Route 101 San Francisquito Creek Bridge Replacement Project

SAN MATEO AND SANTA CLARA COUNTIES, CALIFORNIA
DISTRICT 4 – SM – 101 (PM 0.0)
DISTRICT 4 – SCL – 101 (PM 52.5)
235620

Initial Study with Negative Declaration/Environmental Assessment with Finding of No Significant Impact

Prepared by the
State of California Department of Transportation

The environmental review, consultation, and any other 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.

Caltrans

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SUMMARY

The project proposes to demolish the San Francisquito Creek Bridge (Bridge No. 35-0013), which is located between the University Avenue interchange and the Embarcadero Road interchange on Route 101, and replace it with a longer bridge.

This Negative Declaration/Finding of No Significant Impact (ND/FONSI) represents the final environmental document. The Initial Study/Environmental Assessment (IS/EA) was approved in March 2011 and circulated for public review from April 19, 2011 to May 19, 2011. Changes to the previously circulated IS/EA reflect comments submitted during the public review period, project scope changes and editorial revisions to improve overall readability. No significant impacts are anticipated for this project. Vertical lines in the left margin denote the major changes.

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Chapter 1 – Proposed Project

1.1 Introduction

The Department of Transportation (Department or Caltrans) is the lead agency under the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). The Department proposes to demolish the San Francisquito Creek Bridge (Bridge No. 35-0013), which is located between the University Avenue interchange and the Embarcadero Road interchange on Route 101, and replace it with a longer and slightly wider bridge. The current bridge carries four lanes of traffic and is 83 feet long by 232 feet wide. San Francisquito Creek is the boundary of the Cities of Palo Alto and East Palo Alto, and the Counties of Santa Clara and San Mateo.

The proposed bridge will be 126 feet long and 244 feet wide and, upon completion of the Route 101 Auxiliary Lanes project discussed below, will carry five lanes of traffic in each direction on Route 101. The reinforced concrete foundation, piers (or structural supports for the bridge) and wing walls (or smaller walls attached to the bridge structure) of the existing bridge not only support the Route 101 freeway, but also the frontage roads on each side of Route 101. This Bridge Replacement project therefore includes the demolition and in-kind replacement of the portions of these two-lane frontage roads on either side of Route 101 (East Bayshore Road and West Bayshore Road) that cross over San Francisquito Creek. Figure 1 shows the project location.

This project lies within the limits of the proposed Route 101 Auxiliary Lanes project (Expenditure Authorization 235610). It was initially proposed that the bridge be widened as part of the Auxiliary Lanes project to provide standard inside shoulder widths, and to better accommodate the additional lanes and shoulders necessary for the Auxiliary Lanes project, but that option was dropped in favor of complete bridge replacement. In addition, the replacement of San Francisquito Creek Bridge is now proposed as a separate and independent project because a formal Section 7 Endangered Species Act consultation process for threatened and endangered species with the National Oceanic and Atmospheric Administration (NOAA)'s National Marine Fisheries Service is required and this precluded the Auxiliary Lanes project from meeting its stipulated Corridor Mobility Improvement Program (CMIA) project schedule.

The project is programmed in the 2010 State Highway Operation and Protection Program (SHOPP) and will be funded in the 2011/2012 SHOPP with a total estimated cost of $9.320 million.

