, broke up and removed all impervious surfaces, clean up and dispose of all debris off site, re-grade disturbed areas, and revegetated all disturbed soils to prevent erosion and allow for the establishment of native plant communities consistent with the surrounding area.</td>
<td>Cultural, and Biological Environment: Natural Communities</td>
</tr>
<tr>
<td>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</td>
<td>Future project; environmental phase completed in April 2014. Anticipated construction date is unknown.</td>
<td>City of Hayward, between Huntwood Avenue and Hayward BART station.</td>
<td>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 Railroads.</td>
<td>Water Quality and Stormwater Runoff and Biological Environment: Wetlands and Other Waters</td>
</tr>
<tr>
<td>San Francisco City and County - SFPUC/Sunol and Niles Dam Removal</td>
<td>Past project; construction completed in 2006.</td>
<td>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 Canyon, and lies to the north of the dam. Niles Dam</td>
<td>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 SFPUC risk management concerns. In association with the removal of the dams, impounded sediment was be left in place to move downstream naturally over a period of several decades.</td>
<td>Water Quality and Stormwater Runoff and Biological Environment: Wetlands and Other Waters, Alameda Whipsnake and California Red-Legged frog.</td>
</tr>
</tbody>
</table>
### Table 29. List of Projects Considered for Cumulative Impact Analysis

<table>
<thead>
<tr>
<th>Project Proponent/Name</th>
<th>Project Status</th>
<th>Location</th>
<th>Project Description</th>
<th>Resource Areas Considered for Cumulative Impact Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Niles Canyon Safety Improvements Project</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alameda County/Proposed Expansion/Deepening of Surface Mining Permit, Mission Valley Rock Company Quarry</td>
<td>Past project; environmental completed in 2002.</td>
<td>City of Fremont at the Quarry Lakes.</td>
<td>The project proposed to modify the original quarry and reclamation plan by expanding the amount of volume of material that could be removed. This expansion would involve 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 SFWD and nearer to the streambed of Alameda Creek. The life of the quarry, currently ending by the year 2045, would not be extended. With the proposed expansion, the quarry pit would cover up to about 37-acres. A total of about 400,000 additional tons of marketable mineral commodities, over and above that already permitted, was mined during the permit period, after which reclamation would occur. The ancillary use area would remain unchanged.</td>
<td></td>
</tr>
<tr>
<td>Alameda County Water District/Alameda Creek Pipeline Number 1 Fish Screen Project</td>
<td>Past project; construction completed in Winter 2014.</td>
<td>City of Fremont, Mission Blvd to Isherwood Way.</td>
<td>The project consisted of the installation of fish screens for an existing water diversion.</td>
<td>Water Quality and Stormwater Runoff and Biological Environment: Wetlands and Other Waters and Alameda Whipsnake</td>
</tr>
<tr>
<td>Alameda County Water District/Appian Tank Seismic Upgrade Project</td>
<td>Past project; construction completed 2016.</td>
<td>Various locations in Fremont and Union City.</td>
<td>The project will implement the Appian Tank Seismic Upgrade Project located within the cities of Fremont and Union City, CA. The proposed project consists 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.</td>
<td>Water Quality and Biological Environment: Wetlands and Other Waters</td>
</tr>
<tr>
<td>Alameda County Water District/Vallecitos Channel Repair</td>
<td>Past project; construction completed 2016.</td>
<td>City of Fremont, SR-84 at Vallecitos Lane</td>
<td>The project will improve an existing unlined water conveyance channel and adjacent access road. The purpose of the work is to repair localized bank damage, prevent further erosion, and restore channel hydraulics and water conveyance efficiency. The project involves the installation of vegetated soil lift revetment, installation of transverse log stabilizers, and installation of a low-flow channel.</td>
<td>Water Quality and Biological Environment: Wetlands and Other Waters</td>
</tr>
<tr>
<td>San Francisco City and County - SFPUC/ Sunol Valley Water Treatment Plant Expansion</td>
<td>Past project; construction completed in 2013.</td>
<td></td>
<td>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 main project elements included the construction of an additional flocculation and sedimentation basin, a new, 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 SVWTP and a new 78-inch pipeline connecting the new treated water reservoir to the existing 78-inch plant discharge pipeline, which transports water from the plant to the existing Alameda Siphons (where treated water enters the water transmission system).</td>
<td>Biological Environment: Alameda Whipsnake</td>
</tr>
<tr>
<td>San Francisco City and County – SFPUC/San Antonio Backup Pipeline</td>
<td>Past project; completed in 2015</td>
<td></td>
<td>The project is located in unincorporated Alameda County along the west side of the project site. The project included the construction of several new facilities and improvements to provide reliable conveyance capacity for planned and future demands.</td>
<td>Biological Environment: Alameda Whipsnake</td>
</tr>
</tbody>
</table>
### Table 29. List of Projects Considered for Cumulative Impact Analysis

<table>
<thead>
<tr>
<th>Project Proponent/Name</th>
<th>Project Status</th>
<th>Location</th>
<th>Project Description</th>
<th>Resource Areas Considered for Cumulative Impact Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>San Francisco City and County - SFPUC/Alameda Siphon No. 4 Project</td>
<td>Past project; construction completed August 2012.</td>
<td>Calaveras Road, south of the intersection of I-680 and SR-84.</td>
<td>The project extends from the Alameda East Portal to the Alameda West Portal. The main elements of the project consisted of installing 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 consisted 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.</td>
<td>Biological Environment: Natural Communities and Alameda Whipsnake</td>
</tr>
<tr>
<td>San Francisco City and County - SFPUC/Geary Road Bridge Replacement Project</td>
<td>Past project; construction completed.</td>
<td>Sunol Ohlone Wilderness Park, approximately seven miles south of the town of Sunol.</td>
<td>The project involves the construction of a new 150-foot long concrete and weathered steel bridge that crosses Alameda Creek.</td>
<td>Water Quality and Stormwater Runoff and Biological Environment: Wetlands and Other Waters and Alameda Whipsnake</td>
</tr>
<tr>
<td>San Francisco City and County - SFPUC/New Irvington Tunnel Project</td>
<td>Past project, construction completed.</td>
<td>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.</td>
<td>The proposed New Irvington Tunnel project was approximately 3.5 miles long, extending west 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 new tunnel would be 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 would be between 8.5 feet and 10.5 feet. The depth of the tunnel would range from approximately 30 feet below ground surface at the portals to 700 feet below the techniques. The purpose of this project is to construct a new tunnel that would be built using modern earthquake engineering designs, materials and technology resulting in more resistance to damage during major seismic events, allow the SFPUC to take the existing tunnel out of service for inspection, maintenance, and repairs, and improve overall system delivery reliability by providing a redundant tunnel in the event of a major seismic event or other impact on the existing tunnel requiring maintenance and/or repair.</td>
<td>Water Quality and Stormwater Runoff and Biological Environment: Wetlands and Other Waters and Alameda Whipsnake</td>
</tr>
<tr>
<td>Alameda County Resource Conservation District/Natural Resources Conservation Service/Stonybrook Creek Fish Passage Improvement Project</td>
<td>Future project; environmental document was circulated for public review and comment in winter 2014. Anticipated construction date is unknown.</td>
<td>Stonybrook Creek, SR-84 near Palomares Road</td>
<td>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. It has been determined that both culverts are barriers to all lifestages of anadromous fish, including federally listed Distinct Population Segment (DPS) Central Coast California steelhead trout (<em>Oncorhyncus mykiss</em>). The primary concerns that led the sponsor, the Alameda County Resource Conservation District (ACRCD), to propose the Stonybrook Creek project are: a) presence of barriers to migration of anadromous Central Coast California steelhead and resident rainbow trout to identified spawning and rearing habitat in Stonybrook canyon and b) a concern about the cumulative impact of the proposed project on the cumulative impact of the existing and future projects on the water quality and biological environment.</td>
<td>Water Quality and Stormwater Runoff and Biological Environment: Wetlands and Other Waters and California Red-Legged Frog</td>
</tr>
<tr>
<td>Project Proponent/Name</td>
<td>Project Status</td>
<td>Location</td>
<td>Project Description</td>
<td>Resource Areas Considered for Cumulative Impact Analysis</td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td>---------------------------------</td>
<td>---------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Alameda County Resource Conservation District/Arroyo de la Laguna Stream Restoration Project</td>
<td>Past project; restoration completed in 2011.</td>
<td>Arroyo de la Laguna stream; directly underneath and immediately downstream of Verona Bridge, between Pleasanton and Sunol.</td>
<td>The project demonstrates bioengineered stream restoration practices on an incised, hydrologically altered system, affected by urban and agricultural development. The project site is on the Arroyo de la Laguna, south of City of Pleasanton, directly underneath and immediately downstream of Verona Bridge, corner of Verona Bridge and Foothill Road.</td>
<td>Water Quality and Stormwater Runoff, Natural Communities and Alameda Whipsnake.</td>
</tr>
</tbody>
</table>
This page is intentionally left blank.
2.4.3 Resource Areas with No Contribution to Cumulative Impacts
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
- Roosting Bats
- 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)
- California tiger salamander
- Steelhead – Central California Coast Distinct Population Segment (DPS)

The amount and quality of these species’ habitat impacted by the proposed project would not affect local populations. Project avoidance and minimization measures listed in Section 2.3 will reduce and avoid effects to these species during project construction. Furthermore, impacts to the habitat of many of these species from the Niles Canyon Safety Improvements Project would be offset through on-site restoration and enhancement activities. As a result, impacts to these species as a result of the proposed project is anticipated to be minimal and would not result in the contribution of cumulative effects to these species.

CULTURAL RESOURCES (ARCHAEOLOGY)
Although the Niles Canyon Safety Improvements Project would adversely affect an archaeological site, this particular site is important for what can be learned by data recovery and has minimal value for preservation in place. Caltrans is currently consulting with the SHPO and developing a treatment and recovery plan to ensure data is properly extracted from the site, resulting in no loss of information from the resource. As a result, the proposed project would not result in a contribution to cumulative effects on cultural resources (archaeology).

GEOLOGY/SOILS
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 design of the retaining wall at the Low Speed Curve and the Stonybrook Clear span Bridge incorporate features to reduce impacts as a result of geologic and seismic conditions. In consideration of building to SDC criteria, there is no potential for cumulative seismic impacts.

Some of 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 projects are proposed in the immediate project area. No further impacts to the slope...
located in the project vicinity are anticipated, and there is no potential for cumulative impacts to the geology/soils/topography of the area.

HAZARDS AND HAZARDOUS MATERIALS
The project could potentially produce some hazardous waste during the project demolition activities. If identified, ACM and LBP would be disposed in accordance with all federal and state rules and regulations. No cumulative hazardous waste/material impacts are anticipated as a result of the Niles Canyon Safety Improvements Project.

LAND USE/ PLANNING
The proposed project requires additional right of way for modifications to existing SR-84 facilities and construction of new facilities, however, the Niles Canyon Safety Improvements Project would not result in any land use designation changes. As a result, no cumulative land use impacts 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 Niles Canyon Safety Improvements Project proposes implementation of the mitigation measures that would effectively recover the scientific value of any fossils discovered during construction. No cumulative paleontological impacts are anticipated as a result of the Niles Canyon Safety Improvements Project.

PUBLIC SERVICES
The Niles Canyon Safety Improvements Project would temporarily impact fire and police services as a result of temporarily route and lane closures. No permanent impacts to public services are anticipated following the construction of the project. A review of projects in the area indicate few actions affecting public services have occurred or will occur as a result of past, present and future actions. No cumulative impacts to public services are anticipated.

TRANSPORTATION/TRAFFIC
The Niles Canyon Safety Improvements Project would temporarily impact fire and police services as a result of temporarily route and lane closures. No permanent impacts to transportation/traffic are anticipated following the construction of the project. A review of projects in the area indicate few actions affecting public services have occurred or will occur as a result of past, present and future actions. No cumulative impacts to transportation/traffic are anticipated.
Chapter 2 - Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures

UTILITIES/SERVICE SYSTEMS
The project involves the relocation of some utility power poles. No other direct or indirect impacts to utilities/emergency services are expected as a result of the Niles Canyon Safety Improvements 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 will occur as a result of past, present, and future actions. No cumulative impacts to utilities/service systems 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 7.2 miles of a 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 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 and health of visual/aesthetic resources in Niles Canyon was the passage of Measure D and Measure T as well as 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 Safety Improvements Project
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 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).

Caltrans’ Niles 1 Project removed approximately 150 trees along SR-84 between PMs 12.1 and 13.3. Caltrans ended up terminating the project. 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 the health of the landscape in the RSA remains stable.

The Alameda County Planning Department indicated that Caltrans projects are the only current and reasonably foreseeable projects planned in the Niles Canyon Corridor (Piñon-Robinson, 2014). Caltrans completed construction of the Niles Canyon Safety Improvements Project (Short Term Improvements) in September 2016. All work for the Niles Canyon Safety Improvements Project (Short Term Improvements) was on pavement, involved no tree removal, and had a negligible impact to visual/aesthetics of the Canyon. Future projects within the RSA include the Alameda Creek Bridge Replacement Project and the Arroyo de la Laguna Bridge Scour Project. Caltrans anticipates reissuing the environmental document for the Alameda Creek Bridge Replacement Project in November 2016. The Alameda Creek Bridge Replacement Project would result in some level of visual/aesthetic impacts to the Niles Canyon Corridor. Caltrans’ Arroyo de la Laguna Bridge Scour Project is currently in the early planning phase and visual/aesthetic 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.

The results of the analysis indicate while visual/aesthetic quality of Niles Canyon is healthy, the Niles Canyon Safety Improvements Project, in combination with the Alameda Creek Bridge Replacement Project, the Arroyo de la Laguna Bridge Scour Project, and the past Caltrans Niles 1 Project, does have the potential for a cumulative impact to visual/aesthetic resources in the RSA.
The Niles Canyon Safety Improvements Project would have aesthetic impacts to spot locations within the Niles Canyon Scenic Corridor. The project involves various safety improvements including, but not limited to, the installation of two rock drapery systems, improvements at the low speed curve, spot shoulder widening, and the signalization of the Pleasanton-Sunol intersection. The project also requires tree removal at several spot locations within the Niles Canyon Corridor. As of September 2016, preliminary estimates indicate that approximately 68 native trees and 2 non-native trees are located in permanently impacted areas and 213 native trees and 27 non-native trees are located in temporarily impacted areas. Trees located in permanent impact areas would be removed during project activities. Some trees located in temporary impact areas may be preserved, depending on the specific activity occurring near them.

As described in Section 2.1.5 Visual/Aesthetics, certain project elements would alter the existing visual/aesthetic quality and contribute to a less rural character on SR-84. While project elements would change existing conditions within the Niles Canyon Corridor, the construction of the safety improvements would not severely alter the Niles Canyon landscape nor would these changes severely impact or degrade the aesthetic quality and character that SR-84 motorists and Niles Canyon Railway passengers experience. Elements constructed as part of the safety improvements project would be co-dominant or subordinate to the existing surroundings and would generally blend in with the existing setting after several years. Visual/aesthetic impacts are further lessened by the short duration of motorist and Niles Canyon Railway passenger exposure to these areas. The proposed Niles Canyon Safety Improvements Project would not impact SR-84’s designation as a State Scenic Highway.

While the Niles Canyon Safety Improvements Project would have subtle aesthetic impacts to the Niles Canyon Corridor, these impacts would not result in a contribution to cumulative impacts on visual/aesthetic resources that is cumulatively considerable.

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 the project involves the replacement of bridge railing on the NRHP-eligible Alameda Creek Bridge and Overhead (Bridge 33-0039)\(^27\). The RSA for cultural resources (architectural history) was established from the Sunol Train Depot to the Niles Train Depot. This area was selected as the RSA because all the built resources of the NCTR Historic District, as well as all the built/architectural 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 Transcontinental Railroad Historic District, the Sunol Aqueduct and the Sunol Water Temple of the Spring Valley Water Company’s Alameda Creek System, the Vallejo Aqueduct System (including the Niles Dam turnout structure), and the Niles Canyon section of the Union Pacific Railroad.

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

\(^27\) For clarification throughout this Draft EIR/EA the Alameda Creek Bridge and Overhead is identified as Bridge 33-0039 while the Alameda Creek Bridge is identified as Bridge 33-0036.
Chapter 2- Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures

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 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 Pacific Locomotive Association’s (PLA) 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 cultural resources within Niles Canyon. 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. However, the review of past projects indicate that most have not adversely impacted cultural resources in the RSA (including the Niles Canyon Railroad, the Sunol Aqueduct and the Sunol Water Temple of the 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).

The Niles Canyon Safety Improvements Project proposes to replace the existing bridge railing on the NRHP-eligible Alameda Creek Bridge and Overhead. Other reasonably foreseeable actions that could affect cultural resources (architectural history) within the RSA include Caltrans’ Alameda Creek Bridge Replacement Project. Caltrans is proposing to replace the Alameda Creek Bridge and anticipates reissuing the Draft Environmental Document in November 2016. 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 a result, Caltrans’ proposal to replace the Alameda Creek Bridge is considered a significant impact under CEQA. Another Caltrans project includes addressing the scour mitigation at the 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 Alameda Creek Bridge Replacement Project is the only
identified reasonably foreseeable project with the potential to affect cultural resources (built/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).

As described in Section 2.1.6 Cultural Resources, the Alameda Creek Bridge and Overhead (Bridge 33-0039) is eligible for the NRHP under Criterion C, at the local level of significance. The significance of the Alameda Creek Bridge and Overhead is concentrated on its concrete box girder design. 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. The proposed demolition of the Alameda Creek Bridge (Bridge 33-0036) is considered a significant impact under CEQA. Reasonably foreseeable impacts to two historic vehicular bridges in the RSA indicate a potential for a cumulative impact to vehicular bridges in Niles Canyon.

The Alameda Creek Bridge and Overhead has not undergone significant alterations since it was constructed in 1948. The Niles Canyon Safety Improvements Project would require formwork to be attached to the box girder with bolts. Once construction is complete and the formwork is removed, the holes in the box girder would be patched and stained to match the color of the surrounding concrete. The proposed bridge railing replacement would maintain the see-through appearance of the existing Alameda Creek Bridge and Overhead. At either end of the bridge rail, concrete end blocks with etchings that mimic the Art Moderne styling of the existing bridge rail end points would be installed. The project would not result in physical damage to any portion of the bridge that contributes to its eligibility for the NRHP. As a result, the Niles Canyon Safety Improvements Project would not have incremental effects that are cumulatively considerable. This contribution is not significant because the proposed Niles Canyon Safety Improvements Project would not adversely impact the concrete box girder design of the bridge, which forms the basis for the bridge’s eligibility on the NRHP.

The results of this analysis indicate that the proposed project, when considered in the context of past, present, and future projects, would not result in a contribution to cumulative impacts on cultural resources within the RSA that is cumulatively considerable.

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 would 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. 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 the 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), but is not used within Caltrans right of way. 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, 2014). 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 the SFPUC that provides 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 the 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.

While the current health of the 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, and 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).

A review of past projects in the RSA within the last ten years include the Sunol and Niles Dam Removal Project, the Geary Road Bridge Removal Project, the Bunting Fish Screen Project, the Arroyo de la Laguna Stream Restoration, Appian Tank Seismic Upgrade Project, Vallecitos
Chapter 2 - Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures

Channel Repair, and the R2 Decommissioning. Of these projects, the Bunting Fish Screen Project, the Arroyo de la Laguna Stream Restoration, the R2 Decommissioning, and the Alameda Creek Pipeline No. 1 Fish Screen and Lago Los Osos Pipeline Project are stream restoration or fish passage improvement projects with no anticipated adverse impacts to water quality. The Geary Bridge Replacement Project resulted in a less-than-significant impact on water quality (San Francisco Planning Department, 2012a) 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). Projects presently in construction include SFPUC’s New Irvington Tunnel Project, which was determined to have a less-than-significant impact to water quality (San Francisco Planning Department, 2009). The Appian Tank Seismic Upgrade Project incorporated mitigation measures such as water quality control and erosion control to protect water quality. The Vallecitos Channel Repair repaired a portion of the channel where erosion of the channel bank had migrated into the adjacent access road and also incorporated water quality and erosion control measures to protect water quality.

Future projects identified in the RSA include the Alameda Creek Bridge Replacement Project, 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), 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 will temporarily impact water quality, however, no adverse long-term impacts to water quality are expected through the implementation of specific project avoidance and minimization measures. Although future projects in the RSA would temporarily impact Alameda Creek watershed water quality, these projects would not result in a decline in the health of Alameda Creek watershed.

The Niles Canyon Safety Improvement Project involves ground disturbing activities, which includes spot, eight-foot shoulder widening to improve safety and sight distance. Although spot shoulder widening would increase the amount of new impervious area in the Niles Canyon Corridor, the addition of 1.63 acres of new impervious area and the 0.64 acres of reworked impervious area would be regulated by Caltrans’ Statewide NPDES Stormwater Permit, issued by the SWRCB, to regulate stormwater discharges from Caltrans facilities.

In addition to ground disturbing activities, the proposed project requires large amounts of fresh concrete for the construction of a free-span bridge that would replace the existing culvert at Stonybrook Creek. 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 fresh concrete has the potential to change the pH of receiving waters. As described in Chapter 1, Caltrans would use a temporary stream diversion to construct the Stonybrook free-span bridge and remove the existing box-culvert structure. All dewatering would adhere to Caltrans Field Guide to Construction Site Dewatering (Caltrans, 2014c). Caltrans would use a stream diversion during construction to avoid the export of sediment and pH issues from...
work areas within the streambed. The stream diversion would be implemented from June 1st to October 15th to ensure a dry working environment while construction activities occur in Stonybrook Creek. 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 would temporarily increase in-stream turbidity. 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.

The Niles Canyon Safety Improvements Project would have temporary impacts to water quality and stormwater, however with the implementation of standard Caltrans specifications and BMPs, impacts of the project are anticipated to be minimal. Permanent water quality impacts from the Niles Canyon Safety Improvements Project would be addressed by erosion control and stormwater treatment BMPs. Erosion control BMPs would stabilize disturbed land areas minimizing sediment discharge. Stormwater treatment BMPs receive roadway runoff and would remove pollutants prior to discharge into receiving waters.

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. The Niles Canyon Safety Improvements Project would not result in a contribution to cumulative impacts on water quality and stormwater that is cumulatively considerable.

2.4.4.4 Biological Environment: Wetlands and Other Waters

The Niles Canyon Safety Improvements Project would require CWA 404 and 401 permits. As a result, impacts to wetlands and other waters is 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.

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 protecting the scenic quality of the Niles Canyon Corridor and preserve open space, these measures indirectly protect wetlands and other waters by preventing development in Niles Canyon.

Past projects in the RSA with identified wetlands and other waters impacts (from the past ten years) include the Sunol and Niles Dam Removal Project, the Geary Road Bridge Removal Project, the Bunting Fish Screen Project, the Arroyo de la Laguna Stream Restoration, the R2 Decommissioning, Appian Tank Seismic Upgrade Project, Vallecitos Channel Repair, the New Irvington Tunnel Project, and ACWD’s Alameda Creek Pipeline No. 1 Fish Screen Project. Of these projects the Bunting Fish Screen Project, the Arroyo de la Laguna Stream Restoration, the
Chapter 2- Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures

R2 Decommissioning, 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. 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, 2012a). 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. Projects presently in construction include SFPUC’s New Irvington Tunnel Project, which involves 0.02 acres of permanent impacts to wetlands and 0.33 temporary impacts to wetlands (San Francisco Planning Department, 2009). The Appian Tank Seismic Repair Project and Vallecitos Channel Repair involved impacts to wetlands and other waters requiring CWA 404 and 401 permits. The Vallecitos Channel Repair had 0.03 acres of permanent impacts to wetlands and other waters and the Appian Tank Seismic Repair Project had 0.01 acres of permanent impacts to wetlands and other waters.

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 of permanent impacts 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 acres, thus project implementation resulted in a net reduction of permanent fill in Alameda Creek of 0.005 acre (San Francisco Planning Department, 2012a). 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). ACWD’s Mitigation and Monitoring Reporting Plans for both the Appian Tank Seismic Repair and Vallecitos Channel Repair identified that the loss of federal and state protected waters would be compensated via onsite mitigation at a 1:1 ratio through the creation and enhancement of existing jurisdictional features. Furthermore, ACWD identified that a five year restoration plan would be developed, implemented, and sent to USFWS, CDFW, and RWQCB.