FIGURE 1 – PROJECT VICINITY MAP

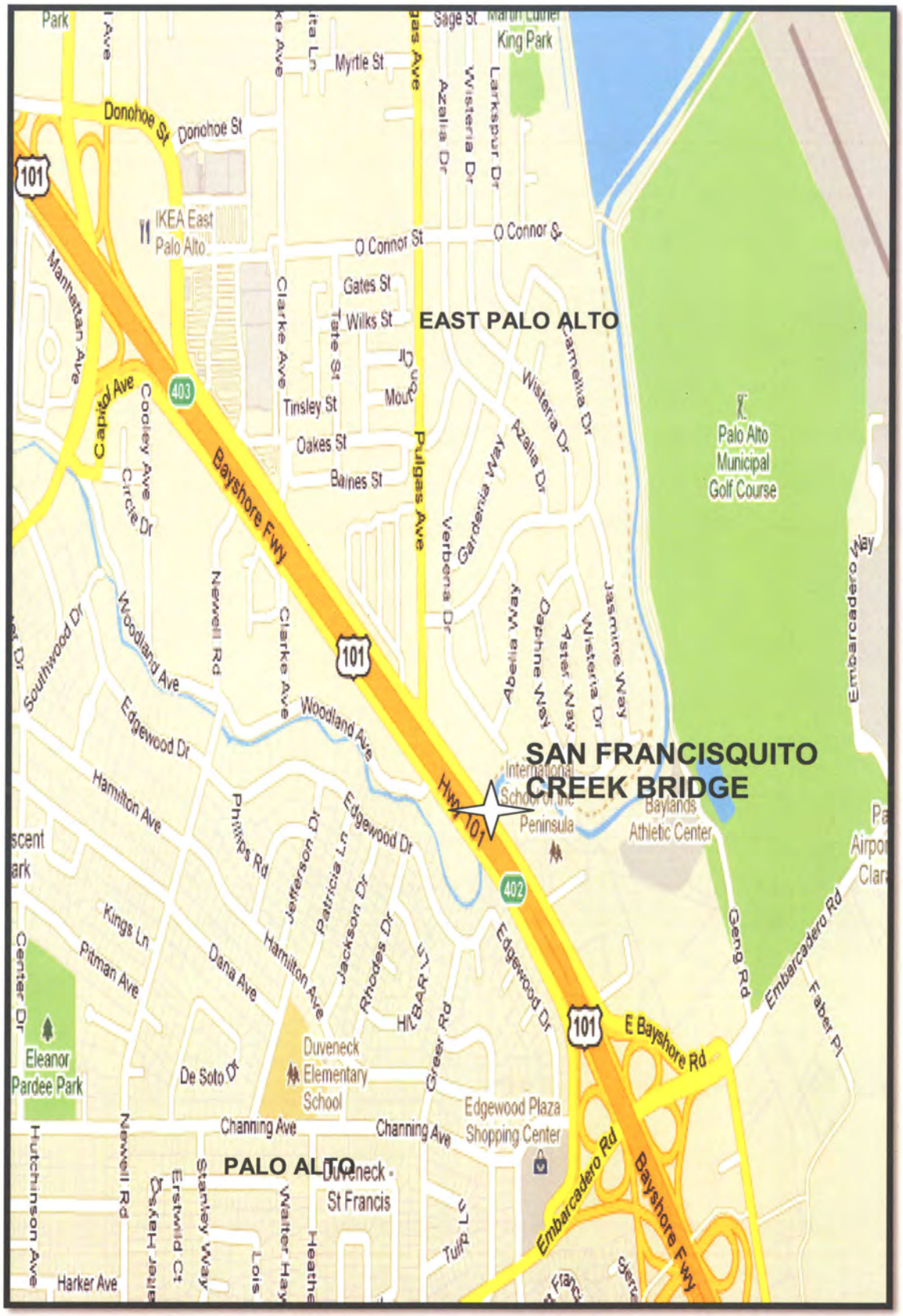