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

Niles Canyon Safety Improvements Project
shall be at least 1:1, but the specific ratio and location would be determined in consultation with USFWS, CDFW, and RWQCB.

The Niles Canyon Safety Improvements Project would result in temporary impacts to wetlands and other waters, adjacent to SR-84. Permanent impacts to waters are anticipated for Stonybrook Creek. These impacts would result from the demolition of the culvert to build a clear span bridge in its place. As a part of the project, the reinforced concrete box culvert concrete bottom would be replaced with native material imitating upstream and downstream conditions, and the bridge would span wider than the active channel width. The alignment of the creek would also be improved with the inclusion of a wider bridge. The project would also remove structures that are embedded in the substrate between the existing Stonybrook Culvert and the confluence of Alameda Creek and regrade the creek to provide a more natural substrate. This project would benefit the creek and riparian environments by removing barriers to fish migration and allowing the creek to naturally aggrade and degrade over time. The wider bridge would allow unimpeded bed-load transport under the bridge. Temporary impacts are also anticipated from the installation and removal of a temporary creek diversion upstream and downstream of the Stonybrook Creek culvert. In addition to the work at Stonybrook Creek, 0.27 acres of temporary impacts to wetlands and other waters are anticipated from metal beam guard rail installation work along SR 84. These areas would be restored and revegetated following construction activities.

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), and Stonybrook Creek Fish Passage Improvement Project. Of these future projects/projects currently in construction, 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 30 summarizes potential impacts to wetlands and other waters in the RSA as a result of past, present, and future projects.
Table 30. Impacts to wetlands and other waters in the Resource Study Area

<table>
<thead>
<tr>
<th>Project Proponent</th>
<th>Project</th>
<th>Project status</th>
<th>Temporary Impacts to wetlands and other waters</th>
<th>Permanent Impacts to wetlands and other waters</th>
<th>Total Impacts to wetlands and other waters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caltrans</td>
<td>Alameda Creek Bridge Replacement Project</td>
<td>In environmental phase</td>
<td>Between 1.146-1.338*.</td>
<td>Between 0.002-0.171 acres*.</td>
<td>Between 1.148-1.509 acres*.</td>
</tr>
<tr>
<td>Caltrans</td>
<td>Niles Canyon Safety Improvements Project</td>
<td>In environmental phase</td>
<td>0.2671</td>
<td>0.0341</td>
<td>0.3012</td>
</tr>
<tr>
<td>Caltrans</td>
<td>Arroyo de la Laguna Bridge Scour Project</td>
<td>In planning phase</td>
<td>Unknown</td>
<td>Unknown</td>
<td>Unknown</td>
</tr>
<tr>
<td>Caltrans</td>
<td>Interstate 680 HOV Lanes Project</td>
<td>In environmental phase</td>
<td>0.2 acres</td>
<td>0.1 acres</td>
<td>0.3 acres</td>
</tr>
<tr>
<td>SFPUC</td>
<td>Geary Bridge Replacement Project</td>
<td>Currently in construction</td>
<td>0.5 acre</td>
<td>0.01 acre</td>
<td>0.51 acres</td>
</tr>
<tr>
<td>Alameda County Water District</td>
<td>Vallecitos Channel Repair Project</td>
<td>Construction completed</td>
<td>Unknown</td>
<td>0.03 acres</td>
<td>0.03 acres</td>
</tr>
<tr>
<td>Alameda County Water District</td>
<td>Appian Tank Seismic Upgrade Project</td>
<td>Construction completed</td>
<td>Unknown</td>
<td>0.01 acres</td>
<td>0.01 acres</td>
</tr>
<tr>
<td>SFPUC</td>
<td>Sunol and Niles Dam Removal</td>
<td>Construction completed</td>
<td>Unknown</td>
<td>0.5 acres</td>
<td>0.5 acres and temporary impacts</td>
</tr>
<tr>
<td>SFPUC</td>
<td>New Irvington Tunnel Project</td>
<td>Construction completed</td>
<td>0.3 acres</td>
<td>0.02 acre</td>
<td>0.4 acres</td>
</tr>
<tr>
<td>Total Impacts</td>
<td></td>
<td></td>
<td>Between 2.2 acres and 2.3 acres.</td>
<td>Between 0.5 acres and 0.8 acres</td>
<td>Between 3.1992 acres and 3.56 acres</td>
</tr>
</tbody>
</table>

* Varies by Build Alternative

Based on the review of past and present projects in the RSA, there appears to be a trend of fully compensating for project 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, there is no cumulative impact to wetlands and other waters within the RSA.

The Niles Canyon Safety Improvements Project would continue this trend of compensating for impacts to wetlands and other waters on-site and within the Alameda Creek watershed. As a result, the Niles Canyon Safety Improvements Project would not result in a contribution to cumulative
impacts on wetlands and other waters that is cumulatively considerable. No additional avoidance and minimization measures are proposed besides those listed in Section 2.3.2.4.

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 PM 10.8 to PM 18.0. Cumulative impacts to fresh water emergent communities are discussed in Section 2.4.4.4 Biological Environment: 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 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 the 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 Planning Department, 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 Planning Department, 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 by the Calaveras Fault and Alameda Creek to the Alameda West Portal.

In 2011, Caltrans’ Niles 1 Project resulted in the removal of 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 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.
Chapter 2: Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures

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.

The Niles Canyon Safety Improvements Project Build Alternative would involve permanent and temporary disturbances to natural communities within the project limits as identified in Table 19 in Section 2.3.1.2.

Two reasonably foreseeable projects within the RSA have been identified as projects with the potential to impact natural communities. These two projects are Caltrans’ Alameda Creek Bridge Replacement Project and Caltrans’ Arroyo de la Laguna Bridge Scour Project. The Arroyo de la Laguna Bridge 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 Project limits. The Alameda Creek Bridge Replacement Project is currently in the environmental phase and the draft Environmental Document is anticipated to be reissued in November 2016. Preliminary estimates indicate that Alameda Creek Bridge Replacement Project would result in a temporary and permanent impacts to various habitat types. Depending on the Alternative selected, temporary and permanent impacts to Annual Grasslands would vary from 0.817-0.894 acres, impacts to Coastal Oak Woodland would vary from 1.180-1.582 acres, impacts to Coastal Scrub would vary from 0.693-0.948 acres, and impacts to Valley Foothill Riparian would vary from 1.880-2.819 acres.

The results of the analysis indicate that although the Niles Canyon Safety Improvements Project would result in permanent and temporary impacts to natural communities, the project would not have an incremental effect that would be cumulatively considerable. Furthermore, the project would not affect the stability and health of natural communities in Niles Canyon. The selected removal of isolated trees and spot location impacts to land cover types along the Niles Canyon Corridor would not impact the continuous Niles Canyon habitat corridor and would not significantly degrade the function of these natural communities. Niles Canyon is one of the few remaining natural riparian corridors that provide high quality wildlife habitat, facilitating species movement. Reasonably foreseeable projects in the RSA indicate that natural communities in the Niles Canyon Corridor will likely experience few disturbances in the future. The scale and intensity of these two reasonably foreseeable projects in the RSA would not degrade Niles Canyon’s current condition as a robust ecosystem. Overall there is no trend in the loss of natural communities within the Niles Canyon Corridor.

Although the result of this analysis indicate there is no trend in the loss of natural community habitats, Caltrans would 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: Alameda Whipsnake

AWS is identified as a resource to consider in cumulative impact analysis because the Niles Canyon Safety Improvements 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. A four-mile buffer from all limits of the project 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).

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 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, SFPUC’s Sunol and Niles Dam Removal and SFPUC’s New Irvington Tunnel Project have all occurred within the RSA established 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 and individual AWS or no impacts to AWS habitat occurred as a result of each project. SFPUC’s New Irvington Tunnel project 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 involves 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 Niles Canyon Safety Improvements 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. Table 31 identifies all past, present, and future projects within the RSA with impacts to AWS habitat.
Table 31. Impacts to Alameda Whipsnake Habitat within the Resource Study Area

<table>
<thead>
<tr>
<th>Proponent</th>
<th>Project Name</th>
<th>Project Status</th>
<th>Temporary impacts to Alameda whipsnake habitat</th>
<th>Permanent impacts to Alameda whipsnake habitat</th>
<th>Temporary and permanent Impacts to Alameda Whipsnake Critical Habitat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caltrans</td>
<td>Niles Canyon Safety Improvements Project</td>
<td>Future project; currently in the environmental phase</td>
<td>5.10 acres</td>
<td>1.51 acres</td>
<td>1.05 acres</td>
</tr>
<tr>
<td>Caltrans</td>
<td>Niles 1</td>
<td>Past project; terminated in 2011.</td>
<td>Unknown</td>
<td>Unknown</td>
<td>None</td>
</tr>
<tr>
<td>Caltrans</td>
<td>Alameda Creek Bridge Replacement</td>
<td>Environmental document to be reissued in November 2016.</td>
<td>Between 2.959-3.611 acres</td>
<td>Between 1.662-2.540 acres</td>
<td>1.439-2.010 acres</td>
</tr>
<tr>
<td>Caltrans</td>
<td>I-680 HOV/Express Lane Project</td>
<td>Future project; project is currently in design phase.</td>
<td>7.3 acres</td>
<td>11.7 acres</td>
<td>None</td>
</tr>
<tr>
<td>Caltrans</td>
<td>Freeway Performance Initiative</td>
<td>Future project; currently in the environmental phase</td>
<td>6.8 acres</td>
<td>3.1 acres</td>
<td>None</td>
</tr>
<tr>
<td>Caltrans</td>
<td>Arroyo de la Laguna Bridge Scour Project</td>
<td>Future project; in the planning phase.</td>
<td>Unknown</td>
<td>Unknown</td>
<td>None</td>
</tr>
<tr>
<td>SFPUC</td>
<td>San Antonio Backup Pipeline</td>
<td>Past project; completed in 2015</td>
<td>Not quantified in the DEIR</td>
<td>.5 acre</td>
<td>None</td>
</tr>
<tr>
<td>SFPUC</td>
<td>Alameda Siphon No. 4 Project</td>
<td>Past project; construction completed in 2012.</td>
<td>21.5 acres</td>
<td>1.3 acre</td>
<td>None</td>
</tr>
<tr>
<td>SFPUC</td>
<td>Geary Bridge Replacement</td>
<td></td>
<td>3.51 acres</td>
<td>0.06 acres</td>
<td>None</td>
</tr>
<tr>
<td>SFPUC</td>
<td>New Irvington Tunnel Project</td>
<td>Past project;</td>
<td>71.1 acres</td>
<td>2.8 acres</td>
<td>None</td>
</tr>
<tr>
<td>SFPUC</td>
<td>Sunol Valley Water Treatment Plant Expansion</td>
<td>Past project;</td>
<td>26.5 acres</td>
<td>5.45 acres</td>
<td>.82 acre</td>
</tr>
<tr>
<td>SFPUC</td>
<td>Upper Alameda Creek Filter Gallery Project</td>
<td>Future project.</td>
<td>Unknown</td>
<td>Unknown</td>
<td>Unknown</td>
</tr>
</tbody>
</table>
Impacts to Alameda whipsnake would result in approximately 6.61 acres of temporary and permanent impacts to Alameda whipsnake habitat. Out of the 6.61 acres, there would be 1.05 acres of temporary impacts to Alameda whipsnake Critical Habitat Unit 2. The 6.61 acres are made up of 5.10 acres of temporary impacts and 1.51 acres of permanent impacts, primarily composed of cut and fill for road widening, electrical trenching, pole installation or removal, and metal beam guard rail installation. The majority of this work would occur adjacent to the roadway in marginal habitat. Although this work is anticipated to result in temporary and permanent impacts to this species, the implementation of these project elements would not further fragment the habitat nor exclude the species. The Niles Canyon Safety Improvements Project would not affect the persistence of local populations of AWS in the Niles Canyon. The results of the analysis indicate there is a cumulative impact to Alameda whipsnake as a result of past, present and future actions. However, the incremental effects of the Niles Canyon Safety Improvements Project would not result in a cumulatively considerable contribution to cumulative impacts on AWS.

Measure AWS-1, identified in Section 2.3.5.4, serves as an avoidance, minimization, and/or mitigation measure for cumulative impacts to AWS habitat within the RSA.

2.4.4.7 Biological Environment: California Red-Legged Frog
The CRLF is identified as a resource to consider for cumulative impact analysis because the Niles Canyon Safety Improvements 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).

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 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 protect agricultural and open space and prevent 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.

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. A review of past projects occurring in the last ten years within the RSA indicated the Sunol and Niles Dam Removal Project was the only project within the RSA with impacts to CRLF. Impacts to CRLF were mitigated through restoration of all temporarily disturbed areas (San Francisco Planning Department, 2005).

The Niles Canyon Safety Improvements Project has the potential to impact California red-legged frog as a result of construction activities, including site preparation, use of heavy equipment, excavation, grading, and other ground disturbance within dispersal and upland habitat. Construction activities could result in injury or death to individual California red-legged frogs.
Indirect impacts may result from temporary habitat exclusion and degradation during periods of construction activities; all efforts to minimize impacts to California red-legged frog would be made with the implementation of avoidance and minimization measures, listed in Section 2.3.5.4.

Caltrans does not anticipate any effects to breeding habitat, due to absence of suitable breeding habitat within the project limits. The work would be conducted during the dry season, when adult California red-legged frogs are not expected to be dispersing. Work would be conducted on the bridge deck and railing of the Alameda Creek Bridge and Overhead deck and temporary impacts to area within the OHWM are expected during the dry season. No in-water work in Alameda Creek would be conducted as part of this project. Limited impacts to non-breeding aquatic habitat would occur due to temporary impacts to a small roadside wetland. California red-legged frog is not expected to occur in this wetland since it is located between SR 84 and a steep rock wall.

Replacement of the Stonybrook Creek culvert is not likely to impact the California red-legged frog as the pool has limited connectivity to more suitable habitat on the north side of SR-84 due to the presence of the road itself, which would likely cause substantial mortality of any frogs attempting to cross. The vertical drop at the culvert is a barrier to frogs attempting to move upstream, forcing them up the adjacent embankment and onto the road should they attempt to disperse northward. Additionally, any frogs using the adjacent riparian corridor for cover would be relegated to a narrow band between SR-84 and Alameda Creek, much of which is subject to winter flooding. For these reasons, if any California red-legged frogs use the pool for breeding, they likely do so in low numbers and with limited success compared to those using stock ponds in nearby upland areas. Furthermore, construction activities are planned to occur during the dry season, when Stonybrook Creek is typically devoid of water. As a result, work within Stonybrook Creek is not likely to impact California red-legged frog.

Several reasonably foreseeable actions would occur within the RSA. These include the Alameda Creek Bridge Replacement Project, the I-680 Northbound HOV/Express Lane Project, the Stonybrook Fish Passage Improvement Project, and the Old Canyon Bridge Replacement Project. Alameda County Resource Conservation District’s Stonybrook Fish Passage Improvement Project and the Old Canyon Bridge Replacement Project both identify measures that avoid and minimize impacts to CRLF habitat. The Alameda Creek Bridge Replacement Project and the I-680 Northbound HOV/Express Lane Project are the only reasonably foreseeable projects 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 proposed Alameda Creek Bridge Replacement Project would impact CRLF habitat in 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 would 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 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. Furthermore, the Niles Canyon Safety Improvements Project would not contribute to the degradation or decline in the health of the species. Impacts to California red-legged frog would result in approximately 6.61 acres of temporary and permanent impacts to California red-legged frog habitat. The 6.61 acres are made
up of 5.10 acres of temporary impacts and 1.51 acres of permanent impacts primarily composed of cut and fill for road widening, electrical trenching, pole installation or removal, metal beam guard rail installation, and sign installation planned to occur adjacent to the roadway on marginal habitat. This work would not further fragment the habitat nor construct objects that would exclude the species. The Niles Canyon Safety Improvements Project would not contribute to the degradation or decline in the health of the species as work would occur during the dry season and would not affect the persistence of local populations of CRLF in the Alameda Creek watershed.

The Niles Canyon Safety Improvements Project would not result in a cumulative impact to CRLF or its habitat and the incremental effects of the Niles Canyon Safety Improvements Project would not result in a cumulatively considerable contribution to cumulative impacts on CRLF. No additional measures are proposed besides those listed in Section 2.3.5.4.
This page is intentionally left blank.
CHAPTER 3. CALIFORNIA ENVIRONMENTAL QUALITY ACT EVALUATION

3.1 Determining Significance under the California Environmental Quality Act
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 Build 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.

3.2.1 No Effects
As part of the project’s scoping and environmental analysis conducted for the Build Alternative, agriculture and forest resources, air quality, energy, mineral resources, population and housing, and recreation were considered but found to have no adverse impact. Since the project would have no adverse impact on these resource areas, there would also be no contribution to cumulative impacts. Refer to Chapter 2, Table 7.
3.2.2 Less-than-Significant Effects of the Proposed Project

The Build Alternative would have a less-than-significant impact on the following resources:

Aesthetics/Visual

The Niles Canyon Safety Improvements Project would not affect scenic vistas or the scenic views enjoyed by motorists and Niles Canyon Railway passengers. The project would not substantially damage scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings within this State Scenic Highway. Native and non-native tree removal is anticipated as a result of construction activities (refer to Tables 20 and 21 in Section 2.3.1.2), in addition to the removal of approximately 33 trees that are within eight-feet of the edge of travelway. Tree removal would result in minor impacts to the visual quality, however, the overall aesthetic impact to the Niles Canyon Corridor would be negligible given the intactness of the Niles Canyon landscape.

No new permanent source of light or glare would be constructed that would adversely affect day or nighttime views in Niles Canyon. During construction activities, temporary construction lighting would be limited to the area of work.

As described in Section 2.1.5, certain project elements would alter the existing visual/aesthetic quality and contribute to a less rural character on SR-84. While project elements would change existing conditions on the Niles Canyon Corridor, the construction of the safety improvements would not severely alter the Niles Canyon landscape nor would these changes severely impact or degrade the aesthetic quality and character that SR-84 motorists and Niles Canyon Railway passengers experience. Elements constructed as part of this safety improvements project would be co-dominant or subordinate to the existing surroundings and would generally blend in with the existing setting after several years. Visual/aesthetic impacts are further lessened by the short duration of motorist and Niles Canyon Railway passenger exposure to these areas. The Niles Canyon Safety Improvements Project would have subtle aesthetic impacts to the Niles Canyon Corridor, however, these impacts would be less-than-significant.

Biological Resources

Section 2.3, Biological Resources, evaluates the project’s effects on biological resources within the project limits. As described in this section, construction, staging, and earthmoving activities may result in potential impacts to biological resources, however, impacts would be less-than-significant.

Natural Communities: California Annual Grassland, California Bay/Coast Live Oak, and Coastal Scrub.

The Niles Canyon Safety Improvements Project would result in temporary and permanent impacts to California annual grassland, California Bay/Coast Live Oak, and Coastal scrub natural communities. Spot disturbances to these land cover types along the Niles Canyon corridor would not impact the continuous Niles Canyon habitat corridor and would not significantly degrade the function of these natural communities. As previously discussed in Section 2.3.1, the Niles Canyon Safety Improvements Project would not create any barriers to existing wildlife corridors in the Niles Canyon Corridor. During design, Caltrans would make an effort to further minimize temporary disturbances to these natural communities. The Niles Canyon Safety Improvements...
Project would have a less-than-significant impact to natural communities. Refer to Section 2.3.1 for more detailed analysis.

**Wetlands and other Waters**
The Niles Canyon Safety Improvements Project would result in minor permanent wetlands and other waters loss within the project limits. The proposed project would minimally impact an isolated wetland. The work planned for fresh emergent wetland habitat consists of metal beam guard rail installation, which would occur adjacent to the roadway and on the edge of the fresh emergent wetland habitat. All other activities are planned to occur in areas away from fresh emergent wetland habitat. The project would remove structures that are embedded in the substrate between the existing Stonybrook Culvert and the confluence of Alameda Creek and regrade the creek to provide a more natural substrate. The alignment of the creek would also be improved with the inclusion of a wider bridge. During construction, there would be temporary impacts as a result of in-stream work to construct the Stonybrook free-span bridge and remove the existing concrete reinforced box-culvert structure. To minimize impacts, Caltrans would use a temporary stream diversion. Standard Caltrans best management practices, implemented as a part of all Caltrans projects, would be implemented to ensure no impacts to hydrology and water quality.

As the project would be removing an impediment to natural water flow along the creekbed, these wetlands would benefit from the natural morphology as a result of project implementation. In addition to removing a barrier to aquatic life, the Stonybrook culvert replacement activity would allow natural aggradation and degradation of the creek bed, promoting healthier hydrology for the creek. Impacts to wetlands and other waters would be less-than-significant. Refer to Section 2.3.2 for more detailed analysis.

**Plant Species**
The Niles Canyon Safety Improvements Project would have temporary and permanent impacts to various plant types within the project limits, however, project plant surveys indicated there is a low potential for rare plant occurrences in the project study limits. As a result, impacts to plant species in the project limits would be less-than-significant. Refer to Section 2.3.3 for more detailed analysis.

**Animal Species**
**River Lamprey and Pacific Lamprey**
The Niles Canyon Safety Improvements Project would permanently benefit river lamprey and pacific lamprey habitat through the replacement of the existing Stonybrook Creek culvert structure with a clear span bridge. The existing Stonybrook Creek culvert under SR-84 represents a complete passage barrier to these species. The removal would allow species to access upstream reaches of Stonybrook Creek that contain additional spawning areas.

During construction, direct impacts to lamprey may result from work within creek channel habitat in the project limits. Indirect impacts may result from habitat exclusion and construction activities would result in increased water quality degradation from erosion or sediment loading during the culvert demolition and replacement activities. These activities are planned to occur during the dry season, when Stonybrook Creek is typically devoid of water. To minimize impacts, Caltrans would use a temporary stream diversion. Standard Caltrans best management practices, implemented as
a part of all Caltrans projects, would be implemented to ensure no impacts to hydrology and water quality. Impacts to river lamprey and pacific lamprey would be less-than-significant. Refer to Section 2.3.4 for more detailed analysis.

**Western Pond Turtle**
During construction, direct impacts to western pond turtle may result from work within creek channel habitat in the project limits. Indirect impacts may result from habitat exclusion and construction activities would result in increased water quality degradation from erosion or sediment loading during the culvert demolition. These activities are planned to occur during the dry season, when Stonybrook Creek is typically devoid of water. To minimize impacts, Caltrans would use a temporary stream diversion. Standard Caltrans best management practices, implemented as a part of all Caltrans projects, would be implemented to ensure no impacts to hydrology and water quality. Ultimately, the Niles Canyon Safety Improvements Project would permanently benefit the western pond turtle through the replacement of the existing Stonybrook Creek culvert structure with a clear span bridge. Removal of the culvert would allow improved aquatic species passage through Stonybrook Creek. Impacts to western pond turtle would be less-than-significant. Refer to Section 2.3.4 for more detailed analysis.

**San Francisco Dusky-Footed Woodrat**
The Niles Canyon Safety Improvements Project would permanently and temporarily impact portions of riparian and oak woodland habitats within the project area, which serves as habitat for woodrats. No woodrat houses are located in permanent impact areas, but three woodrat houses are located in temporary impact areas. The three nests located in temporary impact areas may be relocated. The Niles Canyon Safety Improvements Project would have a less-than-significant impact to the San Francisco dusky-footed woodrat. To further reduce impacts to woodrats, Caltrans would implement a relocation plan for the woodrat houses affected by the Niles Canyon Safety Improvements Project. Refer to Section 2.3.4 for more detailed analysis.

**Roosting Bats**
The Niles Canyon Safety Improvements Project involves construction work within riparian woodland habitats and would have temporary and permanent impacts on roosting bats. Project related construction work within riparian woodland habitats, specifically near Stonybrook Creek, would have temporary and permanent impacts on roosting bats through the removal and disturbance of potential tree roosts. Larger, more mature trees are more likely to provide suitable habitat for tree-roosting bats than smaller trees. Due to the cryptic nature of these species and the difficulty in locating and identifying tree roosts, impacts are difficult to quantify. Tree-roosting bats are likely to be present in low densities within the project limits, although it is not possible to tell exactly where they will occur. Trees that are likely to be removed for this project also represent a very small portion of the overall roosting habitat in Niles Canyon and the surrounding region. No impacts to known roosts in the Alameda Creek Bridge and Overhead (Bridge 33-0039) would occur, because all work would take place on the upper sides of the bridges (on the decks and railings) and the existing Stonybrook culvert does not have any potential roosting sites. During construction, avoidance and minimization measures would be implemented to reduce impacts to night roosting bats within the vicinity of the work.
Although the Niles Canyon Safety Improvements Project would result in roosting bat habitat removal and disturbance, the permanently impacted area constitutes a small amount of potential bat roosting habitat in Niles Canyon. As a result, the Niles Canyon Safety Improvements Project would have a less-than-significant impact to roosting bats. Refer to Section 2.3.4 for more detailed analysis.

**Migratory Birds**
As described in Section 2.3.4, the Niles Canyon Safety Improvements Project would 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 is anticipated to prevent direct mortality of migratory birds. The proposed project may potentially remove or disturb a small amount of 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 limits. Standard project avoidance and minimization measures including work windows for nesting birds, pre-construction nesting bird surveys and implementation of nest buffers would reduce potential effects to migratory birds during project construction. The project would have no long-term permanent impacts to migratory birds as the project would not result in impacts to the habitats used by migratory birds. As a result, the Niles Canyon Safety Improvements Project would have a less-than-significant impact on Migratory Birds. Refer to Section 2.3.4 for more detailed analysis.

**Threatened and Endangered Species**
**California Tiger Salamander**
The Niles Canyon Safety Improvements Project would occur in highly disturbed habitat that contains only marginally suitable dispersal habitat for the species. Avoidance and minimization measures would be implemented to prevent individuals from entering the project limits and as a result, this project would have no measurable impact on California tiger salamander. The Niles Canyon Safety Improvements Project would have a less-than-significant impact to the California tiger salamander. Refer to Section 2.3.5 for more detailed analysis.

**Steelhead**
The Niles Canyon Safety Improvements Project would benefit creek channel habitat as the project involves the removal of the existing concrete culvert at Stonybrook Creek, which is a barrier to fish passage. The replacement of the culvert with a single-span bridge would allow Stonybrook Creek to take on a more natural morphology and remove a barrier to fish passage. Caltrans would install a bridge wider than the active channel width and restore the creek bed to conditions similar to upstream and downstream conditions using native materials. This would allow the creek bed to aggrade or degrade naturally over time. The project would have an overall net benefit to the creek channel habitat by removing a fish barrier and facilitating passage of steelhead and lamprey from Alameda Creek to Stonybrook Creek. During construction, there would be temporary impacts as a result of in stream work to construct the Stonybrook free-span bridge and remove the existing reinforced concrete box-culvert structure. To minimize impacts, Caltrans would use a temporary stream diversion. Standard Caltrans best management practices, implemented as a part of all Caltrans projects, would be implemented to ensure no impacts to hydrology and water quality. The
Niles Canyon Safety Improvements Project would have a less-than-significant impact to steelhead. Refer to Section 2.3.5 for more detailed analysis.

**California Red-Legged Frog**
Direct effects to individual California red-legged frogs may occur throughout the project limits as a result of construction activities, including site preparation, use of heavy equipment, excavation, grading, and other ground disturbance within dispersal and upland habitat. Activities during construction could result in injury or death to individual California red-legged frogs.

Caltrans does not anticipate any effects to breeding habitat, due to absence of suitable breeding habitat within the project limits. Furthermore, the work within Stonybrook Creek would be conducted during the dry season, when adult California red-legged frogs are not expected to be dispersing. The Niles Canyon Safety Improvements Project would have a less-than-significant impact to California red-legged frog. Refer to Section 2.3.5 for more detailed analysis.

**Alameda Whipsnake**
The Niles Canyon Corridor intersects a large tract of relatively undisturbed habitat within Alameda County that contains suitable habitat and is known to support Alameda whipsnake. Because they are a highly mobile species and use a wide variety of habitats adjacent to scrub habitat, all vegetated upland communities within the project limits have the potential to be used by Alameda whipsnake Direct effects to individual Alameda whipsnakes may occur throughout the project limits as a result of construction activities, including site preparation, use of heavy equipment, excavation, grading, and other ground disturbance within suitable habitat. Activities during construction could result in injury or death in the construction area. All efforts to minimize direct effects would be made with the implementation of avoidance and minimization measures. Although direct mortality of individual Alameda whipsnakes is not anticipated, it is possible due to the cryptic nature of the species.

Indirect impacts may result from temporary habitat exclusion and degradation for the duration of construction activities. The proposed project is anticipated to cause approximately 1.05 acres of temporary impacts to Alameda whipsnake Critical Habitat Unit 3. No permanent impacts to critical habitat are expected. Less than 0.001 acre of permanent impacts to critical habitat in the California Bay/Coast Live Oak landcover type is expected. Due to the nominal disturbance to critical habitat as a result of construction staging and access activities, the Niles Canyon Safety Improvements Project would have a less-than-significant impact to Alameda whipsnake. Refer to Section 2.3.5 for more detailed analysis.

**Invasive Species**
The Niles Canyon Safety Improvements Project would have a minimal impact on spreading 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. All equipment and materials would be inspected for the presence of invasive species. The proposed project would have a less-than-significant impact to invasive species. Refer to Section 2.3.6 for a more detailed analysis.
Chapter 3- California Environmental Quality Act Evaluation

Cultural Resources (Architectural History)
The Build Alternative involves work near Vallejo’s Aqueduct, a NRHP-eligible property, however, there would be no permanent impact to the structure as a result of the proposed project. The Build Alternative also involves the removal of the curb on the Alameda Creek Bridge and Overhead (Bridge 33-0039) as well as the replacement of the existing bridge railing. The significance of the Alameda Creek Bridge and Overhead is concentrated on its concrete box girder design. The bridge has not undergone significant alterations since it was constructed in 1948. The Niles Canyon Safety Improvements Project would require formwork to be attached to the box girder with bolts. Once construction is complete and the formwork is removed, the holes in the box girder would be patched and stained to match the color of the surrounding concrete. The proposed bridge railing replacement would maintain the see-through appearance of the existing Alameda Creek Bridge and Overhead. At either end of the bridge rail, concrete end blocks with etchings that mimic the Art Moderne styling of the existing bridge rail end points would be installed. The project would not result in physical damage to any portion of the bridge that contributes to its eligibility for the NRHP. As a result, the Niles Canyon Safety Improvements Project would have a less-than-significant impact to historical resources as defined in the CEQA guidelines, Section 15064.5.

For a discussion on Cultural Resources (Archaeology), refer to Section 3.2

Significant Effects of the Proposed Project.

Geology and Soils
The Build Alternative would not result in a significant impact to the geology and soils within the project limits. The clear span Stonybrook Creek Bridge, proposed as part of the Niles Canyon Safety Improvements Project, would be designed using Caltrans’ Seismic Design Criteria (SDC). The SDC provides the minimum seismic requirements for highway bridges designed in California. The Stonybrook Creek Bridge, as well as other structural elements of the proposed project, would incorporate features to reduce impacts as a result of geologic and seismic conditions. These design features include, but are not limited to, designing the Stonybrook 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 Niles Canyon Safety Improvements Project. Following the completion of the project, the Build Alternative 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 2.2.2.4 would be implemented to minimize soil erosion and avoid impacting the stability of existing soils. The impacts of the Build 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. Both the Alameda Creek Bridge and Overhead (Bridge 33-0039) and the Stonybrook Creek culvert structures might contain ACM and LBP. Avoidance and minimizations measures

Niles Canyon Safety Improvements Project
identified in Section 2.2.5.4 would be implemented to avoid exposure to hazardous materials and ADL. The project would not emit hazardous emissions and would not expose people or structures to a significant risk of loss. Additionally, the proposed Niles Canyon Safety Improvements would not impair implementation or interfere with any emergency plans. The impacts of the Build Alternative on hazards and hazardous materials would be less-than-significant. Refer to Section 2.2.5 for a more detailed analysis.

Hydrology and Water Quality
The Niles Canyon Safety Improvements Project would result in temporary impacts to water quality as a result of grading and earthmoving activities. The total disturbed soil area (DSA) would be approximately 11.1 acres; this acreage includes staging areas, temporary grading, cut and fill areas, new pavement, and pavement replacement areas. Additionally, as described in Chapter 1, Caltrans would use a temporary stream diversion to construct the Stonybrook free-span bridge and remove the existing box-culvert structure. Standard Caltrans best management practices, implemented as a part of all Caltrans projects, would be implemented to ensure no impacts to hydrology and water quality. As described in Section 2.2.2.4, there would be 1.63 acres of new impervious area and 0.64 acres of reworked impervious are as a result of the Niles Canyon Safety Improvements Project. Caltrans would consider best available technology (BAT) in selecting the stormwater treatment system to address the increased amount of pollutant and stormwater run-off resulting from the additional impervious area during the design phase of the project. The impacts of the Build Alternative would be less-than-significant. Refer to Section 2.2.2 for more detailed analysis.

Land Use and Planning
The proposed project requires additional right of way for modifications to existing SR-84 facilities and construction of new facilities, however, the Niles Canyon Safety Improvements Project would not result in any land use designation changes. The Niles Canyon Safety Improvements Project would have no impact to established communities and is mostly consistent with applicable land use plans, policies, and regulation of agencies with jurisdiction over the project. The Niles Canyon Safety Improvements Project is not consistent with Goal 6 of the EACCS. Goal 6 aims to “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 focal species and promote the level of native biodiversity expected to occur within this natural community in the study area”. As identified in Table 19 in Section 2.3.1.2, the Niles Canyon Safety Improvements Project would impact approximately 1.34 acres of California Bay/Coast Live Oak land cover (0.66 temporary impact and 0.68 permanent impact) and would result in the removal of individual oak trees. Impacts to land use and planning from the Niles Canyon Safety Improvements Project would be less-than-significant. Refer to Section 2.3.1 for more detailed analysis.

Noise
Noise levels would increase during the construction of the Niles Canyon Safety Improvements Project. 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, installation of rockfall systems, 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 Stonybrook Creek culvert, 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 activities anticipated to generate higher noise levels (such as the replacement of the Stonybrook culvert with a single-span bridge, installation of the retaining walls at the low speed curve, and installation of rockfall systems) are 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 the Build Alternative would be less-than-significant.

Public Services
The construction of the Niles Canyon Safety Improvements Project would not result in substantial adverse physical impacts associated with, which could permanently affect public services, such as access to schools, parks, and other public facilities as well as fire or police protection. Impacts to emergency services would be temporary and would likely include periodic lane(s)/shoulder(s) closures 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). In addition to temporary lane(s)/shoulder(s) closures, the project would require five weekend closures of Niles Canyon to construct the Stonybrook Creek Bridge and replace the bridge railing on the Alameda Creek Bridge and Overhead. Movement through Niles Canyon would be provided for law enforcement, fire, and/or emergency services so impacts to public services would be less-than-significant. Refer to Section 2.1.3 for a more detailed analysis.

Transportation/Traffic
The Niles Canyon Safety Improvements Project would not result in a significant impact to transportation/traffic. The Build Alternative would not conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system. Additionally, the Build Alternative 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 periodic lane(s)/shoulder(s) closures would likely be needed to facilitate construction. These short-term lane closures would likely occur on the weekends and during off-peak hours as to not affect peak-period traffic (peak period traffic is defined as 6-10 AM and 3-7 PM). Impacts to transportation/traffic would be less-than-significant. Refer to Section 2.1.4 for a more detailed analysis.

Utilities and Service Systems
The Build Alternative would maintain the existing two-lane capacity of this section of SR-84. The Build Alternative 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. As identified in the Chapter 1, PG&E utility poles within eight feet of the edge of
travelway would be relocated. These utility poles would be moved 10 feet from their current locations perpendicular to the existing roadway or across the road where limited space exists to relocate the poles. Approximately 19 poles would be relocated. AT&T also uses some of these 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 utility owners would continue through final project design and construction. The impacts of the Build Alternative on utilities and service systems would be less-than-significant. Refer to Section 2.1.3 for a more detailed analysis.

Cumulative Impacts
The cumulative impacts associated with the Build Alternative are discussed in detail in Section 2.4, Cumulative Impacts. As previously mentioned, the project would have no adverse impact to agriculture and forest resources, air quality, energy, mineral resources, population and housing, and recreation. Therefore, there would also be no contribution to cumulative impacts.

The Niles Canyon Safety Improvements Project would result in a less-than-significant contribution to cumulative impacts on the following resource areas:
- Aesthetics
- Selected Biological Resources including
  - 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 (Architectural History and Archaeology)
- Geology and Soils
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Noise
- Public Services
- Transportation/Traffic
- Utilities and Service Systems

3.2.3 Significant Environmental Effects of the Proposed Project
This section identifies significant impacts as a result of the implementation of the Build Alternative. Environmental impacts under CEQA are avoided and minimized through implementation of standard conditions, minimization measures, and mitigation measures.

Cultural Resources (Archaeology)/Tribal Cultural Resources
Impact: The Build Alternative would have a significant impact on an archaeological site.
Construction of the Build Alternative would adversely affect an archaeological property. As of September 2016, Caltrans is consulting with the SHPO on an Adverse Effect determination and developing a MOA for the treatment of the archaeological site. Caltrans is also consulting with
Native American tribes in the area regarding the treatment of the archaeological site. The Niles Canyon Safety Improvements Project would have a significant impact to cultural resources (archaeology), however, with the implementation of Mitigation Measure CULTURAL-3 and CULTURAL-4, this impact would less-than-significant. Refer to Section 2.1.6 for a more detailed analysis.

**Paleontology**

Impact: The Build Alternative could substantially impact paleontological resources.

The Niles Canyon Safety Improvements 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. The Build Alternative includes a wide range of construction elements; however, activities involving excavation or ground disturbance have the greatest potential to adversely affect paleontological resources. Paleontological resources within the Panoche Formation could exist at any layer or depth of ground disturbing activities. 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.

3.2.4 Unavoidable Significant Environmental Effects

The Build Alternative would result in impacts to the Niles Canyon Riparian Corridor that would remain significant after mitigation measures are incorporated. This significant and unavoidable impact is discussed below.

**Biological Resources**

Riparian Natural Communities

Impact: Implementation of the Build Alternative would have a significant impact on the Niles Canyon Riparian Corridor.

The Niles Canyon Safety Improvements Project would result in temporary and permanent impacts to riparian communities at spot locations along the Niles Canyon Corridor. 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.
3.2.5 Growth-Inducing Impacts
The Niles Canyon Safety Improvements Project is a safety 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 maintain the existing 45 mph speed limit of this section of SR-84. The project 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 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 Build Alternative would have not result in any growth-inducing impacts and therefore would be less-than-significant.

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$_2$), methane (CH$_4$), nitrous oxide (N$_2$O), tetrafluoromethane, hexafluoroethane, sulfur hexafluoride (SF$_6$), 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. In California, however, transportation sources (including passenger cars, light-duty trucks, other trucks, buses, and motorcycles make up the largest source of GHG-emitting sources. The dominant GHG emitted is CO$_2$, mostly from fossil fuel combustion.

There are typically two terms used when discussing 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 the effort of planning for and adapting to impacts resulting from climate change (such as adjusting transportation design standards to withstand more intense storms and higher sea levels$^{28}$.

There are four primary strategies for reducing GHG emissions from transportation sources: 1) improving the transportation system and operational efficiencies, 2) reducing travel activity, 3) transitioning to lower GHG-emitting fuels, and 4) improving vehicle technologies/efficiency. To be most effective, all four strategies should be pursued cooperatively.$^{29}$

---

$^{28}$ [http://climatechange.transportation.org/ghg_mitigation/](http://climatechange.transportation.org/ghg_mitigation/)
$^{29}$ [http://www.fhwa.dot.gov/environment/climate_change/mitigation/](http://www.fhwa.dot.gov/environment/climate_change/mitigation/)
Chapter 3- California Environmental Quality Act Evaluation

Regulatory Setting

State

With the passage of several pieces of legislation including State Senate and Assembly bills and Executive Orders, California launched an innovative and proactive 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 (EO) S-3-05 (June 1, 2005): The goal of this EO is to reduce California’s GHG emissions to 1) year 2000 levels by 2010, 2) year 1990 levels by 2020, and 3) 80 percent below the year 1990 levels by 2050. In 2006, this goal was further reinforced with the passage of Assembly Bill 32.

Assembly Bill 32 (AB 32), Núñez and Pavley, The Global Warming Solutions Act of 2006: AB 32 sets the same overall 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.”

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 set forth the low carbon fuel standard for California. Under this EO, the carbon intensity of California’s transportation fuels is to be reduced by at least 10 percent by 2020.

Senate Bill 97 (SB 97) Chapter 185, 2007, Greenhouse Gas Emissions: This bill required the Governor's Office of Planning and Research (OPR) to develop recommended amendments to the California Environmental Quality Act (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 for the achievement of the emissions target for their 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.

Federal

Although climate change and GHG reduction are a concern at the federal level, currently no regulations or legislation have been enacted specifically addressing GHG emissions reductions and climate change at the project level. Neither the United States Environmental Protection Agency (U.S. EPA) nor the Federal Highway Administration (FHWA) has issued explicit
guidance or methods to conduct project-level GHG analysis.  

FHWA supports the approach that climate change considerations should be integrated throughout the transportation decision-making process—from planning through project development and delivery. Addressing climate change mitigation and adaptation 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. Climate change considerations can be integrated into many planning factors, such as supporting economic vitality and global efficiency, increasing safety and mobility, enhancing the environment, promoting energy conservation, and improving the quality of life.

The four strategies outlined by FHWA to lessen climate change impacts correlate with efforts that the state is undertaking to deal with transportation and climate change; these strategies include improved transportation system efficiency, cleaner fuels, cleaner vehicles, and a reduction in travel activity.

Climate change and its associated effects are also being addressed through various efforts at the federal level to improve fuel economy and energy efficiency, such as the “National Clean Car Program” and EO 13514 - Federal Leadership in Environmental, Energy and Economic Performance.

Executive Order 13514 (October 5, 2009): This order is focused on reducing greenhouse gases internally in federal agency missions, programs and operations, but also directs federal agencies to participate in the Interagency Climate Change Adaptation Task Force, which is engaged in developing a national strategy for adaptation to climate change.

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 NHTSA issued the first of a series of GHG emission standards for new cars and light-duty vehicles in April 2010.

The U.S. EPA and the National Highway Traffic Safety Administration (NHTSA) are taking coordinated steps to enable the production of a new generation of clean vehicles with reduced GHG emissions and improved fuel efficiency from on-road vehicles and engines. These next steps include developing the first-ever GHG regulations for heavy-duty engines and vehicles, as well as additional light-duty vehicle GHG regulations.

The final combined standards that made up the first phase of this national program apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012

---

30 To date, no national standards have been established regarding mobile source GHGs, nor has U.S. EPA established any ambient standards, criteria or thresholds for GHGs resulting from mobile sources.

through 2016. The standards implemented by this program are expected to reduce GHG emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012-2016).

On August 28, 2012, U.S. EPA and NHTSA issued a joint Final Rulemaking to extend the National Program for fuel economy standards to model year 2017 through 2025 passenger vehicles. Over the lifetime of the model year 2017-2025 standards this program is projected to save approximately four billion barrels of oil and two billion metric tons of GHG emissions.

The complementary U.S. EPA and NHTSA standards that make up the Heavy-Duty National Program apply to combination tractors (semi trucks), heavy-duty pickup trucks and vans, and vocational vehicles (including buses and refuse or utility trucks). Together, these standards will cut greenhouse gas emissions and domestic oil use significantly. This program responds to President Barack Obama’s 2010 request to jointly establish greenhouse gas emissions and fuel efficiency standards for the medium- and heavy-duty highway vehicle sector. The agencies estimate that the combined standards will reduce CO2 emissions by about 270 million metric tons and save about 530 million barrels of oil over the life of model year 2014 to 2018 heavy duty vehicles.

Project Analysis
The proposed project is not a capacity increasing project so it is not anticipated to have any increase in operational GHG emissions. Additionally, the proposed safety improvement project is exempt from the requirement of air conformity determination under 40 CFR 93.126. Land use in the Niles Canyon Corridor is predominately owned and operated by public agencies as watershed lands. The surrounding areas are not likely to experience a significant increase in growth as there are no populations or proposed housing developments in the project vicinity nor are any anticipated in the near future.

An individual project does not generate enough GHG emissions to significantly influence global climate change. Rather, global climate change is a cumulative impact. This means that a project may contribute to a potential impact through its incremental change in emissions when combined with the contributions of all other sources of GHG.\textsuperscript{32} In assessing cumulative impacts, it must be determined if a project’s incremental effect is “cumulatively considerable” (CEQA Guidelines Sections 15064(h)(1) and 15130). To make this determination, the incremental impacts of the project must be compared with the effects of past, current, and probable future projects. To gather sufficient information on a global scale of all past, current, and future projects to make this determination is a difficult, if not impossible, task.

The AB 32 Scoping Plan mandated by AB 32 includes the main strategies California will use to reduce GHG emissions. As part of its supporting documentation for the Draft Scoping Plan, the ARB released the GHG inventory for California (forecast last updated: October 28, 2010). The forecast is an estimate of the emissions expected to occur in 2020 if none of the foreseeable

\textsuperscript{32} This approach is supported by the AEP: Recommendations by the Association of Environmental Professionals on How to Analyze GHG Emissions and Global Climate Change in CEQA Documents (March 5, 2007), as well as the South Coast Air Quality Management District (Chapter 6: The CEQA Guide, April 2011) and the U.S. Forest Service (Climate Change Considerations in Project Level NEPA Analysis, July 13, 2009).

Niles Canyon Safety Improvements Project
measures included in the Scoping Plan were implemented. The base year used for forecasting emissions is the average of statewide emissions in the GHG inventory for 2006, 2007, and 2008.

**Figure 56. California Greenhouse Gas Forecast**

![California Greenhouse Gas Emissions Forecast](source)

*Source: [http://www.arb.ca.gov/cc/inventory/data/forecast.htm](http://www.arb.ca.gov/cc/inventory/data/forecast.htm)*

Caltrans and its parent agency, the Transportation Agency, have taken an active role in addressing GHG emission reduction and climate change. Recognizing that 98 percent of California’s GHG emissions are from the burning of fossil fuels and 40 percent of all human made GHG emissions are from transportation, Caltrans has created and is implementing the **Climate Action Program at Caltrans** that was published in December 2006.  

The project objectives are to improve safety at spot locations on SR-84 to reduce the severity and number of accidents within the Niles Canyon Corridor. The project is exempt from regional and project-level air quality conformity requirements under 40 CFR 93.126 as the project proposes to construct safety improvements. These spot improvements would not create or alter roadway intersections where localized hot-spots are most likely to occur. The proposed project would not exceed or cause new violations of the National or California Ambient Air Quality Standards. As discussed below, construction emissions will be unavoidable, but will likely be long-term GHG benefits associated with reduced CO2 emissions, specifically as a result of the signalization of the SR-84/Pleasanton Sunol Road.

**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.

---

33 Caltrans Climate Action Program is located at the following web address:  
[http://www.dot.ca.gov/hq/tpp/offices/ogm/key_reports_files/State_Wide_Strategy/Caltrans_Climate_Action_Program.pdf](http://www.dot.ca.gov/hq/tpp/offices/ogm/key_reports_files/State_Wide_Strategy/Caltrans_Climate_Action_Program.pdf)

Niles Canyon Safety Improvements Project
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 mitigated to some degree by longer intervals between maintenance and rehabilitation events.

**Greenhouse Gas Reduction Strategies**

Caltrans continues to be involved on the Governor’s Climate Action Team as the ARB works to implement Executive Orders S-3-05 and S-01-07 and help achieve the targets set forth in AB 32. Many of the strategies Caltrans is using to help meet the targets in AB 32 come from then-Governor Arnold Schwarzenegger’s Strategic Growth Plan for California. The Strategic Growth Plan targeted a significant decrease in traffic congestion below 2008 levels and a corresponding reduction in GHG emissions, while accommodating growth in population and the economy. The Strategic Growth Plan relies on a complete systems approach to attain CO\(_2\) reduction goals: system monitoring and evaluation, maintenance and preservation, smart land use and demand management, and operational improvements as shown in Figure 57: The Mobility Pyramid.