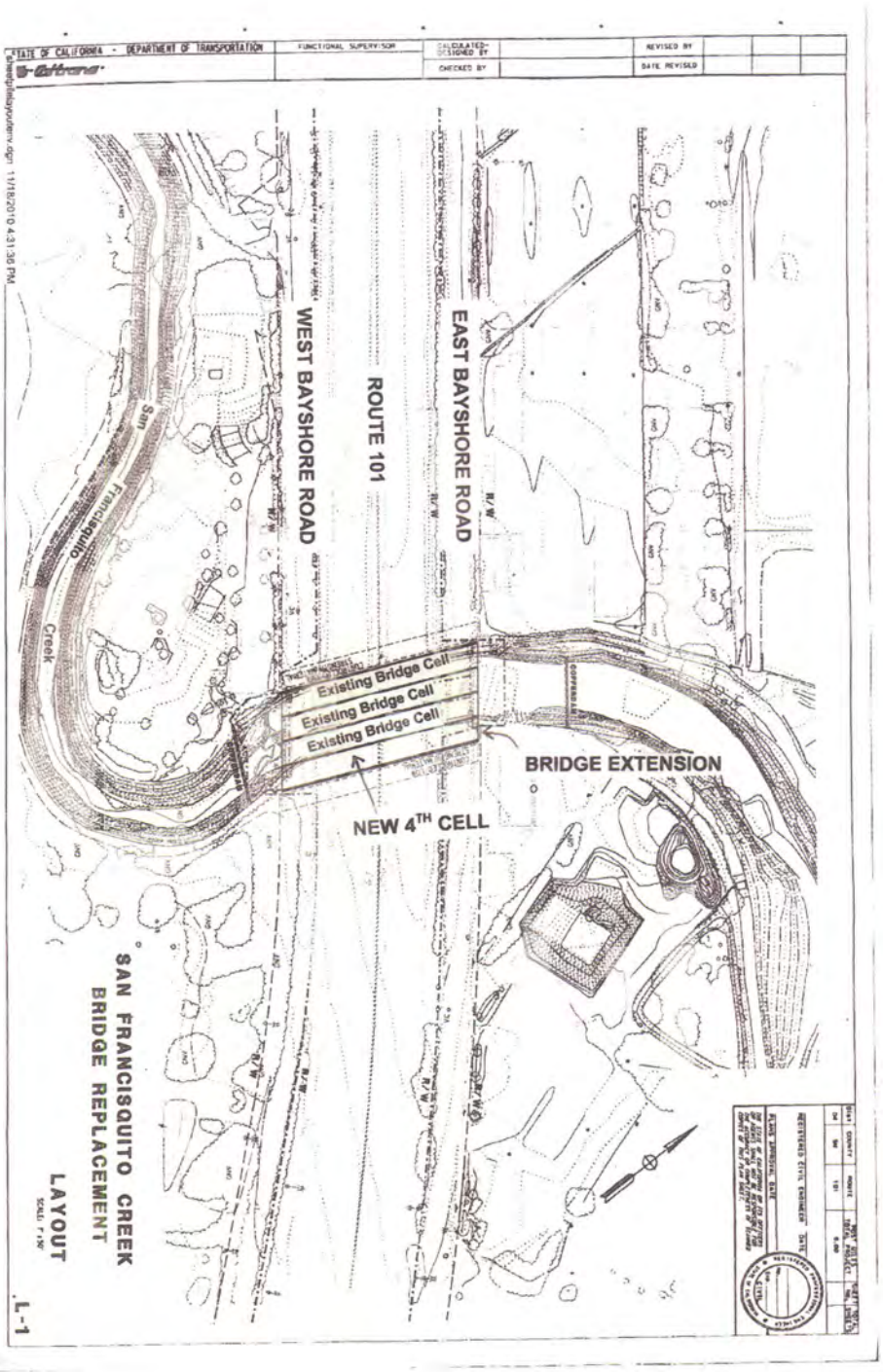