Caltrans is supporting efforts to reduce vehicle miles traveled by planning and implementing smart land use strategies: job/housing proximity, developing transit-oriented communities, and high-density housing along transit corridors. Caltrans works closely with local jurisdictions on planning activities, but does not have local land use planning authority. Caltrans assists efforts to improve the energy efficiency of the transportation sector by increasing vehicle fuel economy in new cars, light and heavy-duty trucks; Caltrans is doing this by supporting ongoing research efforts at universities, by supporting legislative efforts to increase fuel economy, and by participating on the Climate Action Team. It is important to note, however, that control of fuel economy standards is held by the U.S. EPA and ARB.

Caltrans is also working towards enhancing the State’s transportation planning process to respond to future challenges. Similar to requirements for regional transportation plans under Senate Bill (SB) 375 (Steinberg 2008), SB 391 (Liu 2009) requires the State’s long-range transportation plan to meet California’s climate change goals under Assembly Bill (AB) 32.

The California Transportation Plan (CTP) is a statewide, long-range transportation plan to meet our future mobility needs and reduce greenhouse gas (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. The purpose of the CTP is to provide a common policy framework that will guide transportation investments and decisions by all levels of government, the private sector, and other transportation stakeholders. Through this policy framework, the CTP 2040 will identify the statewide
transportation system needed to achieve maximum feasible GHG emission reductions while meeting the State’s transportation needs.

Table 32 summarizes the Departmental and statewide efforts that Caltrans is implementing to reduce GHG emissions. More detailed information about each strategy is included in the Climate Action Program at Caltrans (December 2006).

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Program</th>
<th>Partnership</th>
<th>Method/Process</th>
<th>Estimated CO$_2$ Savings Million Metric Tons (MMT)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2010</td>
</tr>
<tr>
<td>Smart Land Use</td>
<td>Intergovernmental Review (IGR)</td>
<td>Caltrans</td>
<td>Review and seek to mitigate development proposals</td>
<td>Not Estimated</td>
</tr>
<tr>
<td></td>
<td>Planning Grants</td>
<td>Caltrans</td>
<td>Local and regional agencies &amp; other stakeholders</td>
<td>Not Estimated</td>
</tr>
<tr>
<td></td>
<td>Regional Plans and Blueprint Planning</td>
<td>Regional Agencies</td>
<td>Regional plans and application process</td>
<td>0.975</td>
</tr>
<tr>
<td>Operational Improvements &amp; Intelligent Transportation System (ITS) Deployment</td>
<td>Strategic Growth Plan</td>
<td>Caltrans</td>
<td>State ITS; Congestion Management Plan</td>
<td>0.07</td>
</tr>
<tr>
<td>Mainstream Energy &amp; GHG into Plans and Projects</td>
<td>Office of Policy Analysis &amp; Research; Division of Environmental Analysis</td>
<td>Interdepartmental effort</td>
<td>Policy establishment, guidelines, technical assistance</td>
<td>Not Estimated</td>
</tr>
<tr>
<td>Educational &amp; Information Program</td>
<td>Office of Policy Analysis &amp; Research</td>
<td>Interdepartmental, CalEPA, ARB, CEC</td>
<td>Analytical report, data collection, publication, workshops, outreach</td>
<td>Not Estimated</td>
</tr>
<tr>
<td>Fleet Greening &amp; Fuel Diversification</td>
<td>Division of Equipment</td>
<td>Department of General Services</td>
<td>Fleet Replacement B20 B100</td>
<td>0.0045</td>
</tr>
<tr>
<td>Non-vehicular Conservation Measures</td>
<td>Energy Conservation Program</td>
<td>Green Action Team</td>
<td>Energy Conservation Opportunities</td>
<td>0.117</td>
</tr>
<tr>
<td>Portland Cement</td>
<td>Office of Rigid Pavement</td>
<td>Cement and Construction Industries</td>
<td>2.5 % limestone cement mix 25% fly ash cement mix &gt; 50% fly ash/slag mix</td>
<td>1.2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td>2.72</td>
</tr>
</tbody>
</table>
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)\(^{34}\) provides a comprehensive overview of activities undertaken by Caltrans statewide to reduce greenhouse gas emissions resulting from agency operations.

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. There may also be economic and strategic ramifications as a result of these types of impacts to the transportation infrastructure.

At the federal level, the Climate Change Adaptation Task Force, co-chaired by the White House 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\(^{35}\), 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.

Climate change adaptation must also involve the natural environment as well. Efforts are underway on a statewide-level to develop strategies to cope with impacts to habitat and biodiversity through planning and conservation. The results of these efforts will help California agencies plan and implement mitigation strategies for programs and projects.

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.

In addition to addressing projected sea level rise, the California Natural Resources Agency (Resources Agency) was directed to coordinate with local, regional, state and federal public and

\(^{34}\) [http://www.dot.ca.gov/hq/tpp/offices/orip/climate_change/projects_and_studies.shtml](http://www.dot.ca.gov/hq/tpp/offices/orip/climate_change/projects_and_studies.shtml)

\(^{35}\) [http://www.whitehouse.gov/administration/cop/ceq/initiatives/adaptation](http://www.whitehouse.gov/administration/cop/ceq/initiatives/adaptation)
private entities to develop *The California Climate Adaptation Strategy* (Dec 2009)\(^{36}\), which summarizes the best-known science on climate change impacts to California, assesses California’s vulnerability to the identified impacts, and then outlines solutions that can be implemented within and across state agencies to promote resiliency.

The strategy outline is in direct response to EO S-13-08 that specifically asked the Resources Agency to identify how state agencies can respond to rising temperatures, changing precipitation patterns, sea level rise, and extreme natural events. Numerous other state agencies were involved in the creation of the Adaptation Strategy document, including the California Environmental Protection Agency; Business, Transportation and Housing; Health and Human Services; and the Department of Agriculture. The document is broken down into strategies for different sectors that include: Public Health; Biodiversity and Habitat; Ocean and Coastal Resources; Water Management; Agriculture; Forestry; and Transportation and Energy Infrastructure. As data continues to be developed and collected, the state’s adaptation strategy will be updated to reflect current findings.

The National Academy of Science was directed to prepare a Sea Level Rise Assessment Report\(^ {37}\) to recommend how California should plan for future sea level rise. The report was released in June 2012 and included:

Relative sea level rise projections for California, Oregon and Washington taking into account coastal erosion rates, tidal impacts, El Niño and La Niña events, storm surge and land subsidence rates.

The range of uncertainty in selected sea level rise projections.

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.

A discussion of future research needs regarding sea level rise.

In 2010, interim guidance was released by The Coastal Ocean Climate Action Team (CO-CAT) as well as Caltrans as a method to initiate action and discussion of potential risks to the state’s infrastructure due to projected sea level rise. Subsequently, CO-CAT updated the Sea Level Rise guidance to include information presented in the National Academies Study.

All state agencies that are planning to construct projects in areas vulnerable to future sea level rise are directed to consider a range of sea level rise scenarios for the years 2050 and 2100 to 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, storm surge and storm wave data

---


Chapter 3- California Environmental Quality Act Evaluation

All projects that have filed a Notice of Preparation as of the date of EO S-13-08, and/or are programmed for construction funding from 2008 through 2013, or are routine maintenance projects may, but are not required to, consider these planning guidelines. Caltrans filed an NOP for the Niles Canyon Safety Improvements Project on September 30, 2015. The proposed project is outside the coastal zone and direct impacts to transportation facilities due to projected sea level rise are not expected.

Executive Order S-13-08 also directed the Business, Transportation, and Housing Agency to prepare a report to assess vulnerability of transportation systems to sea level rise affecting safety, maintenance and operational improvements of the system, and economy of the state. Caltrans continues to work on assessing the transportation system vulnerability to climate change, including the effect of sea level rise.

Currently, Caltrans is working to assess which transportation facilities are at greatest risk from climate change effects. However, without statewide planning scenarios for relative sea level rise and other climate change effects, Caltrans has not been able to determine what change, if any, may be made to its design standards for its transportation facilities. Once statewide planning scenarios become available, Caltrans will be able review its current design standards to determine what changes, if any, may be needed to protect the transportation system from sea level rise.

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.

3.3 Mitigation Measures for Significant Impacts under CEQA

The Niles Canyon Safety Improvements Project has the potential to significantly affect Natural Communities, Cultural Resources (Archaeology), Tribal Cultural Resources, and Paleontological Resources. The Build Alternative would result in impacts to the Niles Canyon Riparian Corridor that would remain significant after mitigation measure RIPARIAN TREES-1 is incorporated. Implementation of the following mitigation measures CULTURAL-3, CULTURAL-4, and PALEONTOLOGY-1 would reduce project impacts to a less-than-significant level.

Biological Resources

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 further avoid and minimize project impacts to riparian trees. Efforts to preserve trees in place (by designating trees on plans 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. As of September 2016, Caltrans anticipates a need for off-site riparian planting. Potential planting locations within the Alameda Creek watershed would be identified working with local stakeholders, private landholders, and public agencies including, but not limited to, EBRPD, Alameda County, and SFPUC. On-site riparian trees would be planted within
two years of completion of the Niles Canyon Safety Improvements 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).

Cultural Resources (Archaeology)/Tribal Cultural Resources

CULTURAL-3. If archaeological resources cannot be avoided, Caltrans will prepare a Phase III Data Recovery Plan which will be implemented by a qualified archaeologist for the significant archaeological site that is directly affected. Data Recovery will only occur in the portion of the site being directly affected by project construction.

CULTURAL-4. Caltrans is preparing an Archaeological Monitoring plan to be implemented during construction. This would include establishing an archaeological monitoring area and having an archaeologist monitor job site activities within the archaeological monitoring area to reduce the project’s impacts to the resource within the project limits. Caltrans will have an archaeologist monitor job site activities within the archaeological monitoring area (AMA). No work can be conducted within the AMA unless the archeological monitor is present. Reference Caltrans Standard Specification 14-2.03 (Caltrans, 2015a).

Paleontology

PALEONTOLOGY-1. A Paleontological Mitigation Plan (PMP) defining specific mitigation measures and methods, will be prepared and implemented before construction begins. 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 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.

---

38 Until design is finalized, it is not possible to estimate how much excavation would occur and in what geologic units. The project is currently in the Project Approval and Environmental Document (PAED) phase, and when the Plans, Specifications, and Estimate (PS&E) phase is complete, a PMP will be developed that estimates the amount of paleontological units that would be disturbed as a result of the project.
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 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 Niles Canyon Safety Improvements 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
Pursuant to the California Environmental Quality Act (CEQA), Caltrans filed a Notice of Preparation (NOP) with the State Clearinghouse (Office of Planning and Research) on September 30, 2015. The NOP described the proposed project in addition to identifying the probable environment effects. 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. The scoping comment period on the Niles Canyon Safety Improvements Project ended on October 30, 2015.

4.1.2 Advertising of Scoping Meeting
Caltrans used multiple channels of communication to inform responsible agencies, organized groups, businesses, and members of the public about the preparation of an EIR/EA for the Niles Canyon Safety Improvements Project as well as to inform these parties about the opportunity for public comment and the public scoping meeting.

Caltrans placed newspaper advertisements announcing the opportunity for public comment and the public scoping meeting in two southern Alameda County newspapers: the Dublin/Pleasanton Independent (advertisement ran on October 8, 2015) and the Fremont Argus (advertisement ran on October 10, 2015). Caltrans also mailed flyers to residences located approximately one mile from the SR-238 and SR-84 intersection, and to all residences located in the town of Sunol inviting the public to participate in the scoping process for the project. The flyer contained information on the project, the public scoping meeting, and how to submit a scoping comment. Since 2011, Caltrans has maintained a list of parties interested in receiving emails regarding public meetings and opportunities for comment on Caltrans actions/projects in Niles Canyon. An email notifying the Listserve of the opportunity for public comment as well as the public meeting was sent on Wednesday, September 30, 2015.

On Sunday, October 11, 2015, SR-84 from Mission Boulevard to I-680 was closed to vehicular traffic to allow members of the public to run, walk, or bike along Niles Canyon Road. This event, called the “Stroll and Roll”, highlighted Alameda County and EBRPD’s proposed feasibility study for a Class I Bicycle Trail in Niles Canyon. Alameda County invited agencies and groups conducting work in Niles Canyon to participate in a resource fair at Vallejo’s Mill.
Caltrans staff from Project Management, Design, Environmental Analysis, and Public Information attended the resource fair at the Niles Canyon Stroll Roll. The Caltrans booth included a large scale display of Niles Canyon that identified specific locations of the proposed SR-84 improvements, fact sheets on the three Caltrans projects planned for the Niles Canyon Corridor, and binders containing images of the proposed improvements. Caltrans representatives answered questions about the proposed projects and invited the public to attend the Niles Canyon Safety Improvements Project scoping meeting on Wednesday, October 14th. Caltrans staff provided comment cards at the Stroll and Roll as well as a sign-up sheet to join Caltrans’ Niles Canyon Listserv to receive email updates about Caltrans public meetings and/or opportunities for public comment.

4.1.3 Scoping Meeting
Caltrans held a public scoping meeting for the Niles Canyon Safety Improvements Project at the Sunol Glen Elementary School on Wednesday, October 14, 2015 from 6-8 PM. A total of 48 people attended the public meeting.

The meeting was an open house style. Simulation boards highlighting the proposed improvements were located around the room for meeting participants to view. Upon arrival, meeting participants were requested to sign-in and offered comment cards. Participants were given the opportunity to submit comment cards at the meeting, send an email to the project email address (niles canyon projects@dot.ca.gov), or mail a comment letter and/or the comment card to Caltrans (Caltrans District 4, Attn. Elizabeth White, 111 Grand Avenue MS 8B, Oakland, CA 94612). At the meeting, Caltrans staff notified members of the public that the scoping comment period ended at 5 PM. on October 30, 2015.

Caltrans staff from Project Management, Design, Environmental Analysis, Biological Science and Permits, Landscape Architecture, and Traffic Safety units were present at the public scoping meeting to answer questions about the proposed project. The Caltrans Project Manager gave a presentation on the project at 6:30 PM.

4.1.4 Opportunities for Public and Agency Comment During Scoping
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 scoping meeting and submitted to Caltrans personnel at the scoping meeting. 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.
- Individual letters and comments could be mailed via U.S. Postal Service to:
  Caltrans District 4
  111 Grand Avenue, MS 8B
  Oakland, CA 94612
  Attn: Elizabeth White

All comments were given equal consideration, regardless of method of transmittal.
4.2 External Agency Coordination

The Niles Canyon Safety Improvements Project requires several permits and approvals as detailed in Section 1.7. The following provides a summary of agency consultation and professional contacts in advance of the draft environmental document’s release:

- January 11, 2008 - Letter from SHPO - SHPO concurrence on eligibility of Western Pacific/Central Pacific stone railroad culvert, non-eligibility of 4 properties, and finding of No Historic Properties Affected.
- June 4, 2014 – A meeting was held at Caltrans District 4 Office to discuss the Alameda Creek Bridge Replacement Project. Conclusions from that meeting are relevant to the Niles Canyon Safety Improvement Project, because the project areas partially overlap. Attendees included representatives from USFWS, CDFW, USACE, RWQCB, and National Oceanic Administration Agency (NOAA). Discussion on the potential occurrence of California tiger salamander occurred. Staff from USFWS and CDFW concluded that California tiger salamander would not likely be present in the proposed bridge replacement project area and that compensatory mitigation would not be required for that project.
- January 12, 2015 – Caltrans held a technical assistance meeting in the field with USFWS. The USFWS representative concluded that California tiger salamander would not likely be present in the proposed project area but further research and discussion with other USFWS staff would be needed before a conclusion that compensatory mitigation for California tiger salamander would not be required for the project.
- August 26, 2015 – Caltrans informed USFWS and CDFW of the incorporation of Stonybrook Culvert Replacement Project into the Niles Canyon Safety Improvements Project. Caltrans informed USFWS that an updated Biological Assessment (BA) incorporating the Stonybrook Culvert Replacement project elements and studies would be submitted to USFWS for review.
- October 13, 2015 - Letter from SHPO - CA-ALA-677/H Eligibility Concurrence.
- December 4, 2015 – Caltrans informed NOAA of the incorporation of Stonybrook Culvert Replacement Project into the Project.
- December 23, 2015 – Caltrans hosted an inter-agency meeting with CDFW, RWQCB, and NMFS. The meeting also included discussions about addition of the Stonybrook Culvert Replacement into the Niles Canyon Safety Improvements Project

As of September 2016, fish passage between Alameda Creek and San Francisco Bay is blocked within the City of Fremont by a concrete grade control structure, commonly referred to as the “BART weir” due to its proximity to the Bay Area Rapid Transportation (BART) tracks. As a result, these fish are considered land locked rainbow trout and are not currently considered to be anadromous Central California Coast DPS steelhead, meaning they do not receive protection under the Federal Endangered Species Act. ACWD is scheduled to install a fish ladder that will circumvent this structure. Construction of the fish ladder is scheduled for 2019 (ACWD, 2014). When the fish ladder is complete, 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. As of September 2016, 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. If the fish ladder at the BART weir is installed prior to the start of the Niles Canyon Safety Improvements Project construction, Caltrans will pursue a Biological Opinion from NMFS as fish within Alameda Creek will be included by NMFS as part of the federally threatened Central California Coast steelhead DPS.
Chapter 4- Comments and Coordination

- February 1, 2016 – Caltrans submitted Stonybrook Culvert Replacement Plans to CDFW, RWQCB, NMFS, and USFWS.
- April 10, 2016 – Letter sent to CDFW and RWQCB detailing previous coordination efforts on the Stonybrook Creek Bridge design.
CHAPTER 5. LIST OF PREPARERS
California Department of Transportation

Jack Siauw, Project Manager, Office of Program and Project Management

Tony Wong, Senior Transportation Engineer, Office of Design

Shankar Kutty, Transportation Engineer, Office of Design

Andy Wolny, Transportation Engineer, Office of Design

Stefan Galvez-Abadia, Office Chief, Office of Environmental Analysis

Jamie Le Dent, Senior Environmental Planner, Office of Environmental Analysis

Elizabeth White, Associate Environmental Planner, Office of Environmental Analysis

Melanie Hunt, Associate Environmental Planner, Office of Environmental Analysis

Christopher States, Senior Environmental Planner, Office of Biological Sciences and Permits

Gregory Pera, Senior Environmental Planner, Office of Biological Sciences and Permits

Elizabeth Krase Greene, Senior Environmental Planner (Architectural History), Office of Cultural Resource Studies

Douglas Bright, Associate Environmental Planner (Architectural History), Office of Cultural Resource Studies

Helen Blackmore, Associate Environmental Planner (Architectural History), Office of Cultural Resource Studies

Kathryn Rose, Senior Environmental Planner (Archaeology), Office of Cultural Resource Studies

Kristina Montgomery, Associate Environmental Planner (Archaeology), Office of Cultural Resource Studies

Lydia Mac, Senior Landscape Architect, Office of Landscape Architecture

Keith Suzuki, Landscape Associate, Office of Landscape Architecture

Norman Gonsalves, Senior Transportation Engineer, Office of Water Quality

Brian Rowley, Transportation Engineer, Office of Water Quality

Christopher Risden, Senior Engineering Geologist, Office of Geotechnical Design – West
Rifaat Nashed, Engineering Geologist, Office of Geotechnical Design – West
Craig Tomimatsu, Senior Transportation Engineer, Office of Hydraulic Engineering
Mark Morancy, Transportation Engineer, Office of Hydraulic Engineering
Ray Boyer, Senior Transportation Engineer, Office of Environmental Engineering
Chris Wilson, Senior Transportation Engineer, Office of Environmental Engineering
Keith Fang, Transportation Engineer, Office of Environmental Engineering
Emily Tang, Senior Transportation Engineer, Office of Traffic Safety
Saif Mamoon, Transportation Engineer, Office of Traffic Safety

**Garcia & Associates**

Jason Minton, Wildlife Biologist
Tiffany Ngo, Wildlife Biologist
Meghan Bishop, Wildlife Biologist
Dana Terry, Wildlife Biologist

**William Kanemoto & Associates**

William Kanemoto, Landscape Architect
CHAPTER 6. DISTRIBUTION LIST

Federal Agencies
Environmental Protection Agency, Region IX
Federal Activities Office, CMD-2
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

Division Chief, Regulatory Branch
Attn: Ms. Katerina Galacatos
U.S. Army Corps of Engineers
1455 Market Street, 16th 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: Jack Broadbent
Chief Executive Officer
939 Ellis Street
San Francisco, CA 94109

California Air Resources Board
Attn: Richard Corey
1001 I Street
P.O. Box 2815
Sacramento, CA 95812

California Department of Conservation
Attn: Mark Nechodom
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
P.O. Box 942898
Sacramento, CA 92298

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
Chapter 6 - Distribution List

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, 10th Floor
San Francisco, CA 94102

Alameda County Planning Commission
Attn: Angela Robinson-Pinon
224 W. Winton, Room 111
Hayward, CA 94544

California Office of Emergency Services
3650 Schriever Avenue
Mather, CA 95655

Regional Agencies
Association of Bay Area Governments
Kenneth Kirkey
Planning Director
101 Eighth Street, P.O. Box 2050
Oakland, CA 94604-2050

Metropolitan Transportation Commission
Doug Kimsey
Planning Director
101 Eighth Street – Metrocenter
Oakland, CA 94607

County Agencies
Alameda County
Attn: Clerk of the Board of Supervisors
1221 Oak Street, Suite 536
Oakland, CA 94612

Alameda County Water District
Attn: Steve D. Inn
43885 South Grimmer Boulevard
Fremont, CA 94538

San Francisco Public Utilities Commission
Attn: Joanne Wilson
1657 Rollins Road
Burlingame, CA 94010

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

Golden Gate Primitive Baptist Church
2950 Niles Canyon Road
Fremont, CA 94536

Niles Canyon Railway
P.O. Box 515
Sunol, CA 94586

Union Pacific Railroad
844 East 5th Street
Stockton, CA 95206
Chapter 6 - Distribution List

Elected Officials
The Honorable Mike Honda
United States Congress, District 17
900 Lafayette Street, Suite 206
Santa Clara, CA 95050

Ms. Suzanne Lee Chan
Councilmember, City of Fremont
3300 Capital Avenue
Fremont, CA 94538

The Honorable Barbara Boxer
United States Senate
70 Washington Street, Suite 203
Oakland, CA 94609

Mr. Vinnie Bacon
Councilmember, City of Fremont
City Hall
3300 Capital Avenue
Fremont, CA 94538

The Honorable Dianne Feinstein
United States Senate
One Post Street, Suite 2450
San Francisco, CA 94104

Mr. Rick Jones
Councilmember, City of Fremont
3300 Capital Avenue
Fremont, CA 94538

The Honorable Bob Wieckowski
California State Senate, District 1
39510 Paseo Padre Parkway, Suite 280
Fremont, CA 94538

Mr. Jerry Thorne
Mayor, City of Pleasanton
P.O. Box 520
Pleasanton, CA 94566

The Honorable Eric Swalwell
United States Congress, 15th District
5075 Hopyard Road, Suite 220
Pleasanton, CA 94588

Ms. Kathy Narum
Vice Mayor, City of Pleasanton
P.O. Box 520
Pleasanton, CA 94566

The Honorable Bill Quirk
California State Senate, 20th District
22320 Foothill Blvd, Suite 540
Hayward, CA 94541

Ms. Karla Brown
Councilmember, City of Pleasanton
P.O. Box 520
Pleasanton, CA 94566

The Honorable Catherine Baker
California State Assembly, 16th District
2694 Bishop Drive, Suite 275
San Ramon, CA 94583

Mr. Arne Olson
Councilmember, City of Pleasanton
P.O. Box 520
Pleasanton, CA 94566

Mr. Bill Harrison
Mayor, City of Fremont
3300 Capital Avenue
Fremont, CA 94538

Mr. Jerry Pentin
Councilmember, City of Pleasanton
P.O. Box 520
Pleasanton, CA 94566

Ms. Lily Mei
Vice Mayor, City of Fremont
3300 Capital Avenue
Fremont, CA 94538

Mr. Jerry Pentin
Councilmember, City of Pleasanton
P.O. Box 520
Pleasanton, CA 94566

Niles Canyon Safety Improvements Project
Mr. Scott Haggerty
Alameda County Board of Supervisors
District 1
Attn: Dawn Argula
1221 Oak Street, Suite 536
Oakland, CA 94612

Mr. Richard Valle
Alameda County Board of Supervisors
District 2
Attn: Chris Miley
1221 Oak Street, Suite 536
Oakland, CA 94612

Mrs. Wilma Chan
Alameda County Board of Supervisors
District 3
1221 Oak Street, Suite 536
Oakland, CA 94612

Mr. Nate Miley
Alameda County Board of Supervisors
District 4
1221 Oak Street, Suite 536
Oakland, CA 94612

Mr. Keith Carson
Alameda County Board of Supervisors
District 5
1221 Oak Street, Suite 536
Oakland, CA 94612
CHAPTER 7. REFERENCES


Alameda County. 2007. Scenic Corridor Protection Plan: Niles Canyon Road and Paloma Way Portion of California State Route 84. County of Alameda, City of Fremont, City of Union City, et. al.