FIGURE 2 – PRELIMINARY PROJECT PLAN



1.2 Purpose and Need

The purpose of this project is to correct the structural deterioration of the San Francisquito Creek Bridge while also increasing the hydraulic capacity of San Francisquito Creek. To this end, the Department desires to retain operation of the

Route 101 freeway continuously to maintain mobility, accessibility and safety of the travelling public.

Condition of Existing Bridge

The existing bridge is 83 feet long by 232 feet wide and carries four lanes of traffic. The foundation of the bridge serves to support the freeway and the two adjacent frontage roads. The freeway portion of the bridge was built in 1931. The freeway structure was widened, and the East Bayshore Road and West Bayshore Road frontage roads were added, in 1957. These portions of East Bayshore Road and West Bayshore Road are within State right of way.

The Department's Office of Structures Maintenance has determined that the portion of the bridge built in 1931 needs to be replaced due to its deteriorated condition. Since the remainder of the structure is over 50 years old, it has been determined that the complete structure, including both frontage roads, should be replaced.

Recent inspections of the bridge indicate large vertical and horizontal cracks throughout the right concrete baluster (or support) rail, a 4-inch diameter deck spall (or crack) located over the pier of northbound lane 3, and a 1/32-inch full height vertical crack in the upstream side of two pier walls.

Previous bridge inspection reports, located in the Department's Bridge Inspection Records Information System, also indicate that the right approach baluster rail on the East Bayshore frontage road is approximately two inches lower than the bridge deck rail. There are transverse cracks sized up to 0.08-inches, predominately over the piers, with pattern cracks forming between them. The deck cracking in the northbound lanes of Route 101 is more severe with edge spalls, and has been treated with methacrylate, a type of resin. Most of the timber lagging, or timber used to prevent rocks from falling, is missing in one abutment, exposing the severely corroded steel sheet piling, or rows of piles driven side by side to retain earth or prevent seepage. There are other spalls and vertical cracks at various locations within the structure. These cracks, spalls and corrosion indicate the poor condition of the existing bridge which needs to be replaced to ensure safety of the traveling public.

Hydraulic Capacity

The project vicinity has a history of flooding with Route 101 and adjacent properties flooding during severe storms. Most recently, flood waters forced a temporary closure of Route 101 at this location in 1998.

San Francisquito Creek is a tidal creek that discharges water into the lower end of San Francisco Bay. There has been a lengthy history of flooding along the banks of the creek due to its limited hydraulic capacity. Currently, the channel flow capacity is less than half of what is needed to accommodate a 100-year flood event.

The San Francisquito Creek Joint Powers Authority (SFCJPA), a government agency formed in 1999 by the cities of Palo Alto, Menlo Park and East Palo Alto, and the Santa Clara Valley Water District and San Mateo County Flood Control District, has proposed improvements to the creek to improve flow capacity upstream and downstream from Route 101. The SFCJPA approached the Department to request that this Bridge

Replacement project also increase the capacity of San Francisquito Creek to accommodate a greater flow at this location. In the spring of 2009, the Department agreed to improve the floodwater capacity of the bridge structure to provide flood protection necessary should a 100-year flood event occur at the same time as a high-tide event. It is therefore proposed that the new bridge will be lengthened to the southeast (Palo Alto, Santa Clara County) of the existing facility to facilitate the increase in creek flow based on 100-year flood projections, and to accommodate other SFCJPA projects planned for San Francisquito Creek. The Department will continue to cooperate with the SFCJPA in this effort. There will be less obstruction in the watercourse, allowing more water to flow at all times and to decrease flooding during high tides and storms.

Independent Utility and Logical Termini

The Federal Highway Administration (FHWA) regulations outline three general principles at 23 CFR (Code of Federal Regulations) 771.111(f) that are to be used to frame a highway project. In order to ensure meaningful evaluation of alternatives and to avoid commitments to transportation improvements before they are fully evaluated, the action evaluated shall:

(1) Connect logical termini and be of sufficient length to address environmental matters on a broad scope;
(2) Have independent utility or independent significance (i.e., be usable and be a reasonable expenditure even if no additional transportation improvements in the area are made); and
(3) Not restrict consideration of alternatives for other reasonably foreseeable transportation improvements.

Logical termini for project development are defined as (1) rational end points for a transportation improvement, and (2) rational end points for a review of the environmental impacts. The environmental impact review frequently covers a broader geographic area than the strict limits of the transportation improvements. In the past, the most common termini have been points of major traffic generation, especially intersecting roadways.