California Department of Transportation. 2004. Site Investigation Report, State Route 84, Alameda County, California; Alameda Creek Bridge Replacement Project. California Department of Transportation, Oakland, CA


California Department of Transportation. 2007. Historic Property Survey Report; Niles Canyon Safety Improvements Project. California Department of Transportation, Oakland, CA

California Department of Transportation. 2014a. Location Hydraulic Study for Niles Canyon Safety Improvements Project. California Department of Transportation, Oakland, CA

California Department of Transportation. 2014b. Memorandum from the Office of Environmental Engineering for the Niles Canyon Safety Improvements Project. California Department of Transportation, Oakland, CA

California Department of Transportation. 2015a. Standard Specifications 2010. California Department of Transportation, Sacramento, CA


California Department of Transportation. 2015c. Historic Property Survey Report – Supplemental Report; Alameda Creek Bridge Replacement Project. California Department of Transportation, Oakland, CA

California Department of Transportation. 2015d. Location Hydraulic Study; Niles Medium Term Safety Improvements Project (Supplemental). California Department of Transportation, Oakland, CA

California Department of Transportation. 2015e. District Preliminary Geotechnical Design Report (DPGR-Update) for Niles Safety Improvements Project. California Department of Transportation, Oakland, CA

California Department of Transportation. 2015f. Paleontological Identification Report; Niles Medium Term Safety Improvements Project. California Department of Transportation, Oakland, CA


California Department of Transportation, 2016b. Collision Analysis for Niles Canyon Safety Improvement Project. California Department of Transportation, Oakland, CA.

California Department of Transportation, 2016c. Visual Impact Assessment; Niles Medium Term Safety Improvements Project. California Department of Transportation, Oakland, CA

California Department of Transportation. 2016d. Water Quality Study; Niles Medium Term Safety Improvements Project. California Department of Transportation, Oakland, CA

California Department of Transportation. 2016e. Paleontological Evaluation Report for Niles Canyon Safety Improvements Project. California Department of Transportation, Oakland, CA

California Department of Transportation. 2016f. Memorandum from the Office of Environmental Engineering for the Niles Canyon Safety Improvements Project. California Department of Transportation, Oakland, CA

Niles Canyon Safety Improvements Project
California Department of Transportation. 2016g. Natural Environment Study; Niles Canyon Safety Improvements Project. California Department of Transportation, Oakland, CA


Appendix A. CEQA Checklist
This page is intentionally left blank.
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.

<table>
<thead>
<tr>
<th>I. AESTHETICS: Would the project:</th>
<th>Potentially Significant Impact</th>
<th>Less Than Significant with Mitigation</th>
<th>Less-than-significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Have a substantial adverse effect on a scenic vista?</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
<td>☐</td>
</tr>
<tr>
<td>b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
<td>☐</td>
</tr>
<tr>
<td>c) Substantially degrade the existing visual character or quality of the site and its surroundings?</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
<td>☐</td>
</tr>
<tr>
<td>d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
<td>☐</td>
</tr>
</tbody>
</table>

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

| a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use? | ☐ | ☐ | ☐ | ☒ |
| b) Conflict with existing zoning for agricultural use, or a Williamson Act contract? | ☐ | ☐ | ☐ | ☒ |
### Appendix A. CEQA Checklist

<table>
<thead>
<tr>
<th>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))?</th>
<th>Potentially Significant Impact</th>
<th>Less Than Significant with Mitigation</th>
<th>Less-than-significant impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>d) Result in the loss of forest land or conversion of forest land to non-forest use?</th>
<th>Potentially Significant Impact</th>
<th>Less Than Significant with Mitigation</th>
<th>Less-than-significant impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>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?</th>
<th>Potentially Significant Impact</th>
<th>Less Than Significant with Mitigation</th>
<th>Less-than-significant impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
<td></td>
</tr>
</tbody>
</table>

### 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:

<table>
<thead>
<tr>
<th>a) Conflict with or obstruct implementation of the applicable air quality plan?</th>
<th>Potentially Significant Impact</th>
<th>Less Than Significant with Mitigation</th>
<th>Less-than-significant impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?</th>
<th>Potentially Significant Impact</th>
<th>Less Than Significant with Mitigation</th>
<th>Less-than-significant impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>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)?</th>
<th>Potentially Significant Impact</th>
<th>Less Than Significant with Mitigation</th>
<th>Less-than-significant impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>d) Expose sensitive receptors to substantial pollutant concentrations?</th>
<th>Potentially Significant Impact</th>
<th>Less Than Significant with Mitigation</th>
<th>Less-than-significant impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>e) Create objectionable odors affecting a substantial number of people?</th>
<th>Potentially Significant Impact</th>
<th>Less Than Significant with Mitigation</th>
<th>Less-than-significant impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
<td></td>
</tr>
</tbody>
</table>

### IV. BIOLOGICAL RESOURCES: Would the project:

<table>
<thead>
<tr>
<th>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?</th>
<th>Potentially Significant Impact</th>
<th>Less Than Significant with Mitigation</th>
<th>Less-than-significant impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐</td>
<td>☒</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>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?</th>
<th>Potentially Significant Impact</th>
<th>Less Than Significant with Mitigation</th>
<th>Less-than-significant impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>☒</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
</tbody>
</table>
Appendix A. CEQA Checklist

<table>
<thead>
<tr>
<th>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?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potentially Significant Impact</td>
</tr>
<tr>
<td>☐</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>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?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potentially Significant Impact</td>
</tr>
<tr>
<td>☐</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potentially Significant Impact</td>
</tr>
<tr>
<td>☐</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>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?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potentially Significant Impact</td>
</tr>
<tr>
<td>☐</td>
</tr>
</tbody>
</table>

V. CULTURAL RESOURCES: Would the project:

<table>
<thead>
<tr>
<th>a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potentially Significant Impact</td>
</tr>
<tr>
<td>☐</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potentially Significant Impact</td>
</tr>
<tr>
<td>☐</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potentially Significant Impact</td>
</tr>
<tr>
<td>☐</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>d) Disturb any human remains, including those interred outside of dedicated cemeteries?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potentially Significant Impact</td>
</tr>
<tr>
<td>☐</td>
</tr>
</tbody>
</table>

VI. GEOLOGY AND SOILS: Would the project:

<table>
<thead>
<tr>
<th>a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potentially Significant Impact</td>
</tr>
<tr>
<td>☐</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>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?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potentially Significant Impact</td>
</tr>
<tr>
<td>☐</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ii) Strong seismic ground shaking?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potentially Significant Impact</td>
</tr>
<tr>
<td>☐</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>iii) Seismic-related ground failure, including liquefaction?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potentially Significant Impact</td>
</tr>
<tr>
<td>☐</td>
</tr>
</tbody>
</table>
Appendix A. CEQA Checklist

<table>
<thead>
<tr>
<th>Potential Impact</th>
<th>Less Than Significant Impact</th>
<th>Less-than-significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
</table>

iv) Landslides?

b) Result in substantial soil erosion or the loss of topsoil?

c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?

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?

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?

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.

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?
## Appendix A. CEQA Checklist

<table>
<thead>
<tr>
<th></th>
<th>Potentially Significant Impact</th>
<th>Less Than Significant Impact with Mitigation</th>
<th>Less-than-significant Impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>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?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
</tr>
<tr>
<td>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?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
</tr>
<tr>
<td>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?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
</tr>
<tr>
<td>g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
</tr>
<tr>
<td>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?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
</tr>
</tbody>
</table>

### IX. HYDROLOGY AND WATER QUALITY: Would the project:

- a) Violate any water quality standards or waste discharge requirements? ☐ ☐ ☒ ☐
- 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)? ☐ ☐ ☒ ☐
- 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? ☐ ☐ ☒ ☐
- 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? ☐ ☐ ☒ ☐
- 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? ☐ ☐ ☒ ☐
- f) Otherwise substantially degrade water quality? ☐ ☐ ☒ ☐
<table>
<thead>
<tr>
<th></th>
<th>Potentially Significant Impact</th>
<th>Less Than Significant with Mitigation</th>
<th>Less-than-significant impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>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?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
</tr>
<tr>
<td>h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
<td>☐</td>
</tr>
<tr>
<td>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?</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
<td>☐</td>
</tr>
<tr>
<td>j) Inundation by seiche, tsunami, or mudflow</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
<td>☐</td>
</tr>
</tbody>
</table>

X. LAND USE AND PLANNING: Would the project:

a) Physically divide an established community? | ☐                             | ☐                                    | ☒                           | ☐         |

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? | ☐                             | ☐                                    | ☒                           | ☐         |

c) Conflict with any applicable habitat conservation plan or natural community conservation plan? | ☐                             | ☐                                    | ☒                           | ☐         |

XI. MINERAL RESOURCES: Would the project:

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state? | ☐                             | ☐                                    | ☒                           | ☐         |

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? | ☐                             | ☐                                    | ☒                           | ☐         |

XII. NOISE: 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? | ☐                             | ☐                                    | ☒                           | ☐         |

b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels? | ☐                             | ☐                                    | ☒                           | ☐         |

c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project? | ☐                             | ☐                                    | ☒                           | ☐         |
### Appendix A. CEQA Checklist

<table>
<thead>
<tr>
<th>Impact Evaluation</th>
<th>Potentially Significant Impact</th>
<th>Less Than Significant with Mitigation</th>
<th>Less-than-significant impact</th>
<th>No Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
<td>☐</td>
</tr>
<tr>
<td>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?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
</tr>
<tr>
<td>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?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
</tr>
</tbody>
</table>

### 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)? ☐ ☐ ☐ ☒

b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere? ☐ ☐ ☐ ☒

c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere? ☐ ☐ ☐ ☒

### 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? ☐ ☐ ☒ ☐
- Police protection? ☐ ☐ ☒ ☐
- Schools? ☐ ☐ ☐ ☒
- Parks? ☐ ☐ ☐ ☒
- Other public facilities? ☐ ☐ ☐ ☒
### Appendix A. CEQA Checklist

<table>
<thead>
<tr>
<th></th>
<th>Potentially Significant Impact</th>
<th>Less Than Significant with Mitigation</th>
<th>Less-than-significant impact</th>
<th>No Impact</th>
</tr>
</thead>
</table>

#### XV. RECREATION:

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

- ☐

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?

- ☐

#### XVI. TRANSPORTATION/TRAFFIC: 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?

- ☐

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?

- ☐

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?

- ☐

d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

- ☐

e) Result in inadequate emergency access?

- ☐

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?

- ☐

#### XVII. TRIBAL CULTURAL RESOURCES: Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or

- ☐
Appendix A. CEQA Checklist

<table>
<thead>
<tr>
<th>Potentially Significant Impact</th>
<th>Less Than Significant with Mitigation</th>
<th>Less-than-significant impact</th>
<th>No Impact</th>
</tr>
</thead>
</table>

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.

XVII. UTILITIES AND SERVICE SYSTEMS: Would the project:

a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board? ☐ ☐ ☒ ☐ ☐

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? ☐ ☐ ☐ ☒ ☐

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? ☐ ☐ ☒ ☐ ☐

d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed? ☐ ☐ ☐ ☒ ☐

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? ☐ ☐ ☐ ☒ ☐

f) Be served by a landfill with sufficient permitted capacity to accommodate the project’s solid waste disposal needs? ☐ ☐ ☐ ☒ ☐

g) Comply with federal, state, and local statutes and regulations related to solid waste? ☐ ☐ ☒ ☐ ☐

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? ☐ ☒ ☐ ☐ ☐

b) Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)? ☐ ☐ ☒ ☐ ☐

c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? ☐ ☐ ☐ ☒ ☐
This page is intentionally left blank.
Appendix B. Section 4(f) De Minimis Determination
This page is intentionally left blank.
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 construct spot safety improvements on State Route 84 (SR-84) from PM 10.8 to 18.0 in southern Alameda County. A detailed project description of the Build Alternative is located in Chapter 1 of the Draft Environmental Impact Report/Environmental Assessment for the Niles Canyon Safety Improvements Project.

List and Description of Section 4(f) Properties
Twelve resources within 0.5 miles of the Niles Canyon Safety Improvements Project limits 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>
<thead>
<tr>
<th>Name</th>
<th>Address/Location</th>
<th>Potential 4(f) Type of Property</th>
<th>Determined to be a 4(f) resource?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Niles Canyon Railway</td>
<td>6 Kilkare Road, Sunol, CA 94586</td>
<td>Parks and Recreation Property</td>
<td>Yes</td>
</tr>
<tr>
<td>Vallejo Mill Park</td>
<td>Located at the intersection of SR-238 and SR-84</td>
<td>Parks and Recreation Property</td>
<td>Yes</td>
</tr>
<tr>
<td>Thermalito Trail</td>
<td>Located in Sunol, CA</td>
<td>Parks and Recreation Property</td>
<td>Yes</td>
</tr>
<tr>
<td>Sims Park</td>
<td>Niles Canyon</td>
<td>Parks and Recreation Property</td>
<td>No</td>
</tr>
<tr>
<td>Stonybrook Park</td>
<td>Niles Canyon</td>
<td>Parks and Recreation Property</td>
<td>No</td>
</tr>
<tr>
<td>Sunol Water Temple</td>
<td>Located at Pleasanton-Sunol Road and SR-84 in Sunol, CA</td>
<td>Parks and Recreation Property</td>
<td>Yes</td>
</tr>
<tr>
<td>Alameda Creek Bridge and Overhead (Bridge 33-039)</td>
<td>Located on SR-84 between PM 14.3-14.5</td>
<td>Historic Property</td>
<td>Yes</td>
</tr>
<tr>
<td>Niles Canyon Transcontinental Railroad Historic District</td>
<td>Niles Canyon</td>
<td>Historic Property</td>
<td>Yes</td>
</tr>
<tr>
<td>Union Pacific Railroad</td>
<td>Niles Canyon</td>
<td>Historic Property</td>
<td>Yes</td>
</tr>
<tr>
<td>Spring Valley Water Company’s Alameda Creek System Historic District</td>
<td>Niles Canyon</td>
<td>Historic Property</td>
<td>Yes</td>
</tr>
<tr>
<td>Vallejo’s Aqueduct</td>
<td>Niles Canyon</td>
<td>Historic Property</td>
<td>Yes</td>
</tr>
<tr>
<td>Sunol Aqueduct</td>
<td>Niles Canyon</td>
<td>Historic Property</td>
<td>Yes</td>
</tr>
<tr>
<td>Archaeological Site</td>
<td></td>
<td>Historic Property</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Out of the resources listed above, Section 4(f) applies to the Alameda Creek Bridge and Overhead (Bridge 33-0039) and Vallejo’s Aqueduct as the Niles Canyon Safety Improvements Project Build Alternative constitutes a “use” of these Section 4(f) resources (see detailed discussion below under Section 4(f) de minimis Determination heading). The remaining potential 4(f) resources 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.

Alameda Creek Bridge and Overhead (Bridge 33-039)

As discussed in Chapter 1, the Niles Canyon Safety Improvement Project would remove the curb and replace the barrier rail on the NRHP-eligible Alameda Creek Bridge and Overhead (Bridge 33-0039). Work at the Alameda Creek Bridge and Overhead includes installing overhead protection under the existing bridge, removal of the existing bridge rails and overhangs, drilling and bonding dowels, placing concrete formwork, pouring the concrete for the overhangs, curing the new concrete to the required strength; placing carbon fiber reinforced polymer strips in the new overhangs, forming and pouring concrete for the new bridge rails, installing new electrical conduit and pull boxes on the outside face of the bridge girders; removing and repairing unsound concrete in the bridge; cleaning and replacing the expansion joints; placing polyester concrete overlay on the bridge deck; structure excavation and backfill at the abutments; and reconstruction of the bridge abutments and wingwalls.

The significance of the Alameda Creek Bridge and Overhead is concentrated on its concrete box girder design. The bridge has not undergone significant alterations since it was constructed in 1948. The Niles Canyon Safety Improvements Project would require formwork to be attached to the box girder with bolts. Once construction is complete and the formwork is removed, the holes in the box girder would be patched and stained to match the color of the surrounding concrete. The proposed bridge railing replacement would maintain the see-through appearance of the existing Alameda Creek Bridge and Overhead. At either end of the bridge rail, concrete end blocks with etchings that mimic the Art Moderne styling of the existing bridge rail end points would be installed. The project would not result in physical damage to any portion of the bridge that contributes to its eligibility for the NRHP.

The agency with jurisdiction for the Alameda Creek Bridge and Overhead 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”.

Caltrans’ Office of Cultural Resource Studies has determined that there will be a “no adverse effect” on the Alameda Creek Bridge and Overhead (Bridge 33-0039). The “use” of Alameda Creek Bridge and Overhead is considered minimal or de minimis because the project would not result in physical damage to any portion of the bridge that contributes to its eligibility for the NRHP. Work on the Alameda Creek Bridge and Overhead would maintain the period appearance of the bridge such as replacing the proposed bridge railing with similar see-through railing and patching and staining holes drilled into the box girder to match the color of the surrounding concrete. The agency with jurisdiction for the Alameda Creek Bridge and Overhead is the SHPO. Caltrans is continuing consultation with the SHPO on the effect to this property.

Therefore, Caltrans determined that the Niles Canyon Safety Improvements Project would have a de minimis impact to the Alameda Creek Bridge and Overhead.

Vallejo’s Aqueduct
Vallejo’s Aqueduct is a water-conveyance system, originally built in about 1841 and made up of three components: the diversion structure or dam, the turnout and gatehouse, and the conduit or aqueduct. The system was abandoned in 1900. The Niles Canyon Safety Improvements Project would construct rockfall protection systems in the vicinity of Vallejo’s Aqueduct, however, there would be no adverse impact to the aqueduct during construction. As of September 2016, Caltrans is consulting with the SHPO on a No Adverse Effect determination. During construction, Caltrans will establish an Environmentally Sensitive Area around the Vallejo Aqueduct System to protect this resource from inadvertent damage (Measure CULTURAL-5 in Section 2.1.6).

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”.

Caltrans Office of Cultural Resource Studies has determined that there would be a no adverse effect to Vallejo’s Aqueduct. The “use” of Vallejo’s Aqueduct is considered minimal or de minimis because the project would not result in physical damage to the resource. An Environmentally Sensitive Area (ESA) fencing area would be established to prevent any inadvertent damage to portions of the resource which are located nearby construction activities. The agency with jurisdiction for Vallejo’s Aqueduct is the SHPO. Caltrans is continuing consultation with the SHPO on the effect to this property.

Therefore, Caltrans determined that the Niles Canyon Safety Improvements Project would have a de minimis impact to Vallejo’s Aqueduct.

Measures to Minimize Harm to the Section 4(f) Property
Implementation of the following measures will minimize harm to Vallejo’s Aqueduct:
CULTURAL-5. Caltrans will establish an Environmentally Sensitive Area around the Vallejo Aqueduct System to protect this resource from inadvertent damage during construction activities.

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 Build Alternative’s 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.

Parks and Recreation Properties
There are five existing parks and recreational facilities within a half-mile from the proposed Niles Canyon Safety Improvements Project: Vallejo Mill Park, Niles Canyon Railway, Stonybrook Park, Sims Park, and Thermalito Trail.

Stonybrook Park and Sims Park
Both Stonybrook Park and Sims Park were evaluated for their potential as 4(f) resources. However, neither is open to the public and therefore are not considered 4(f) properties and are dismissed from further analysis.

Vallejo Mill Park
Vallejo Mill is an approximate 10.2-acre recreational park located at the intersection of SR-238 and SR-84 in the community of Niles in Fremont. The Vallejo Mill Park is owned by the City of Fremont. The duration of the project would not result in permanent, temporary, or constructive use of the Vallejo Mill requiring protection under Section 4(f). Therefore, the provisions of Section 4(f) are not triggered.

Niles Canyon Railway
The Niles Canyon Railway operates within the Niles Canyon Transcontinental Railroad 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 a recreational facility per the requirements of Section 4(f) and is discussed in this section under the subheading Historic Sites.

The proposed project would be a great enough distance from the Niles Canyon Railway that no permanent or temporary interruption in service would occur. Therefore, the Build Alternative would not impact any feature of the Niles Canyon Railway. Indirect impacts to the Niles Canyon Railway would 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 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 the Niles Canyon Railway requiring protection under Section 4(f). Therefore, the provisions of Section 4(f) are not triggered.

**Thermalito Trail**
The Thermalito Trail is a recreational trail owned by EBRPD that begins in downtown Sunol and ends at the Ridgeline Trail, approximately four miles north of Sunol. The duration of the project would not result in permanent, temporary, or constructive use of the Thermalito Trail requiring protection under Section 4(f). Therefore, the provisions of Section 4(f) are not triggered.

**Archaeological 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 Build Alternative 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. Construction of the Build Alternative would adversely affect one archaeological property. The archaeological site was determined eligible for the NRHP under Criterion D for its potential to yield information important for the understanding of the past. As of September 2016, Caltrans is consulting with the SHPO on an Adverse Effect determination and developing a MOA for the treatment of the archaeological site. Caltrans is also consulting with Native American tribes in the area regarding the treatment of the archaeological site. Section 4(f) does not apply to the archaeological site because the site is important for what can be learned by data recovery and has minimal value for preservation in place.

**Historic Sites**
Properties that are on or eligible for the NRHP include historic districts, buildings, structures, objects, and certain archaeological sites, which 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 Niles Canyon Transcontinental Railroad Historic District, the Union Pacific Railroad, and the Spring Valley Water Company’s Alameda Creek System Historic District (including the Sunol Aqueduct and the Sunol Water Temple Entry Gates) are properties within the architectural APE that are listed or eligible for the NRHP.

**Sunol Aqueduct of Spring Valley Water Company’s Alameda Creek System Historic District**
The Sunol Aqueduct is a 4.9-mile long water conveyance device, which parallels Alameda Creek in Niles Canyon between the town of Sunol and the Niles District of Fremont in southern Alameda County. It is one part of a larger whole, the Alameda Creek System being developed by Spring Valley Water Company, which is now part of the Hetch Hetchy System administered by the Water Supply Division of the SFPUC.
Within the APE, the Sunol Aqueduct lies mostly on the surface of the hillside, south of the Alameda Creek Bridge (Bridge 33-0036), along the eastern approach, with some portions buried two to three feet below ground. The activities of the project would not result in permanent, temporary, or constructive use of the Sunol Aqueduct requiring protection under Section 4(f). Therefore, the provisions of Section 4(f) are not triggered.

*Niles Canyon Transcontinental Railroad Historic District*

The Niles Canyon Transcontinental Railroad Historic District is associated with the construction of the Transcontinental Railroad in 1865. 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 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.

The activities of the project would not result in permanent, temporary, or constructive use of the Niles Canyon Transcontinental Railroad Historic District requiring protection under Section 4(f). Therefore, the provisions of Section 4(f) are not triggered.

*Sunol Water Temple Entry Gates of Spring Valley Water Company’s Alameda Creek System Historic District*

The Sunol Water Temple Entry Gates are located at the intersection of Paloma Way and Niles Canyon Road and mark the entrance to the long straight paved drive that leads to the Sunol Water Temple. They are constructed of reinforced concrete curved pylons with metal gates. The pylons are concave with a tripartite design that sits on a simple pedestal, topped with simple capitals. The pylons are also adorned with polychrome relief.

The activities of the project would not result in permanent, temporary, or constructive use of the Sunol Water Temple Entry Gates requiring protection under Section 4(f). Therefore, the provisions of Section 4(f) are not triggered.

*Union Pacific Railroad*

The Union Pacific Railroad consists of approximately six miles of track between Niles and Pleasanton, the 1907 Silver Springs truss bridge, Tunnels #1 and #2, and the railroad from Niles Junction to Sunol.