The project has logical termini because the project limits include only the area required to replace the San Francisquito Creek Bridge. The project also has independent utility as it will address the need for replacing the bridge whether or not any other project is developed and other projects would not be required in order to realize the benefits of the proposed improvements. The Route 101 Auxiliary Lanes project is not dependent on this bridge replacement project for its development; and this project is not dependent on the Route 101 Auxiliary Lanes project. The auxiliary lanes can be added to Route 101 under non-standard design criteria (i.e., non-standard shoulders) if the bridge is not replaced.

1.3 Project Description

The Department proposes to replace the San Francisquito Creek Bridge (Bridge No. 35-0013), which is located between the University Avenue interchange and the Embarcadero Road interchange on Route 101. San Francisquito Creek marks the boundary of the cities of Palo Alto and East Palo Alto, and the counties of San Mateo

and Santa Clara. The proposed bridge will be 126 feet long and 244 feet wide and will carry five lanes of traffic in each direction. This project also includes demolishing and replacing those portions of the two-lane frontage roads on both sides of Route 101 (East Bayshore Road and West Bayshore Road) that cross over San Francisquito Creek. The frontage roads utilize the same reinforced concrete foundations, piers and wing walls as the San Francisquito Creek Bridge, and are considered to be part of the same structure. This project will not involve excavating the creek itself.

It is proposed that the existing San Francisquito Creek Bridge be demolished and that a reinforced concrete slab structure with 12 feet in additional width and 46 feet in additional length than the existing structure be constructed to accommodate the standard lane requirements of the Auxiliary Lanes Project and the anticipated increased flow capacity of San Francisquito Creek. The added length to the bridge will necessitate that three pier walls, resulting in four cells (spans) in the after condition, be constructed in San Francisquito Creek instead of the two in the existing condition. In addition, the freeway profile on each side of the bridge will be modified to conform to the new bridge deck; and the soundwall on the bridge that separates southbound Route 101 from West Bayshore Road will be shifted to conform to the wider roadway.

The purpose of this project is to correct the structural deterioration of the San Francisquito Creek Bridge while also increasing the hydraulic capacity of San Francisquito Creek. This bridge replacement project does not study, propose, include or address any improvements to highway capacity, highway operation deficiencies, transportation demand, system linkages or air quality.

1.4 Alternatives

The alternatives for this project are the Build Alternative and the No Build Alternative. The Department has selected the Build Alternative as the preferred alternative.

This project, the Build Alternative, will involve the following activities:

- Install cofferdams, watertight enclosures pumped dry to permit construction work below the water line, and construct a temporary creek diversion channel through the project site so that the area can be dewatered. Cofferdams may be constructed using sheet piles, gravel bags or some other comparable method that prevents tidal flow. The diversion channel will allow fish to travel through the work area during construction. Water pumped out of the project area before and during construction will be stored in tanks pending water-quality analysis.

- Demolish and remove the existing bridge using a mounted hydraulic jackhammer, an excavator and dump trucks.

- Install wooden platforms as needed to support the weight of the equipment in the creek.

- Excavate soil for abutments using an excavator and install steel pier piles with pile drivers.

- Construct falsework (temporary framing used for support during construction) and pour pile cap (the topmost portion of a pier), pier walls and bridge deck using a concrete pump truck and cement mixer.

- Install tangent pile walls, consisting of rows of piles driven side by side to retain earth and/or prevent seepage, upstream and downstream of the bridge to maintain bank stability. A project to widen the creek downstream so that it will conform to the new bridge opening will be constructed by the SFCJPA. Subsequently, the SFCJPA will widen the creek upstream as well.

- Remove the falsework, cofferdams, wooden platforms and the water diversion channel.

Construction is currently proposed to begin in 2013. Since construction time within the creek is limited by environmental constraints, it is estimated that the project will take up to three construction seasons to construct. Work in San Francisquito Creek will only be permitted from June 15 to October 15 of any year and the project is scheduled to conclude in 2014 or 2015. All temporary items in the creek (cofferdams, falsework, wooden platforms) will have to be removed at the end of the construction season and then reinstalled in the spring so that work can continue.

The proposed stage construction is located in the Construction Impacts section (Chapter 2) of this document.