The activities of the project would not result in permanent, temporary, or constructive use of the Union Pacific Railroad requiring protection under Section 4(f). Therefore, the provisions of Section 4(f) are not triggered.

*Spring Valley Water Company’s Alameda Creek System Historic District (including the Sunol Aqueduct and the Sunol Water Temple Entry Gates)*

The Spring Valley Water Company’s Alameda Creek System consists of the water conveyance system developed along the Alameda Creek as well as the several properties associated with the functioning of that system.
The activities of the project would not result in permanent, temporary, or constructive use of the Spring Valley Water Company’s Alameda Creek System Historic District (including the Sunol Aqueduct and Sunol Water Temple Entry Gates) requiring protection under Section 4(f). Therefore, the provisions of Section 4(f) are not triggered.

Wildlife and Waterfowl Refuges
There are no wildlife or waterfowl refuges within a half-mile from the Niles Canyon Safety Improvements 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 Niles Canyon Safety Improvements 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.
Appendix C. Title VI Policy Statement
This page is intentionally left blank.
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.

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 14th Street, MS-79, Sacramento, CA 95811. Telephone: (916) 324-0449, TTY: 711, or via Fax: (916) 324-1949.

MALCOLM DOUGHERTY
Director

"Caltrans improves mobility across California"
This page is intentionally left blank.
Appendix D. Environmental Commitments Record
This page is intentionally left blank.
### Permits

<table>
<thead>
<tr>
<th>Permit</th>
<th>Agency</th>
<th>Date Submitted</th>
<th>Date Received</th>
<th>Expiration</th>
<th>Requirements Completed Name</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1600</td>
<td>California Department of Fish &amp; Wildlife</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Will be obtained during the project's design phase.</td>
</tr>
<tr>
<td>2081</td>
<td>California Department of Fish &amp; Wildlife</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Will be obtained during the project's design phase.</td>
</tr>
<tr>
<td>401</td>
<td>Regional Water Quality Control Board</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Will be obtained during the project's design phase.</td>
</tr>
<tr>
<td>404</td>
<td>US Army Corps of Engineers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Will be obtained during the project's design phase.</td>
</tr>
<tr>
<td>BO (FWS)</td>
<td>US Fish and Wildlife</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>BO will be obtained prior to Final Environmental Document.</td>
</tr>
<tr>
<td>Programmatic BO</td>
<td>National Marine Fisheries Service</td>
<td>9/6/16</td>
<td>9/6/16</td>
<td></td>
<td></td>
<td>See footnote on Table 6 in Section 1.7 of the Draft Environmental Document.</td>
</tr>
</tbody>
</table>

### Commitments

<table>
<thead>
<tr>
<th>Task and Brief Description</th>
<th>Source</th>
<th>Responsible Staff</th>
<th>Action to Comply</th>
<th>Task Completed Name</th>
<th>Remarks/Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PS&amp;E/Before RTL</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Biology</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>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.</td>
<td>Env Doc Section 2.3.1.3</td>
<td>SSP</td>
<td>Design/Office of Biological Science and Permits</td>
<td></td>
<td></td>
</tr>
<tr>
<td>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.</td>
<td>Env Doc Section 2.3.1.3</td>
<td>SSP</td>
<td>Design/Office of Biological Science and Permits</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Cultural Resources

<table>
<thead>
<tr>
<th>Task and Brief Description</th>
<th>Source</th>
<th>SSP/ NSSP</th>
<th>Responsible Staff</th>
<th>Action to Comply</th>
<th>Task Completed Name</th>
<th>Task Completed Date</th>
<th>Remarks/Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Section 2.1.6.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Section 2.1.6.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Section 2.1.6.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CULTURAL-6. Rehabilitate Alameda Creek Bridge and Overhead (Bridge 33-0039) in accordance with Secretary of the Interior's Standards.</td>
<td>Env Doc</td>
<td>n/a</td>
<td>Design/Resident Engineer/Office of Cultural Resource Studies</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Section 2.1.6.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Hazardous Waste

<table>
<thead>
<tr>
<th>Task and Brief Description</th>
<th>Source</th>
<th>SSP</th>
<th>Responsible Staff</th>
<th>Action to Comply</th>
<th>Task Completed Name</th>
<th>Task Completed Date</th>
<th>Remarks/Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>HAZ-1. Conduct Site Investigation.</td>
<td>Env Doc</td>
<td>SSP</td>
<td>Office of Environmental Engineering/Design</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Section 2.2.6.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HAZ-2. Conduct Asbestos Containing Material and Lead Based Paint Surveys.</td>
<td>Env Doc</td>
<td>SSP</td>
<td>Office of Environmental Engineering/Design</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Section 2.2.6.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Paleontology

<table>
<thead>
<tr>
<th>Task and Brief Description</th>
<th>Source</th>
<th>SSP</th>
<th>Responsible Staff</th>
<th>Action to Comply</th>
<th>Task Completed Name</th>
<th>Task Completed Date</th>
<th>Remarks/Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>PALEONTOLOGY-1. Develop Paleontological Mitigation Plan To Be Implemented During Construction.</td>
<td>Env Doc</td>
<td>SSP</td>
<td>Design/Office of Geotechnical Design</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Section 2.2.4.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Task and Brief Description</td>
<td>Source</td>
<td>SSP/ NSSP</td>
<td>Responsible Staff</td>
<td>Action to Comply</td>
<td>Task Completed Name</td>
<td>Task Completed Date</td>
<td>Remarks/Due Date</td>
</tr>
<tr>
<td>---------------------------------------------------------------------------------------------</td>
<td>-----------------</td>
<td>----------</td>
<td>-------------------</td>
<td>------------------</td>
<td>---------------------</td>
<td>---------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td><strong>Water Quality</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WATER-3. Implement Stormwater Treatment.</td>
<td>Env Doc Section 2.2.2.4</td>
<td>SSP</td>
<td>Design/Office of Stormwater Coordination</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PARKS/REC-1. Coordinate with East Bay Regional Park District regarding the Proposed Niles Canyon Class I Bicycle Facility.</td>
<td>Env Doc Section 2.1.1.3</td>
<td>n/a</td>
<td>Office of Environmental Analysis, Design, and Project Management</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UTL-1. Relocate Powerlines.</td>
<td>Env Doc Section 2.1.3.3</td>
<td>SSP</td>
<td>Design</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Pre-Construction</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Biology</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BATS-1. Pre-construction Surveys for roosting bats.</td>
<td>Env Doc Section 2.3.4.4</td>
<td>SSP</td>
<td>Resident Engineer/Office of Biological Science and Permits</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIRDS-1. Work Window for Nesting Birds.</td>
<td>Env Doc Section 2.3.4.4</td>
<td>SSP</td>
<td>Resident Engineer/Office of Biological Science and Permits</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIRDS-2. Pre-construction Surveys for Nesting Birds.</td>
<td>Env Doc Section 2.3.4.4</td>
<td>SSP</td>
<td>Resident Engineer/Office of Biological Science and Permits</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INVASIVE-1. Clean Construction Equipment On-site.</td>
<td>Env Doc Section 2.3.6.4</td>
<td>SSP</td>
<td>Resident Engineer</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NATURAL COMMUNITIES-1. Include a copy of relevant permits within the construction bid package.</td>
<td>Env Doc Section 2.3.6.4</td>
<td>SSP</td>
<td>Design/Resident Engineer</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Task and Brief Description</td>
<td>Source</td>
<td>SSP/ NSSP</td>
<td>Responsible Staff</td>
<td>Action to Comply</td>
<td>Task Completed Name</td>
<td>Remarks/Due Date</td>
<td></td>
</tr>
<tr>
<td>----------------------------------------------------------</td>
<td>------------------</td>
<td>----------</td>
<td>-------------------------------------------------------</td>
<td>-----------------------------------</td>
<td>---------------------</td>
<td>------------------</td>
<td></td>
</tr>
<tr>
<td>NATURAL COMMUNITIES-11. Pre-construction Surveys for</td>
<td>Env Doc Section</td>
<td>SSP</td>
<td>Resident Engineer/Office of Biological Science and</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nesting Birds.</td>
<td>2.3.1.3</td>
<td></td>
<td>Permits</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NATURAL COMMUNITIES-13. Pre-construction Surveys for</td>
<td>Env Doc Section</td>
<td>SSP</td>
<td>Resident Engineer/Office of Biological Science and</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tree-roosting Bats.</td>
<td>2.3.1.3</td>
<td></td>
<td>Permits</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NATURAL COMMUNITIES-2. Biological Monitor Approval by</td>
<td>Env Doc Section</td>
<td>SSP</td>
<td>Office of Biological Science and Permits</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>USFWS.</td>
<td>2.3.1.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NATURAL COMMUNITIES-4. Worker Environmental Awareness</td>
<td>Env Doc Section</td>
<td>SSP</td>
<td>Resident Engineer/Office of Biological Science and</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Training.</td>
<td>2.3.1.3</td>
<td></td>
<td>Permits</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NATURAL COMMUNITIES-5. Pre-construction Surveys for</td>
<td>Env Doc Section</td>
<td>SSP</td>
<td>Resident Engineer/Office of Biological Science and</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Listed-Species by Agency-Approved Biologist.</td>
<td>2.3.1.3</td>
<td></td>
<td>Permits</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NATURAL COMMUNITIES-7. Wildlife Exclusion Fencing.</td>
<td>Env Doc Section</td>
<td>SSP</td>
<td>Design/Office of Biological Science and Permits/Reside</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ent Engineer/Contractor</td>
<td>2.3.1.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WETLANDS-2. Include copies of all relevant permits within</td>
<td>Env Doc Section</td>
<td>SSP</td>
<td>Design/Office of Biological Science and Permits</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>the construction bid package.</td>
<td>2.3.2.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Task and Brief Description

<table>
<thead>
<tr>
<th>Task and Brief Description</th>
<th>Source</th>
<th>SSP</th>
<th>Responsible Staff</th>
<th>Action to Comply</th>
<th>Task Completed Name</th>
<th>Task Completed Date</th>
<th>Remarks/Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>WOODRAT-1. Woodrat House Relocation Plan.</td>
<td>Env Doc Section 2.3.4.4</td>
<td>SSP</td>
<td>Resident Engineer/Office of Biological Science and Permits</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VISUAL-1: Cut slope and rock drapery measures.</td>
<td>Env Doc Section 2.1.5.4</td>
<td>n/a</td>
<td>Design/Office of Landscape Architecture</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VISUAL-4: Color Signal Poles at Pleasanton-Sunol Road/SR-84 Intersection.</td>
<td>Env Doc Section 2.1.5.4</td>
<td>SSP</td>
<td>Design/Office of Landscape Architecture</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WATER-1. Prepare Stormwater Pollution Prevention Plan (SWPPP).</td>
<td>Env Doc Section 2.2.2.4</td>
<td>SSP</td>
<td>Resident Engineer/Contractor/Office of Stormwater Coordination</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TRAFFIC-1. Prepare Traffic Management Plan.</td>
<td>Env Doc Section 2.1.4.4</td>
<td>SSP</td>
<td>Design/Office of Traffic Operations</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIRDS-3. Non-Disturbance Buffer for Nesting Birds.</td>
<td>Env Doc Section 2.3.4.4</td>
<td>SSP</td>
<td>Resident Engineer/Office of Biological Science and Permits</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIRDS-4. Bird Exclusion Plan.</td>
<td>Env Doc Section 2.3.4.4</td>
<td>SSP</td>
<td>Resident Engineer/Office of Biological Science and Permits</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INVASIVE-2. Invasive Species Prevention.</td>
<td>Env Doc Section 2.3.4.4</td>
<td>SSP</td>
<td>Resident Engineer</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Landscape

- VISUAL-1: Cut slope and rock drapery measures.
- VISUAL-4: Color Signal Poles at Pleasanton-Sunol Road/SR-84 Intersection.

### Water Quality

- WATER-1. Prepare Stormwater Pollution Prevention Plan (SWPPP).

### Traffic


### Construction

### Biology

### Task and Brief Description

<table>
<thead>
<tr>
<th>Task and Brief Description</th>
<th>Source</th>
<th>SSP/ NSSP</th>
<th>Responsible Staff</th>
<th>Action to Comply</th>
<th>Task Completed Name</th>
<th>Remarks/Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.3.6.4</td>
<td>Env Doc Section 2.3.4.3</td>
<td>SSP</td>
<td>Resident Engineer/Office of Biological Science and Permits</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LAMPREY-1. Avoid and Minimize Impacts to Pacific Lamprey.</td>
<td>Env Doc Section 2.3.1.3</td>
<td>SSP</td>
<td>Resident Engineer/Contractor</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NATURAL COMMUNITIES-10. Work Window for Nesting Birds.</td>
<td>Env Doc Section 2.3.1.3</td>
<td>SSP</td>
<td>Resident Engineer</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NATURAL COMMUNITIES-12. Non-Disturbance Buffer for Nesting Birds.</td>
<td>Env Doc Section 2.3.1.3</td>
<td>SSP</td>
<td>Resident Engineer/Contractor</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NATURAL COMMUNITIES-14. Stormwater Best Management Practices Inspection.</td>
<td>Env Doc Section 2.3.1.3</td>
<td>SSP</td>
<td>Resident Engineer</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NATURAL COMMUNITIES-15. Vehicle Use Guidance.</td>
<td>Env Doc Section 2.3.1.3</td>
<td>SSP</td>
<td>Resident Engineer</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NATURAL COMMUNITIES-16. Minimize Night Work.</td>
<td>Env Doc Section 2.3.1.3</td>
<td>SSP</td>
<td>Resident Engineer</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NATURAL COMMUNITIES-17. Minimize Use of Night Lighting.</td>
<td>Env Doc Section 2.3.1.3</td>
<td>SSP</td>
<td>Resident Engineer/Contractor</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NATURAL COMMUNITIES-18. Trash Control.</td>
<td>Env Doc Section 2.3.1.3</td>
<td>SSP</td>
<td>Resident Engineer</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NATURAL COMMUNITIES-19. No Firearms Permitted On-site.</td>
<td>Env Doc Section 2.3.1.3</td>
<td>SSP</td>
<td>Resident Engineer</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NATURAL COMMUNITIES-20. No Pets Permitted On-site.</td>
<td>Env Doc Section 2.3.1.3</td>
<td>SSP</td>
<td>Resident Engineer</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NATURAL COMMUNITIES-21. Implement Caltrans</td>
<td>Env Doc</td>
<td>SSPP</td>
<td>Resident</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Task and Brief Description

<table>
<thead>
<tr>
<th>Task and Brief Description</th>
<th>Source</th>
<th>Responsible Staff</th>
<th>Action to Comply</th>
<th>Task Completed Name</th>
<th>Remarks/Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Temporary and Permanent Best Management Practices.</td>
<td>Section 2.3.1.3</td>
<td>Engineer/Office of Stormwater Coordination</td>
<td>SSP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NATURAL COMMUNITIES-22. Prohibition of Monofilament Erosion Control.</td>
<td>Env Doc Section 2.3.1.3</td>
<td>Resident Engineer</td>
<td>SSP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NATURAL COMMUNITIES-23. Concrete Waste and Stockpiles.</td>
<td>Env Doc Section 2.3.1.3</td>
<td>Office of Biological Science and Permits/Resident Engineer</td>
<td>SSP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NATURAL COMMUNITIES-3. Biological Monitoring By agency-approved biologist(s) during initial ground-disturbing activities.</td>
<td>Env Doc Section 2.3.1.3</td>
<td>Resident Engineer/Office of Biological Science and Permits</td>
<td>SSP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NATURAL COMMUNITIES-6. Prevent of Wildlife Entrapment.</td>
<td>Env Doc Section 2.3.1.3</td>
<td>Resident Engineer/Contractor</td>
<td>SSP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NATURAL COMMUNITIES-8. Contact Biologist if Listed Species are Discovered On Site.</td>
<td>Env Doc Section 2.3.1.3</td>
<td>Resident Engineer/Contractor</td>
<td>SSP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NATURAL COMMUNITIES-9. Work Window for California Red-legged Frog and Alameda Whipsnake.</td>
<td>Env Doc Section 2.3.1.3</td>
<td>Design/Office of Biological Science and Permits/Resident Engineer/Contractor</td>
<td>SSP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PLANT-1. Discovery of Listed Plant Species.</td>
<td>Env Doc Section 2.3.3.4</td>
<td>Resident Engineer/Office of Biological Science and Permits</td>
<td>SSP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WESTERN POND TURTLE-1. Avoid and Minimize Impacts to Western Pond Turtle.</td>
<td>Env Doc Section 2.3.4.4</td>
<td>Resident Engineer/Office of Biological Science and Permits</td>
<td>SSP</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Environmental Commitments Record for EA 04-2A332_ / ID 0414000039**

**NILES CANYON SAFETY PROJECT (MEDIUM)**

AL-084-10.8/18  
Current Project Phase: 0,2,4

<table>
<thead>
<tr>
<th>Task and Brief Description</th>
<th>Source</th>
<th>SSP/NSSP</th>
<th>Responsible Staff</th>
<th>Action to Comply</th>
<th>Task Completed Name</th>
<th>Remarks/Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cultural Resources</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CULTURAL-1. Inadvertent Discovery of Cultural Resources.</td>
<td>Env Doc Section 2.1.6.4</td>
<td>SSP</td>
<td>Resident Engineer</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CULTURAL-2. Inadvertent Discovery of Human Remains.</td>
<td>Env Doc Section 2.1.6.4</td>
<td>SSP</td>
<td>Resident Engineer</td>
<td>notify Office of</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Cultural Resource</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Studies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CULTURAL-7. Report Inadvertent Discoveries to San Francisco Public Utilities Commission.</td>
<td>Env Doc Section 2.1.6.4</td>
<td>n/a</td>
<td>Office of Cultural</td>
<td>Report Inadvertent</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Resource Studies</td>
<td>Discoveries</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>to San Francisco</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Public Utilities</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Commission.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Landscape</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VISUAL-2: Tree and Vegetation removal measures.</td>
<td>Env Doc Section 2.1.5.4</td>
<td>SSP</td>
<td>Design/Resident</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VISUAL-3. Construction Storage and Staging Impact Measures.</td>
<td>Env Doc Section 2.1.5.4</td>
<td>SSP</td>
<td>Resident Engineer</td>
<td>Landscape</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Architecture</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Biology</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Science and</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Permits</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Water Quality</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WATER-2. Implement Creek Diversion During Construction Activities.</td>
<td>Env Doc Section 2.2.2.4</td>
<td>SSP</td>
<td>Resident Engineer</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Contractor/Design/</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Office of Stormwater</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Coordination</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Post-Construction**
### Biology

<table>
<thead>
<tr>
<th>Task and Brief Description</th>
<th>Source</th>
<th>SSP/ NSSP</th>
<th>Responsible Staff</th>
<th>Action to Comply</th>
<th>Task Completed Name</th>
<th>Task Completed Date</th>
<th>Remarks/Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>AWS-1. Compensatory Mitigation for Alameda Whipsnake.</td>
<td>Env Doc Section 2.3.5.4</td>
<td>SSP</td>
<td>Office of Biological Science and Permits</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CRLF-1. Compensatory Mitigation for California Red-legged Frog.</td>
<td>Env Doc Section 2.3.5.4</td>
<td>SSP</td>
<td>Office of Biological Science and Permits</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NATURAL COMMUNITIES-24. Revegetation Following Construction.</td>
<td>Env Doc Section 2.3.1.3</td>
<td>SSP</td>
<td>Resident Engineer</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WETLANDS-1. Compensatory Mitigation and Proposed Onsite Revegetation.</td>
<td>Env Doc Section 2.3.2.4</td>
<td>SSP</td>
<td>Office of Biological Science and Permits/Resident Engineer</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

Jamie Ledent  
Environmental Branch Chief  


Project Engineer  


Resident Engineer  

---

SIAUW, JACK  
Project Manager  


---


This page is intentionally left blank.
Appendix E. Notice of Preparation and Newspaper Advertisements
This page is intentionally left blank.
Notice of Completion & Environmental Document Transmittal

Mail to: State Clearinghouse, P.O. Box 3044, Sacramento, CA 95812-3044 (916) 445-0613
For Hand Delivery/Street Address: 1400 Tenth Street, Sacramento, CA 95814

Project Title: Niles Canyon Safety Improvements Project
Lead Agency: California Department of Transportation, District 4
Mailing Address: 111 Grand Avenue MS 8B
City: Oakland
Zip: 94612
County: Alameda

Project Location: County: Alameda
City/Nearest Community: Niles in Fremont and the town of Sunol
Cross Streets: Mission Boulevard (State Route 238) and Interstate 680
Waterways: Alameda Creek
Airports: N/A
Railways: Niles Canyon Railway
Schools: Sunol Glen Elementary

Document Type:
CEQA: X NOP
Draft EIR
NEPA: X NOI
NOI
Other:

Local Action Type:
X General Plan Update
X General Plan Amendment
X General Plan Element
X Community Plan
X Specific Plan
X Master Plan
X Planned Unit Development
X Site Plan
X Rezone
X Prezone
X Use Permit
X Land Division (Subdivision, etc.)
X Annexation
X Redevelopment
X Coastal Permit
X Other:

Development Type:
X Residential: Units
Acres
Employees
X Transportation: Type Safety Improvements
X Office: Sq.ft
Acres
Employees
X Mining: Mineral
X Commercial: Sq.ft
Acres
Employees
X Power: Type MW
X Industrial: Sq.ft
Acres
Employees
X Waste Treatment: Type MGD
X Educational:
X Hazardous Waste: Type
X Recreational:
X Other:
X Water Facilities: Type
MGD

Project Issues Discussed in Document:
X Aesthetic/Visual
X Agricultural Land
X Flood Plain/Flooding
X Forest Land/Fire Hazard
X Geologic/Seismic
X Soil Erosion/Compaction/Grading
X Coastal Zone
X Noise
X Solid Waste
X Drainage/Absorption
X Population/Housing Balance
X Toxic/Hazardous
X Economic/Jobs
X Public Services/Facilities
X Traffic/Circulation

Present Land Use/Zoning/General Plan Designation:

Project Description: (please use a separate page if necessary)
The California Department of Transportation (Caltrans) proposes to construct multiple safety improvements at specific site locations along the State Route 84 (SR-84) corridor between SR 238 (Mission Boulevard) and the SR-84/Interstate 680 Separation. The project alternative developed to meet the purpose and need of the project is the Build Alternative. Improvements of the Build Alternative include fixed object removal and relocation, the installation of rock drapery systems, limited shoulder widening, widening and barrier replacement on Alameda Creek Bridge and Overhead, and the signalization of the Pleasanton-Sunol Road/SR-84 intersection. Refer to the supplemental project information sheet for more information.

Note: The State Clearinghouse will assign identification numbers for all new projects. If a SCH number already exists for a project (e.g. Notice of Preparation or previous draft document) please fill in.

Revised 2010
Reviewing Agencies Checklist

Lead Agencies may recommend State Clearinghouse distribution by marking agencies below with an "X". If you have already sent your document to the agency please denote that with an "S".

- Air Resources Board
- Boating & Waterways, Department of
- California Emergency Management Agency
- California Highway Patrol
- Caltrans District #
- Caltrans Division of Aeronautics
- Caltrans Planning
- Central Valley Flood Protection Board
- Coachella Valley Mins. Conservancy
- Coastal Commission
- Colorado River Board
- Conservation, Department of
- Corrections, Department of
- Delta Protection Commission
- Education, Department of
- Energy Commission
- Fish & Game Region #
- Food & Agriculture, Department of
- Forestry and Fire Protection, Department of
- General Services, Department of
- Health Services, Department of
- Housing & Community Development
- Native American Heritage Commission

Office of Historic Preservation
Office of Public School Construction
Parks & Recreation, Department of
Pesticide Regulation, Department of
Public Utilities Commission
Regional WQCB #
Resources Agency
Resources Recycling and Recovery, Department of
S.F. Bay Conservation & Development Comm.
San Gabriel & Lower L.A. Rivers & Mtns. Conservancy
San Joaquin River Conservancy
Santa Monica Mtns. Conservancy
State Lands Commission
SWRCB: Clean Water Grants
SWRCB: Water Quality
SWRCB: Water Rights
Tahoe Regional Planning Agency
Toxic Substances Control, Department of
Water Resources, Department of

Other:
Other:

Local Public Review Period (to be filled in by lead agency)

Starting Date September 30, 2015  Ending Date October 30, 2015

Lead Agency (Complete if applicable):

Consulting Firm:  Applicant:
Address:  Address:
City/State/Zip:  City/State/Zip:
Contact:  Phone:

Signature of Lead Agency Representative:  Date: 9/30/15

NOTICE OF PREPARATION

To: ___________________________ From: California Dept. of Transportation

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 15062(a), 15103, 15375.