Utility relocations will include a 96-inch City of Palo Alto storm drain as well as a Pacific Gas & Electric (PG&E) electrical overhead line along East Bayshore Road and a City of Palo Alto street light on West Bayshore Road. Potential stockpile sites will be located within the stage construction areas discussed in Chapter 2.

The new fourth cell of the bridge will be closed off by sheet piles on both sides until downstream improvements are completed by the SFCJPA. It cannot be assumed at this time that the downstream SFCJPA project will be completed concurrently or prior to this project. Water will be allowed to flow into the closed cell through openings in the pier wall. The openings can be screened to prevent fish from entering the closed cell. Please see Figure 2 – Preliminary Project Plan, for a depiction of this new, fourth cell.

Since it has not been verified that the cofferdam installation and water diversion construction can be accomplished from the frontage road bridges, it must be assumed that up to four temporary construction easements (TCE's) will be necessary for access to the creek. No other temporary or permanent right of way acquisitions are anticipated for this project.

No Build Alternative

The No Build Alternative compares project conditions if the proposed improvements are not constructed. The San Francisquito Creek Bridge would continue to deteriorate in its existing condition under the No Build Alternative as its structural deficiencies will not be resolved or addressed. The capacity of San Francisquito Creek would also be constrained at this location. The Department's Office of Structures Maintenance recommendation for bridge replacement would be rejected. Presumably, the bridge condition will continue to deteriorate so that the Department would eventually close the

bridge to traffic. Since this bridge carries Route 101 across San Francisquito Creek, the freeway would have to be closed with severe traffic consequences for the region such as detouring traffic to El Camino Real, a route that runs roughly parallel to Route 101, but is not a freeway.

1.5 Alternatives Considered but Eliminated from Further Discussion

The Build Alternative and the No Build Alternative are the only alternatives for this project and no other alternatives were considered. Within this Build Alternative, the design variation consisting of an in-kind replacement of the San Francisquito Creek Bridge (or slightly wider replacement to better accommodate the auxiliary lanes) was proposed to fulfill the initial purpose of addressing its structural deficiencies. Subsequently, the design variation of extending the bridge was proposed to fulfill the revised purpose and need, which now includes the secondary purpose of addressing the hydraulic capacity of San Francisquito Creek.

The City of East Palo Alto approached the Department in May 2010 with the possibility of adding pedestrian access to this San Francisquito Creek Bridge Replacement Project. This began a dialogue between the Department, the City of East Palo Alto and the San Francisquito Creek Joint Powers Authority that is discussed in more detail in Chapter 4, Comments and Coordination. This discussion contains responses by the Department as part of this proposal. The discussion concludes that the Department, in conjunction with the San Francisquito Creek Joint Powers Authority (SFCJPA), analyzed the feasibility of a pedestrian undercrossing at this location and determined that it was infeasible. The Department continues to work with the City of East Palo Alto in the identification of potential funding sources, design and other potential locations for a pedestrian overcrossing as a separate, independent project.

1.6 Permits and Approvals Needed

The following permits, reviews, and approvals will be required for this project:

Agency	Permit/Approval	Status
National Oceanic and Atmospheric Administration (NOAA)'s National Marine Fisheries Service	Section 7 Consultation for Threatened and Endangered Species Biological Opinion	NOAA Fisheries has issued its Biological Opinion
United States Army Corps of Engineers (USACE)	Section 404 Permit for placement of fill in waters of the United States	Application pending (Design phase)
California Department of Fish and Game (CDFG)	Section 1602 Lake and Streambed Alteration Agreement	Application pending (Design phase)
San Francisco Bay Regional Water Quality Control Board (RWQCB)	Section 401 Water Quality Certification Dewatering Permit	Application pending (Design phase)
Santa Clara Valley Water District	Encroachment and Construction Permit	Application pending (Design phase)
City of Palo Alto	Encroachment Permit	Application pending (Design phase)
City of East Palo Alto	Encroachment Permit	Application pending (Design phase)