Project Title: Niles Canyon Safety Improvements Project

Project Location: State Route 84, from Mission Boulevard (State Route 238) to Interstate 680

Project Description: The California Department of Transportation (Caltrans) proposes to conduct multiple spot safety improvements on State Route 84 (SR-84) from Mission Boulevard to Interstate 680 in southern Alameda County. Collisions through the Niles Canyon corridor are an ongoing concern; from January 1, 2009 to December 31, 2011, a total of 83 accidents, including 41 injury accidents and one fatality, were reported within these project limits on SR-84. The accidents involved hitting objects, broadside, rear end, overturns, and other types of vehicular accidents. The purpose of the project is to improve safety on SR-84 by reducing the number of collisions through the implementation of various features.

This is to inform you that the Caltrans will be the lead agency and will prepare an Environmental Impact Report (EIR) for the Niles Canyon Safety Improvements Project. 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) (___X 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 Mr. Jamie Le Dent, Branch Chief (telephone 510-622-8729, email jamie.ledent@dot.ca.gov) at the address shown above. Please supply us with the name for a contact person in your agency.

Date 9/29/15

Signature

Title Branch Chief
Notice of Preparation of an Environmental Impact Report

SUPPLEMENTAL PROJECT INFORMATION

Introduction
The California Department of Transportation (Caltrans) proposes to construct multiple spot safety improvements at specific site locations along the State Route 84 (SR-84) corridor between State Route 238 (SR-238) (Mission Boulevard) and the SR-84/Interstate 680 (I-680) separation. Collisions through the Niles Canyon corridor are an ongoing concern; from January 1, 2009 to December 31, 2011, a total of 83 accidents, including 41 injury accidents and one fatality, were reported within these project limits on SR-84. The accidents involved hitting objects, broadside, rear end, overturns, and other types of vehicular accidents. The purpose of the project is to improve safety on SR-84 by reducing the number of collisions through the implementation of various features.

Project Description
The alternative developed to meet the purpose and need of the project is the Build Alternative. The No-Build Alternative is also considered; under the No-Build Alternative, no changes would be made to SR-84 under this project; therefore, no construction activities would occur and there would be no change in the operations of the existing facility. The Niles Canyon Safety Improvements Project consists of multiple spot safety improvements and are identified in further detail below.

Installation and Replacement of Traffic Signs
As part of the proposed safety improvements on the Niles Canyon corridor, new roadway traffic signs would be installed and some existing signs would be replaced.

Stonybrook Box Culvert Removal with Clear Span Bridge Replacement
The proposed project would remove the existing reinforced box culvert that drains Stonybrook Creek into Alameda Creek and provide a clear span bridge over Stonybrook Creek. The channel profile and substrate would be restored to conditions similar to upstream and downstream conditions.

Low-speed Curve Improvement
A sharp curve (300-feet radius / 53 degree central angle), with non-standard lane widths and shoulders, is located approximately half a mile east of the Alameda Creek Bridge (Bridge #33-0036). The total length of the curve is approximately 500 feet. Caltrans proposes to reconstruct the curve and create an eight-foot shoulder at this location. Reconstruction of the curve would involve rock cuts and the installation of retaining walls.

Fixed Object Removal and Relocation
Trees and utility poles within eight feet of the edge-of-travel-way throughout the project area would be removed. Based on preliminary estimates, approximately 35 trees would be removed and 17 utility poles would be relocated.

Install K-rail
The existing K-rail that is located at the edge-of-travel-way on the upslope hill face that is west of the Rosewarne railroad crossing would be replaced with K-rail that meets current standards.
Install Rock Drapery System
A rock drapery system would be installed in the western portion of Niles Canyon. A 250-foot long cable net drapery would be anchored to the top of the slope (approximately 40 feet high), and rocks would fall/work their way down into an existing catchment ditch to be cleared out by Caltrans maintenance crews.

Install Dynamic Rock Fall Fence
A dynamic rock fall fence would also be installed in the western portion of Niles Canyon. This dynamic rock fall fence would be approximately eight-feet tall and 400-feet long. Rocks falling from the slope would be “caught” in the 400-foot-long fence, extending eight feet from the slope, and angled perpendicular to the slope so that no rocks fall onto SR-84.

Limited Shoulder Widening
The following sections of road shoulder would be widened to accommodate an eight-foot shoulder with a safety edge on the current travel lane:
- Sims Park/Quarry Road for a length of approximately 640 feet
- West side of Silver Springs for a length of approximately 2,330 feet
- Paloma Way for a length of approximately 3,000 feet

Widening and Barrier Replacements on Alameda Creek Bridge and Overhead (Bridge #33-0039)
Caltrans proposes to remove the curb and replace the barrier railing on the Alameda Creek Bridge and Overhead (Bridge #33-0039). The preferred option is to replace the existing tubular steel type barrier with Type SR-20S (a see-thru metal barrier). Bicyclist warning signs would be installed on both sides of the Alameda Creek Bridge and Overhead (Bridge #33-0039).

Install and Replace Metal Beam Guard Railing with Midwest Guardrail System
Approximately 9,500 linear feet of existing Metal Beam Guard Railing along SR-84 in both directions would be replaced with Midwest Guard Rail System and approximately 3,000 feet of new Midwest Guard Rail System would be installed along the Paloma Way widening on the edge of shoulder.

Remove Sidewalk and Construct Safety Shape at Silver Springs Undercrossing
Caltrans proposes to remove sidewalks and construct a safety shape at the Silver Springs undercrossing. The existing four-foot-wide sidewalks on the east-bound direction and on the westbound direction would be removed to create space for a shoulder that would be wide enough for bicycle use. Shoulders would be put in on both sides of the roadway for a total of 2,200 feet in length (each shoulder would be approximately 1,100 feet long).

Signalization at Pleasanton-Sunol Road/State Route 84 Intersection
Caltrans proposes to signalize the intersection of Pleasanton-Sunol Road and SR-84, which is currently a four-way stop. Proposed improvements include providing a right-turn pocket on Pleasanton-Sunol Road, the installation of traffic light signals at the intersection of SR-84 and Pleasanton-Sunol Road, and the installation of light signals at the intersection of Main Street and SR-84.

Installation of Active Warning Systems
Push-button-activated flashing beacons would be installed so that cyclists can use to signal their presence on roadway structures to motorists.

Installation of Speed Feedback Signs
The project would install solar powered speed-feedback signs and conventionally powered speed-feedback signs throughout the project limits.
Installation of Dynamic Active Warning Intelligent Transportation System (ITS)
Two ITSs would be installed as part of this project: at the approach to the Silver Springs undercrossing, the ITS would signal when traffic, which may not be visible to approaching motorists, has backed up within the undercrossing and at the Palomares intersection, the ITS would signal to motorists on the mainline that vehicles on Palomares are waiting to make a left turn.

Probable Environmental Effects
Based on preliminary surveys and information, Caltrans identified the following main subject areas for analysis in the EIR. The scope of environmental analysis will be modified based on input from this NOP and project scoping.

Aesthetics/Visual
Archeological/Historical
Biological Resources
Flood Plain/Flooding
Geologic/Seismic
Land Use
Paleontology
Public Services/Facilities
Soil Erosion/Compaction/Grading
Toxic/Hazardous
Traffic/Circulation
Vegetation
Water Quality
Wetland/Riparian
Cumulative Effects
Niles Canyon Safety Improvements Project: Project Location Map
This page is intentionally left blank.
Policy on Scattering Cremated Remains

Representatives of the Little League Intermediate World Series were on hand last week’s Livermore Area Recreation and Park District (LARPD) meeting to make a special presentation. In addition, the board approved a new policy sanctioning cremated remains in parklands. Presenting the World Series were Dave Wetle, Dan Gallagher, and Bill Aboumrad, and with permission of the property owner.

In addition, the board established a new job classification of Parks and Facilities Manager, who will oversee the parklands. California state law requires cremation permits and disposal (including scattering) be allowed in areas of the property where no board permits exist, and with permission of the property owner.

The new policy allows the scattering of cremated human or animal remains by persons who are part of the family of the deceased on District parklands under certain circumstances and by permit only. The location of scattered ashes will be reported to the Parks and Facilities Manager on the permit form. However, the District is not responsible for maintaining the scattered ash areas. The District will notify the deceased or locations of remains. As LARPD parks are for all visitors, there will be no restrictions to future use of or access to parkland where remains have been scattered.

The new policy for Scattering of Cremated Remains in Parklands: California state law regulates cremation and disposal (including scattering) allowing in areas of the property where no local prohibition exists, and with permission of the property owner.

The new policy allows the scattering of legally cremated human or animal remains by persons who are part of the family of the deceased on District parklands.
This page is intentionally left blank.
This year he has gone back to his Democratic roots. In earlier years, he was trying to take compromise positions and get things through Congress by working with the Republican side. I think voters here didn’t like that — it’s a very Democratic state. This year he has gone back to his Democratic roots.

— Mark DeCamillo, Field Poll director

By Josh Richman

President Barack Obama, in California the week before the midterm elections, is more popular now with golden-haired voters than at any other time since the start of his second term, the Field Poll reports.

Sixty percent of the state’s registered voters approved of Obama’s performance in office while 33 percent disapproved, according to the poll of 1,002 voters conducted Sept. 17 through Oct. 4. That’s up from his 53 percent approval rating in May and far better than his 42 percent approval rating, he took popular in the Central Valley, at 40 percent. He also fares better among younger voters, minority voters and female voters.

The poll’s margin of error is 3.2 percentage points.

Obama arrived in San Francisco on Friday night for fundraisers and a Democratic National Committee fundraiser. He’ll hold another DNC fundraiser Saturday morning in Los Angeles and a stop in San Diego, is more popular now with golden-haired voters than at any other time since the start of his second term, the Field Poll reports.

The poll’s margin of error is 3.2 percentage points.

Obama arrived in San Francisco on Friday night for fundraisers and a Democratic National Committee fundraiser. He’ll hold another DNC fundraiser Saturday morning in Los Angeles and a stop in San Diego, is more popular now with golden-haired voters than at any other time since the start of his second term, the Field Poll reports.

The poll’s margin of error is 3.2 percentage points.

Obama arrived in San Francisco on Friday night for fundraisers and a Democratic National Committee fundraiser. He’ll hold another DNC fundraiser Saturday morning in Los Angeles and a stop in San Diego, is more popular now with golden-haired voters than at any other time since the start of his second term, the Field Poll reports.

The poll’s margin of error is 3.2 percentage points.

Obama arrived in San Francisco on Friday night for fundraisers and a Democratic National Committee fundraiser. He’ll hold another DNC fundraiser Saturday morning in Los Angeles and a stop in San Diego, is more popular now with golden-haired voters than at any other time since the start of his second term, the Field Poll reports.

The poll’s margin of error is 3.2 percentage points.

Obama arrived in San Francisco on Friday night for fundraisers and a Democratic National Committee fundraiser. He’ll hold another DNC fundraiser Saturday morning in Los Angeles and a stop in San Diego, is more popular now with golden-haired voters than at any other time since the start of his second term, the Field Poll reports.

The poll’s margin of error is 3.2 percentage points.

Obama arrived in San Francisco on Friday night for fundraisers and a Democratic National Committee fundraiser. He’ll hold another DNC fundraiser Saturday morning in Los Angeles and a stop in San Diego, is more popular now with golden-haired voters than at any other time since the start of his second term, the Field Poll reports.

The poll’s margin of error is 3.2 percentage points.

Obama arrived in San Francisco on Friday night for fundraisers and a Democratic National Committee fundraiser. He’ll hold another DNC fundraiser Saturday morning in Los Angeles and a stop in San Diego, is more popular now with golden-haired voters than at any other time since the start of his second term, the Field Poll reports.

The poll’s margin of error is 3.2 percentage points.

Obama arrived in San Francisco on Friday night for fundraisers and a Democratic National Committee fundraiser. He’ll hold another DNC fundraiser Saturday morning in Los Angeles and a stop in San Diego, is more popular now with golden-haired voters than at any other time since the start of his second term, the Field Poll reports.

The poll’s margin of error is 3.2 percentage points.

Obama arrived in San Francisco on Friday night for fundraisers and a Democratic National Committee fundraiser. He’ll hold another DNC fundraiser Saturday morning in Los Angeles and a stop in San Diego, is more popular now with golden-haired voters than at any other time since the start of his second term, the Field Poll reports.

The poll’s margin of error is 3.2 percentage points.

Obama arrived in San Francisco on Friday night for fundraisers and a Democratic National Committee fundraiser. He’ll hold another DNC fundraiser Saturday morning in Los Angeles and a stop in San Diego, is more popular now with golden-haired voters than at any other time since the start of his second term, the Field Poll reports.

The poll’s margin of error is 3.2 percentage points.

Obama arrived in San Francisco on Friday night for fundraisers and a Democratic National Committee fundraiser. He’ll hold another DNC fundraiser Saturday morning in Los Angeles and a stop in San Diego, is more popular now with golden-haired voters than at any other time since the start of his second term, the Field Poll reports.

The poll’s margin of error is 3.2 percentage points.

Obama arrived in San Francisco on Friday night for fundraisers and a Democratic National Committee fundraiser. He’ll hold another DNC fundraiser Saturday morning in Los Angeles and a stop in San Diego, is more popular now with golden-haired voters than at any other time since the start of his second term, the Field Poll reports.

The poll’s margin of error is 3.2 percentage points.

Obama arrived in San Francisco on Friday night for fundraisers and a Democratic National Committee fundraiser. He’ll hold another DNC fundraiser Saturday morning in Los Angeles and a stop in San Diego, is more popular now with golden-haired voters than at any other time since the start of his second term, the Field Poll reports.

The poll’s margin of error is 3.2 percentage points.
Appendix F. Collision Analysis for Niles Canyon Safety Improvements Project
This page is intentionally left blank.
Memorandum

To: JACK SIAUW  
   Project Manager  
   Program/Project Management - East

Date: July 23, 2016

File: 04-ALA-084-PM 10.8/18.0  
       Project ID: 0414000039  
       EA: 04-2A3320  
       Niles Canyon Corridor –  
       Medium Term Project

From: EMILY TANG  
      District Branch Chief  
      Office of Traffic Safety

Subject: Collision Analysis

This is in response to your request for a Collision Analysis for the Niles Canyon Medium Term Project on State Route 84, PM 10.8 to 18.0, in the County of Alameda.

Introduction

The Route 84 corridor, including the Niles Canyon Corridor segment from Mission Boulevard (SR 238) in City of Fremont to Route 680 in Sunol, has been identified in the Department’s “Two and Three - Lane Safety Monitoring Program” list since the 2002 Annual Report. The “Two and Three-Lane Safety Monitoring Program” identifies highway segments with a concentration of cross-centerline fatal collisions on State’s conventional highways. To improve safety on the corridor, Caltrans initially programmed and subsequently developed three original Niles Canyon projects with the following features: (1) Niles Canyon 1 included improvements to the roadway passing under the Rosewarne Underpass and the addition of an eastbound left turn pocket at the Palomares Road Intersection near the Farewell Underpass. (2) Niles Canyon 2 entailed corridor-wide addition of standard shoulders, soft median barrier and shoulder rumble strips, as well as minor curve corrections at selected locations to improve sight distance. (3) Niles Canyon 3 was a project to replace the Alameda Creek Bridge, which is near the end of its life structurally, as well as to improve the horizontal curves approaching the bridge in both directions.
The Niles Canyon 1 project was in construction when a court injunction halted the project due to concerns of impacts to federally threatened species. In December 2011, Caltrans terminated the construction contract for Niles Canyon 1 project. The Niles Canyon 3 project is progressing in a separate track as the Alameda Creek Bridge Replacement Project (EA 16030), and currently under environmental review.

In the Fall of 2010, the SR 84 Niles Canyon Safety Improvement Project (Niles Canyon 2) received over 900 public comments to the DED in opposition to the project due to environmental impacts. The Project Development Team (PDT) made design revisions to minimize environmental impacts, but the many stakeholders commented that the environmental impacts were still too great and continued to oppose the project.

In the Spring of 2012, FHWA, HQ and Caltrans conducted a Road Safety Assessment (RSA) and a Value Analysis (VA) study for the SR 84 Niles canyon corridor to reaffirm the need for safety improvements. The RSA and VA studies analyzed the accident data from November 2007 to September 2010 in the Niles Canyon corridor and identified about 72 countermeasures to improve safety. The studies recommended moving forward with a series of safety improvements characterized as: (1) short term countermeasures, and (2) medium term countermeasures. The short term countermeasures have relatively low environmental impacts and can be implemented quickly. Its Design is completed and is anticipated to be in construction in March 2017. The medium term countermeasures have mitigatable environmental impacts and focus on safety improvements primarily at spot locations.

The RSA also recommended that Caltrans monitor the safety need of the corridor after the implementation of the short-term and medium-term countermeasures. If a safety need is identified during the monitoring process, various long-term countermeasures which potentially have significant environmental impacts should be considered.
Medium Term Improvement Project Scope

While accidents are found to occur throughout the Niles Canyon corridor, the RSA studies identified some spot locations with high accident concentrations that required site specific improvements. The original Medium Term Safety project scope was to implement safety improvements at the following spot locations based on the RSA and VA recommendations and considerations of input from the public:

- Low Speed Curve
- Rock Drapery System
- Dynamic Rock Fall Fence
- Paloma Way
- Alameda Creek BOH
- SR-84 and Main Street Intersection
- SR-84 and Pleasanton-Sunol Road Intersection

However, during the PS&E phase of the Short Term Improvement Project (EA 2A3310), following electrical items were deleted from the short term countermeasures and moved to the medium term project when it became apparent that trenching for conduit installation would have more than a minimal environmental impact:

- Installing of safety lighting at key areas (Rosewarne's UP, Palomares Road IS, Farewell UP, SR-84/Main Street IS, and SR-84/Pleasanton-Sunol Rod IS)
- Installing Vehicle Speed Feedback Signs (VSFS)
- Installing active warning system to alert motorists to bikes on roadway
- Installing dynamic active warning device for queuing conditions at NB SR-84 off-ramp to Sunol
- Modifying flashing beacon at Palomares Road
- Install ITS elements at Palomares Road to signal drivers of approaching speed
Similarly, following roadway items were also deleted from the short term project and moved to the medium term project because of environmental impacts:

- Upgrading Existing MBGR to Midwest Guardrail System (MGS)
- Installing MGS at several new locations
- Providing K-rail end treatments
- Installing of additional roadside signs and advanced warning signs

Furthermore, the Stonybrook Box Culvert and Clear Span Bridge Replacement scope from the abandoned Niles Canyon 1 project, which is essentially a project to provide increased capacity to meet storm requirements and facilitate passage of Steelhead from Alameda Creek to Stonybrook Creek, is being implemented in this Medium Term project through a PCR. Therefore, the current scope of the Medium Term Project includes all of the above as well as few additional items, such as fixed object removal and relocation (trees and utility poles), tree planting, Silver Spring Bridge side walk and drainage improvements, etc.

**Accident Data Analysis of Niles Canyon Corridor (PM 10.819 to 17.961)**

A summary of yearly TASAS accident data since 2000 to the latest available data up to September 2014 along the Route 84 Niles Canyon Corridor from Mission Boulevard to Route 680 are shown in Table 1.

Table 1 shows that during the 14 years between 2000 and 2013 and the 9 months in the year 2014, there were a total of 507 traffic collisions reported on this 7.15 miles of highway. Of the 507 traffic collisions, 14 resulted in fatalities and 390 resulted in injuries. Significant number of the 507 total traffic collisions was cross median (44) and run-off road (95) collisions. These types of collisions were associated with most of the fatality and serious injury accidents along the corridor. Significant numbers of collision (35%) were hit object type collisions. Objects hit included cut slope or embankment, sign posts, utility poles, trees, guardrails, dike or curb, fence, drainage ditch, other vehicles, etc.
A project to install soft median barrier from just east of Route 238 (Mission Boulevard) (PM 11.1) to just west of the Silver Springs UP (PM 16.7), was completed in October 2007. This improvement provided modified striping and a narrow buffer in the median with sound and vibration effects that alerts inattentive/drowsy drivers tending to drift off the road and return them back to the travel lane. This improvement, in conjunction with reduced traffic volumes due to the economic downturn, resulted in lower number of overall collisions within the project limits, as shown in Table 1.
### Table 1

**SR-84: Niles Canyon Corridor Collision Data**

(ALA-84-PM 10.819/17.961)

<table>
<thead>
<tr>
<th>Year</th>
<th>Collisions</th>
<th>Persons</th>
<th>Cross into Opposite Lane</th>
<th>Head-On</th>
<th>Sideswipe</th>
<th>Hit Object</th>
<th>Run-off-Road</th>
<th>DUI</th>
<th>Bicycle &amp; Pedestrian Related</th>
<th>Traffic Volumes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Fatal</td>
<td>Injury</td>
<td>Killed</td>
<td>Injured</td>
<td>(No.)</td>
<td>(%)</td>
<td>(No.)</td>
<td>(%)</td>
<td>(No.)</td>
</tr>
<tr>
<td>2000</td>
<td>73</td>
<td>2</td>
<td>38</td>
<td>3</td>
<td>61</td>
<td>9</td>
<td>12.3</td>
<td>4</td>
<td>5.5</td>
<td>10</td>
</tr>
<tr>
<td>2001</td>
<td>50</td>
<td>2</td>
<td>20</td>
<td>2</td>
<td>34</td>
<td>6</td>
<td>12.0</td>
<td>3</td>
<td>6.0</td>
<td>7</td>
</tr>
<tr>
<td>2002</td>
<td>42</td>
<td>1</td>
<td>20</td>
<td>1</td>
<td>34</td>
<td>3</td>
<td>7.1</td>
<td>2</td>
<td>4.8</td>
<td>4</td>
</tr>
<tr>
<td>2003</td>
<td>46</td>
<td>0</td>
<td>21</td>
<td>0</td>
<td>31</td>
<td>7</td>
<td>15.2</td>
<td>8</td>
<td>17.4</td>
<td>5</td>
</tr>
<tr>
<td>2004</td>
<td>43</td>
<td>1</td>
<td>22</td>
<td>1</td>
<td>33</td>
<td>2</td>
<td>4.7</td>
<td>6</td>
<td>14.0</td>
<td>4</td>
</tr>
<tr>
<td>2005</td>
<td>31</td>
<td>1</td>
<td>16</td>
<td>1</td>
<td>26</td>
<td>3</td>
<td>9.7</td>
<td>7</td>
<td>22.5</td>
<td>5</td>
</tr>
<tr>
<td>2006</td>
<td>29</td>
<td>1³</td>
<td>17</td>
<td>2</td>
<td>27</td>
<td>2</td>
<td>6.9</td>
<td>4</td>
<td>13.8</td>
<td>1</td>
</tr>
<tr>
<td>2007¹</td>
<td>36</td>
<td>2</td>
<td>22</td>
<td>2</td>
<td>28</td>
<td>1</td>
<td>2.8</td>
<td>3</td>
<td>8.3</td>
<td>3</td>
</tr>
<tr>
<td>2008</td>
<td>29</td>
<td>0</td>
<td>17</td>
<td>0</td>
<td>19</td>
<td>2</td>
<td>6.9</td>
<td>0</td>
<td>0.0</td>
<td>3</td>
</tr>
<tr>
<td>2009</td>
<td>19</td>
<td>0</td>
<td>11</td>
<td>0</td>
<td>15</td>
<td>1</td>
<td>5.3</td>
<td>1</td>
<td>5.3</td>
<td>0</td>
</tr>
<tr>
<td>2010</td>
<td>36</td>
<td>1</td>
<td>14</td>
<td>1</td>
<td>17</td>
<td>0</td>
<td>0.0</td>
<td>1</td>
<td>2.8</td>
<td>2</td>
</tr>
<tr>
<td>2011</td>
<td>17</td>
<td>0</td>
<td>10</td>
<td>0</td>
<td>14</td>
<td>2</td>
<td>11.8</td>
<td>1</td>
<td>5.9</td>
<td>1</td>
</tr>
<tr>
<td>2012</td>
<td>20</td>
<td>0</td>
<td>11</td>
<td>0</td>
<td>18</td>
<td>3</td>
<td>15.0</td>
<td>2</td>
<td>10.0</td>
<td>0</td>
</tr>
<tr>
<td>2013</td>
<td>19</td>
<td>1</td>
<td>13</td>
<td>1</td>
<td>20</td>
<td>2</td>
<td>10.5</td>
<td>3</td>
<td>15.8</td>
<td>3</td>
</tr>
<tr>
<td>2014²</td>
<td>17</td>
<td>0</td>
<td>12</td>
<td>0</td>
<td>13</td>
<td>1</td>
<td>5.9</td>
<td>1</td>
<td>5.9</td>
<td>1</td>
</tr>
<tr>
<td>2000-2014²</td>
<td>507</td>
<td>11</td>
<td>264</td>
<td>14</td>
<td>390</td>
<td>44</td>
<td>8.7</td>
<td>46</td>
<td>9.1</td>
<td>49</td>
</tr>
</tbody>
</table>

Note: Location of Collision Data: On SR-84 between Mission Blvd. and Route 680

1 -- Medium Rumble Strip installed in October 2007

2 -- Year 2014 accident data up to 9/30/2014. Reporting accident data is still in process.

3 -- Accident occurred at Mission Bl/SR-84 intersection area
Post Rumble Strip Installation Accident Data

Accident data for the entire Niles Canyon Corridor were obtained for the 83 months of Post Rumble Strip installation period from November 1, 2007 to the latest available data up to September 30, 2014 from the TASAS of Caltrans.

The data indicates that within the 83 months of post rumble strip installation time frame, there were a total of 166 traffic collisions reported in the corridor. Of the 166 traffic collisions, 3 resulted in fatalities and 97 resulted in injuries. Review of TSAR Accident Data indicated that there were 11 (7%) cross-centerline, 9 (5%) head-on, 10 (6%) sideswipe, and 44 (27%) run-off road collisions. These types of collisions were associated with most of the serious injury accidents along the corridor. Significant numbers of collision, 57 (34%) were hit object type collisions. Objects hit included other vehicles 84 (51%), cut slope or embankment 16 (10%), over embankment 9 (5%), guardrail 9 (5%), trees 5 (3%), side of bridge railing 4 (2%), utility pole 3 (2%), etc. 58 (35%) of collisions occurred in dusk/dawn or under dark lighting conditions. Primary collision factor was identified as speeding in 47 (28%), improper turn in 42 (25%), DUI in 24 (15%), failure to yield in 13 (8%), and 25 (15%) for other violations. In addition, there were a total of 10 (6%) accidents involving bicyclists, and one accident involving a pedestrian.

Although there is a significant reduction in the number of head-on collisions, substantial numbers of serious injury accidents have persisted despite the centerline rumble strip installation project. Table 1 shows that the rumble strip project had no significant effect in reducing the number of run-off-road and hit-object type collisions within the project limits. The RSA recommended short- and medium-term countermeasures are anticipated to further reduce the number of head-on/sideswipe type of cross-centerline collisions which frequently result in fatalities and/or severe injuries, as well as other roadway departure and hit object type collisions.
Roadway Deficiency

The Route 84 Niles Canyon corridor is a rural mountainous, narrow and winding, two-lane undivided conventional highway, consisting of multiple geometric constraints of sight distance, grades, super elevation, and horizontal and vertical curves, etc. A review of the accidents indicate that the majority of accidents that have occurred (head-on collisions, run-off-road, hit-objects, rear-enders, etc.) are mostly due to the following reasons:

- Sharp horizontal curves and curvy “S” alignments in narrow canyon topography which affect the horizontal sight distance.
- Non-standard shoulders (0 feet to 8 feet width) providing insufficient horizontal sight distance.
- Narrow shoulders prohibiting refuge for errant vehicles and creating difficulty for law enforcement.
- Embankments, trees, utility poles, signs, guardrails, etc. on the side of the roadway with very limited horizontal clearance.
- Vehicles approaching curves at unsafe speeds.
- Inability of drivers to recover safely after they lose control.
- Congested traffic and non-standard shoulders causing rear-end collisions at eastern end of project.
- Lack of pavement width and high traffic volumes and speeds causing safety concerns of bicyclists that share the road.
- No clear delineation between roadway and narrow shoulders that jeopardize bicycle safety.
- Traffic safety and operations problems at the STOP controlled Route 84/Pleasanton-Sunol Road and Route 84/Main Street intersections. It causes frequent traffic congestion in the area resulting in high number of rear-end collisions. This congestion also encourages bypass cut-through traffic within Sunol.
- Lack of left-turn pocket at intersections for safe turning movement.

The RSA and VA recommended various corridor wide short and medium term enhancement countermeasures are designed to address most of the run-off-road, hit object, and other types of
collision throughout the corridor. These improvements will reduce the number of collisions by guiding traffic safely and efficiently through this corridor.

**Accident Analysis at Spot Locations, Deficiencies and Proposed Improvements**

While accidents are found to occur throughout the corridor, the RSA studies identified few spot locations with high accident concentrations that required site specific safety improvements within the medium term countermeasures. Accident data at these locations, proposed improvements, and the justification for these improvements are given below.

Accident data for the Medium Term Spot Improvement study locations were obtained for the 83 months of Post Rumble Strip installation period from November 1, 2007 to the latest available data up to September 30, 2014 from the TASAS of Caltrans. Table 2 summarizes the numbers of accidents, calculated accident rates and average rates for the study spot locations.

**Table 2**

<table>
<thead>
<tr>
<th>Location Description</th>
<th>PM</th>
<th>No. of Accidents</th>
<th>Actual Accident Rate</th>
<th>Statewide Average Accident Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>From</td>
<td>To</td>
<td>Total</td>
<td>Fat</td>
</tr>
<tr>
<td>Low Speed Curve</td>
<td>13.8</td>
<td>14.1</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td>Rock Drapery System</td>
<td>12.1</td>
<td>12.175</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Dynamic Rock Fall Fence</td>
<td>12.61</td>
<td>12.75</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Paloma Way</td>
<td>17.3</td>
<td>17.95</td>
<td>13</td>
<td>0</td>
</tr>
<tr>
<td>Alameda Creek BOH</td>
<td>14.29</td>
<td>14.52</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>SR-84 and Main Street IS</td>
<td>17.210</td>
<td>8</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>SR-84 &amp; Plsntn.-Sunol Road IS</td>
<td>17.287</td>
<td>9</td>
<td>0</td>
<td>3</td>
</tr>
</tbody>
</table>

Note: Fat=Fatal; Inj=Injury; F+I=Fatal+Injury
Source: Caltrans TASAS Data
1) **Low Speed Curve Improvement Location (PM 13.8/14.1):**

Table 2 indicates that the Actual Fatal accident rate (0.099) at this location was significantly higher than the State Average (0.013). The Actual Fatal+Injury collision rate (0.59) was also higher than State Average (0.54).

A review of the TASAS Collision data indicated that there were a total of 9 accidents within this 0.3 miles of low speed curve study location in the 83 months of Post Rumble Strip installation period from November 1, 2007 to the latest available data up to September 30, 2014. 7 of these collisions occurred in the southbound direction and 2 in the northbound direction. Out of the total 9 collisions, one was fatal, 5 involved injuries and 3 were Property Damage Only (PDO) type accident. 5 (56%) of the collision were hit object type, 2 (22%) were head-on, one was a rear-ender, and the remaining one was an overturn type accident. Objects hit were cut slope or embankment in 4 collisions, other vehicles in 3, traffic sign post in one, and fence in one case. Primary collision factor was improper turn in 4 (44%) collisions, speeding in 3 (33%), DUI in one, and other violation in the remaining case. 4 collisions involved vehicles running off the road and hitting the cut slope or embankment.

A review of the Traffic Collision Reports (TCR) indicates that most of the cross-centerline and run-off-road accidents were due to drivers unable to negotiate the tight curve. These resulted in drivers (mostly travelling in the southbound direction) losing control, crossing the double-yellow centerline, running off the road, and hitting the steep slope on the northbound shoulder. Some of these collisions resulted in vehicles being overturned. Most of the serious injury accidents were a result of these type of collisions, with the potential that these cross-into-opposite lane maneuvers could have resulted in fatal head-on collisions. Of the 9 recorded accidents within the low speed curve post mile limits, 6 were solo vehicle accidents - all unable to negotiate the sharp curve.

The sole fatal accident (on 6/12/2010 at PM 13.90) involved a motorcyclist travelling along the southbound direction. While traversing the sharp curve, the driver lost control, skidded on the roadway, crossed the painted double yellow center-line and collided head-on with another vehicle travelling in the northbound direction and resulted in a fatality.
As part of the Niles Canyon Short Term Project improvements, High Friction Surface Treatment (HFST) will be applied to the roadway surface that will improve the skid resistance. In addition, Optical Bar pavement markings will be installed at this low speed curve location that will enhance driver awareness to the low speed sharp curve.

**Deficiency:** Non-standard superelevation is a major deficiency at this curve location. This is one of the reasons for the high concentrations of run-off-road crashes, as vehicles skid while travelling through the curve. The sole fatal accident was attributed to skidding because of inadequate superelevation. While within the confines of this curve the lane widths are approximately 12 feet wide in each direction, shoulder widths less than 8 feet exist in the northbound direction at two locations.

**Proposed Improvements:** As part of this Medium Term Improvement, the existing 280-feet long sharp curve will be reconstructed so as to have an overall 12% superelevation. The existing roadway would be modified to provide the additional 3% superelevation throughout the curve. The current 12-foot lane width would be increased to 13-feet throughout this curve. Also, the current variable northbound shoulder would be replaced with a standard 8-foot shoulder.

**Justification:** The increased superelevation would help prevent off-tracking of vehicles as they negotiate the sharp curve. This would permit a vehicle to travel through the curve more safely. This may especially be so for large vehicles with high centers of mass that are more likely to roll over at curves with inadequate superelevation. The increased 13-feet lane widths will improve horizontal sight distance and benefit large vehicle turning. The standard 8-foot shoulder in the northbound direction would improve horizontal sight distance and reduce run-off-the-road type collisions, by providing an area adjacent to the travel way for drivers to recover an errant vehicle. Standard shoulders also provide the necessary space for drivers to safely maneuver towards the right side to avoid rear-end collisions.

2) **Rock Drapery System (PM 12.1/12.175):**

Table 2 indicates that the Actual F+I accident rate (1.46) at this location was significantly higher than State Average (0.54). The Total collision rate (1.46) was also higher than State Average (1.29). These data indicate that this is a potential hazard location.
A review of the TASAS Collision data indicated that there were a total of 4 accidents within this rock drapery system installation location. All 4 involved injuries. 2 involved overturning, one was a head-on type, and the other was a hit-object accident, with the object hit being a guardrail.

**Proposed Improvements and Justifications:** Although none of the accidents were coded as “Loose Material” or “Obstruction in Road”, Caltrans Maintenance have concerns about rock falls at this location, which is both a maintenance headache and a potential roadway hazard. A cable net drapery system will be installed on the slope, and rocks will fall/work their way down into an existing catchment ditch below that will prevent the rock fall from reaching the roadway. This will eliminate potential safety hazard and result in a safer roadway condition for the travelling public.

3) **Dynamic Rock Fall Fence (PM 12.61/12.75):**

Table 2 indicates that both the Actual F+I accident rate and the Total accident rates were less than State Averages.

A review of the TASAS Collision data indicated that there was only one reported accident at this rock drapery system installation location. This involved a vehicle travelling in the southbound direction, not turning properly while negotiating the curve and hitting the steep slope on the right side shoulder.

**Proposed Improvements and Justifications:** Although this accident was not coded as “Loose Material” or “Obstruction in Road”, Caltrans Maintenance have concerns about rock falls at this location, which is both a maintenance headache and a potential roadway hazard. A dynamic rock fall fence would be installed at this location. Rocks falling from the slope would be “caught” in the fence so that no rocks fall onto SR-84. This will eliminate potential safety hazard and result in a safer roadway condition for the travelling public.

4) **Paloma Way (PM 17.3/17.95):**

Table 2 indicates that the Actual Total and F+I accident rates are lower than State Averages.
A review of the TASAS Collision data indicated that there were a total of 13 accidents along Paloma Way from Pleasanton-Sunol Road intersection to Route 680 ramps. 8 of these collisions occurred in the northbound direction and 5 were in the southbound direction. Out of the total 13 collisions, 4 involved injuries and 9 were Property Damage Only (PDO) type accident. 6 (46%) of collisions were hit-object type, 2 were rear-enders, one was a sideswipe, and remaining one was a broadside type accident. Objects hit were trees, fence, end of guard rail, guide post, over embankment, cut slope or embankment, etc. A significant number of collisions 7 (54%) involved running off the road. Primary collision factor was identified as speeding in 3 (23%) of collisions, improper turn in 5 (39%), failure to yield in one, and DUI in 2 cases.

Review of Traffic Collision Report (TCR) indicate most of the accidents happening due to speeding, driver inattention, failure to yield, and improper turns. The high number of hit object type collisions are indication of trees and other fixed object close to the travel way.

**Proposed Improvements:** As part of this project trees and other fixed objects within eight feet of the edge of travel-way will be removed. Road shoulders will be widened to accommodate 8-foot shoulder with safety edge on both sides of the Paloma Way travel lane for a total length of 2,980-feet.

**Justifications:** Shoulder widening are known to significantly reduce run-off-the-road collisions, by providing an area adjacent to the travel way for drivers to recover an errant vehicle that might otherwise run off the road. They provide the necessary space for drivers to recover safely should they lose vehicle control, or for drivers to safely maneuver to avoid rear-end crashes. Standard width shoulders provide an additional benefit – that the area outside the travel way is made available for emergency use of a disabled vehicle. Wider shoulders also provide space for maintenance activities, for law enforcing patrolling activities, as well as improve bicycle accommodation.

5) **Alameda Creek BOH (PM 14.29/14.52):**
Table 2 indicates that the Actual Total and F+I accident rates are lower than State Averages.

A review of the TASAS Collision data indicated that there were a total of 6 accidents at the Alameda Creek BOH and its approaches. 4 of these collisions occurred in the northbound direction and 2 were
in the southbound direction. Out of the total 6 collisions, 4 involved injuries and 2 were Property Damage Only (PDO) type accident. 3 (50%) of collisions were hit-object type, one was a rear-ender, and 2 were overturn type accidents. Objects hit were bridge guardrail in 2 case, and end of guard railing in the other case. 2 of the collisions involved running off the road. Primary collision factor was identified as speeding in 2 (33%) of collisions, improper turn in 2 (33%), failure to yield in one, and DUI in one case.

Review of Traffic Collision Report (TCR) indicate most of the accidents happening due to speeding, driver inattention, failure to yield, and improper turns on the approaches to the bridge. The high number of hit object type collisions on the bridge railing are due to narrow shoulders.

Proposed Improvements and Justifications: The existing bridge has little to no shoulder and has a tubular steel, non-safety shape barrier. This project will replace the existing 3-feet wide curb with a shoulder approximately 1.5-feet wide and 800-foot long on either side of the roadway. This will provide additional width for pedestrians and bicyclists. In addition, the antiquated tubular steel barrier will be replaced with a Type ST-20S see through metal barrier. This new barrier is crashworthy, which will protect a vehicle’s from a departure off the bridge, as well as redirect glancing blows due to the presence of a safety shape.

6) Intersection of SR-84 and Main Street (PM 17.21):
Table 2 indicates that the Actual Total collision rate (0.21) at this intersection location was higher than State Average (0.16).

A review of the TASAS Collision data indicated that there were a total of 8 accidents at this intersection. 7 of these collisions occurred in the northbound direction. Out of the total 8 collisions, one involved injuries and 7 were Property Damage Only (PDO) type accident. 5 (63%) of collisions were rear-enders and 3 (38%) were broadside type accidents. Primary collision factor was identified as speeding in 5 (63%) of collisions and failure to yield in 3 (38%) of cases.

Review of Traffic Collision Report (TCR) indicate most of the accidents are happening due to speeding, driver inattention, failure to yield, and improper turns at this STOP controlled intersection.
The reports also indicate speeding in congested traffic conditions. The significant number of rear-end crashes (63%) are due to drivers failing to recognize and respond to slower or stopped vehicles ahead at this stop controlled intersection. The high number of broadside accidents (38%) are an indication of driver inattention and failure to yield at this intersection.

Proposed Improvements: This project will signalize this intersection with new traffic signals and new STOP bars. As part of the signal system, pedestrian push buttons, countdown and accessible signals will be installed. In addition, lighting will be installed at this intersection.

Justifications: The signalized intersection scenario would be better than the existing STOP controlled intersection scenario at this intersection. The assigned traffic turning movement phase would be better protected than the current individual first-come-first-served STOP controlled intersection. This will help reduce driver decision and minimize the broadside collisions. The additional STOP bars with push buttons will enhance pedestrian and bicyclist safety.

7) Intersection of SR-84 and Pleasanton-Sunol Road (PM 17.287):
Table 2 indicates that the Actual F+I accident rate (0.11) at this intersection location was higher than State Average (0.10). The Actual Total collision rate (0.32) was also higher than State Average (0.23).

A review of the TASAS Collision data indicated that there were a total of 9 accidents at this intersection. 8 of these collisions occurred in the northbound direction. Out of the total 9 collisions, 3 involved injuries and 6 were Property Damage Only (PDO) type accident. 4 (44%) of collisions were rear-enders, 4 were hit object, and one was an overturn type accident. Objects hit were utility pole in 2 cases, and fencing in other 2 cases. 2 of the collisions involved running off the road. Primary collision factor was identified as speeding in 5 (56%) of collisions, improper turn in 3 (33%) and DUI in one case. 7 (67%) of collisions occurred in dark street light or no street light conditions.

Review of Traffic Collision Report (TCR) indicate most of the accidents happening due to speeding in congested traffic conditions, driver inattention, failure to yield, and improper turns at this four-way stop intersection. The significant number of rear-end crashes (44%) are due to drivers failing to recognize and respond to slower or stopped vehicles ahead. Furthermore, accident records indicate that
there are high concentrations of rear-end type collisions from the Sunol on/off ramps to Route 680. These rear-end collisions are mostly congestion related and occur during peak commute hours.

**Proposed Improvements:** This project will signalize this intersection with split phasing and dedicated turn arrows by providing seven traffic light signals. This signal will be synchronized with the Main Street intersection signal. Additional lighting will be installed at this intersection. In addition, the project will provide a 12-ft wide right turn pocket on Pleasanton-Sunol Road with a 4-ft shoulder that will provide safer turning movement. As part of the signal system, pedestrian push buttons, countdown and accessible signals will be installed.

**Justifications:** The signalized intersection scenario would be better than the existing STOP controlled intersection at this location. The assigned traffic turning movement phase would be better protected than the current individual first-come-first-served STOP controlled intersection, which will improve safety by reducing crashes, as well as improve traffic operations by reducing queuing, especially during peak commute hours. The proposed signal will have an exclusive, protective left-turn phase with left-turn pocket for northbound Niles Canyon traffic turning left to Pleasanton-Sunol Road. This will improve the backup traffic in Sunol, and also serve to mitigate the bypass traffic concerns during the peak hour traffic demand. Furthermore, synchronizing this signal intersection with the Main Street intersection will alleviate commute congestion and result to a smoother traffic flow at the eastern end of the Niles Canyon corridor. Increased lighting at this intersection will help mitigate the significant number of dark/night time accidents. Signalizing this intersection will improve safety for both pedestrians and bicyclists from the water Temple to the Town of Sunol.

Should you have any questions or need any further information, please feel free to contact me at 286-4422, or Saif Mamoon of my staff at 286-4569.

**Cc:**  TWong/SKutty/Design  JLedent/EWhite/Environmental  RAu-Yeung/ETang/SMamoon/Traffic Safety
Appendix G. Species Lists
This page is intentionally left blank.
Consultation Code: 08ESMF00-2016-SLI-1864
Event Code: 08ESMF00-2016-E-04079
Project Name: Niles Canyon Safety Improvement Project

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, under the jurisdiction of the U.S. Fish and Wildlife Service (Service) that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

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

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

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

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2)
of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

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

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

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

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

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

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
Official Species List

Provided by:
Sacramento Fish and Wildlife Office
FEDERAL BUILDING
2800 COTTAGE WAY, ROOM W-2605
SACRAMENTO, CA 95825
(916) 414-6600

Consultation Code: 08ESMF00-2016-SLI-1864
Event Code: 08ESMF00-2016-E-04079

Project Type: TRANSPORTATION

Project Name: Niles Canyon Safety Improvement Project

Please Note: The FWS office may have modified the Project Name and/or Project Description, so it may be different from what was submitted in your previous request. If the Consultation Code matches, the FWS considers this to be the same project. Contact the office in the 'Provided by' section of your previous Official Species list if you have any questions or concerns.
Project Location Map:

Project Coordinates: The coordinates are too numerous to display here.

Project Counties: Alameda, CA
# Endangered Species Act Species List

There are a total of 14 threatened or endangered 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. Critical habitats listed under the Has Critical Habitat column may or may not lie within your project area. See the Critical habitats within your project area section further below for critical habitat that lies within your project. Please contact the designated FWS office if you have questions.

<table>
<thead>
<tr>
<th>Amphibians</th>
<th>Status</th>
<th>Has Critical Habitat</th>
<th>Condition(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>California red-legged frog (<em>Rana draytonii</em>)&lt;br&gt;Population: Entire</td>
<td>Threatened</td>
<td>Final designated</td>
<td></td>
</tr>
<tr>
<td>California tiger Salamander (<em>Ambystoma californiense</em>)&lt;br&gt;Population: U.S.A. (Central CA DPS)</td>
<td>Threatened</td>
<td>Final designated</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Birds</th>
</tr>
</thead>
<tbody>
<tr>
<td>California Least tern (<em>Sterna antillarum browni</em>)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Crustaceans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conservancy fairy shrimp (<em>Branchinecta conservatio</em>)&lt;br&gt;Population: Entire</td>
</tr>
<tr>
<td>Vernal Pool fairy shrimp (<em>Branchinecta lynchii</em>)&lt;br&gt;Population: Entire</td>
</tr>
<tr>
<td>Vernal Pool tadpole shrimp (<em>Lepidurus packardi</em>)</td>
</tr>
</tbody>
</table>
## Population: Entire

| **Fishes**          |  |  |
|---------------------|  |  |
| Delta smelt (*Hypomesus transpacificus*) | Threatened | Final designated |
| steelhead (*Oncorhynchus (=salmo) mykiss*) | Threatened | Final designated |

| **Flowering Plants** |  |  |
|----------------------|  |  |
| Contra Costa goldfields (*Lasthenia conjugens*) | Endangered | Final designated |

| **Insects**          |  |  |
|----------------------|  |  |
| Bay Checkerspot butterfly (*Euphydryas editha bayensis*) | Threatened | Final designated |
| San Bruno Elfin butterfly (*Callophrys mossii bayensis*) | Endangered |  |

| **Mammals**          |  |  |
|----------------------|  |  |
| Salt Marsh Harvest mouse (*Reithrodontomys raviventris*) | Endangered |  |
| San Joaquin Kit fox (*Vulpes macrotis mutica*) | Endangered |  |

| **Reptiles**         |  |  |
|----------------------|  |  |
| Alameda whipsnake (*Masticophis*) | Threatened | Final designated |
United States Department of Interior
Fish and Wildlife Service
Project name: Niles Canyon Safety Improvement Project

*lateralis euryxanthus*
Population: Entire
Critical habitats that lie within your project area

The following critical habitats lie fully or partially within your project area.

<table>
<thead>
<tr>
<th>Reptiles</th>
<th>Critical Habitat Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alameda whipsnake (<em>Masticophis lateralis euryxanthus</em>)</td>
<td>Final designated</td>
</tr>
</tbody>
</table>
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) -
- 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) -

**Essential Fish Habitat**

Coho EFH -
Chinook Salmon EFH -
Groundfish EFH -
Coastal Pelagics EFH -
Highly Migratory Species EFH -

**MMPA Species (See list at left)**

*ESA and MMPA Cetaceans/Pinnipeds*

See list at left and consult Monica DeAngelis
monica.deangelis@noaa.gov
562-980-3232

MMPA Cetaceans -
MMPA Pinnipeds -