INTERSTATE 80/ASHBY AVENUE (ROUTE 13) INTERCHANGE IMPROVEMENT PROJECT – (Ashby Avenue [SR-13]-Shellmound Street)

ALAMEDA COUNTY, CALIFORNIA
Interstate 80 and State Route 13
04-ALA-80 PM 3.9/5.0
04-ALA-13 PM 13.7/13.9
EA 04-25620 / Project ID 04-1800-0225

Initial Study with Proposed Mitigated Negative Declaration and Environmental Assessment

Prepared by:
State of California, Department of Transportation
and the
Alameda County Transportation Commission

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

December 2021

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GENERAL INFORMATION ABOUT THIS DOCUMENT

WHAT'S IN THIS DOCUMENT:

The California Department of Transportation (Caltrans) District 4, as assigned by the Federal Highway Administration (FHWA), and in partnership with the Alameda County Transportation Commission (Alameda CTC), has prepared this Initial Study with proposed Mitigated Negative Declaration (MND) and Environmental Assessment (IS/EA). This IS/EA examines the potential environmental impacts of alternatives being considered for the project, which is in the cities of Emeryville and Berkeley in Alameda County. Caltrans is the lead agency for preparing the environmental document in compliance with the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). This document tells you why the project is being proposed; the alternatives considered; the potential environmental impacts of each of the alternatives, and proposed avoidance, minimization, and/or mitigation measures to lessen the environmental impacts of the Build Alternative

WHAT YOU SHOULD DO:

- Please read this document.
- The Public is encouraged to attend the public open forum hearing or view the document online:
  - View the document online at: https://dot.ca.gov/caltrans-near-me/district-4/d4-popular-links/d4-environmental-docs or https://www.alamedactc.org/programs-projects/highway-improvement/i-80-ashby-avenue-sr-13-interchange-improvements/
  - Email the project team with comments at: comments@I80Ashby.com
  - For more information, visit the project website at: https://www.alamedactc.org/programs-projects/
- Send comments via postal mail to:

  Caltrans, District 4
  Office of Environmental Analysis
  ATTN: Wahida Rashid
  P.O. Box 23660, **MS: 8B**
  Oakland, CA 94623-0660

- Send comments via email to comments@I80Ashby.com
- Leave comments via voice message at: 510-800-8924
- Be sure to send comments by the deadline: January 31, 2022

WHAT HAPPENS NEXT:

After comments are received from the public and reviewing agencies, Caltrans 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 and Alameda CTC could design and construct all or part of the project.

For individuals with sensory disabilities, this document can be made available in Braille, in large print, on audiocassette, or on computer disk. To obtain a copy in one of these alternate formats, please write to Caltrans, ATTN: Wahida Rashid, P.O. Box 23660, **MS: 8B**, Oakland, CA 94612; or call the California Relay Service TTY number 711.

04-ALA-80 PM 3.9/5.0
04-ALA-13 PM 13.7/13.9
EA 04-25620; Project ID# 0418000225

Interchange and Local Road Improvements along Interstate (I)-80, at the Ashby Avenue Interchange in Emeryville and Berkeley, in Alameda County

Initial Study with Proposed
Mitigated Negative Declaration/Environmental Assessment

Submitted Pursuant to: (State) Division 13, California Public Resources Code
(Federal) 42 USC 4332(2)(C)

THE STATE OF CALIFORNIA
Department of Transportation
and Alameda County Transportation Commission

Responsible Agencies:
City of Emeryville
City of Berkeley

12/14/2021
Date of Approval

Dtawansy
Dina A. El-Tawansy
District 4 Director
California Department of Transportation
NEPA/CEQA Lead Agency

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

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Proposed Mitigated Negative Declaration
Pursuant to: Division 13, Public Resources Code

Project Description

The California Department of Transportation (Caltrans) District 4, in partnership with the Alameda County Transportation Commission (Alameda CTC), proposes to provide interchange and local road improvements along Interstate 80 (I-80) at the Ashby Avenue Interchange (interchange). The interchange is located between post miles (PM) 3.9 and 5.0 on I-80 and between 13.7 and 13.9 on State Route (SR) 13 in the cities of Emeryville and Berkeley in Alameda County. The proposed project would replace the existing elevated interchange connector ramps with a new bridge over I-80, realign access to West Frontage Road, and introduce a new bicycle and pedestrian overcrossing and connection from 65th Street/Shellmound Street to the San Francisco Bay Trail.

Determination

This proposed Mitigated Negative Declaration (MND) is included to give notice to interested agencies and the public that it is Caltrans' intent to adopt an MND for this project. This does not mean that Caltrans' decision regarding the project is final. This MND is subject to change based on comments received by interested agencies and the public.

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

- The proposed project would have no impact on farmlands/timberlands, growth, mineral resources, population and housing, and recreation.
- In addition, the proposed project would have less than significant impacts on land use, communities, noise, and utilities and system services.
- With avoidance and minimization measures incorporated, the proposed project would have less than significant impacts on visual resources and aesthetics, cultural and tribal cultural resources, air quality, hydrology and floodplains, geology and soils, hazards and hazardous materials, public services, and traffic and transportation.
- With mitigation measures incorporated, the proposed project would have less than significant impacts to aquatic resources.

_____ _____

Dina A. El-Tawansy
District 4 Director
California Department of Transportation

Date

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SUMMARY

The Alameda County Transportation Commission (Alameda CTC), in partnership with the California Department of Transportation (Caltrans) and the cities of Emeryville and Berkeley, proposes to provide interchange and local road improvements along Interstate 80 (I-80) between post mile (PM) 3.9 and 5.0 and on Ashby Avenue (Route 13) between PMs 13.7 and 13.9 (see Figure 1.4-1 in Section 1.0). The I-80/Ashby Avenue Interchange Improvement Project (proposed project) would replace the existing elevated interchange connector ramps with a new bridge over I-80, realign access to West Frontage Road, and introduce a new bicycle and pedestrian overcrossing and connection from 65th Street/Shellmound Street to the San Francisco Bay Trail. The proposed project would improve traffic, pedestrian, and bicycle operations in the cities of Emeryville and Berkeley.

Alameda CTC is the project sponsor, and Caltrans is the lead agency for the proposed project under the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA).

California Department of Transportation (Caltrans) participated in the "Surface Transportation Project Delivery Pilot Program" (Pilot Program) pursuant to 23 USC 327, for more than five years, beginning July 1, 2007, and ending September 30, 2012. MAP-21 (P.L. 112-141), signed by President Obama on July 6, 2012, amended 23 USC 327 to establish a permanent Surface Transportation Project Delivery Program. As a result, Caltrans entered a Memorandum of Understanding pursuant to (MOU) 23 USC 327 (NEPA Assignment MOU) with FHWA. The NEPA Assignment MOU became effective October 1, 2012, and was renewed on December 23, 2016, for a term of five years. In summary, Caltrans continues to assume FHWA responsibilities under NEPA and other federal environmental laws in the same manner as was assigned under the Pilot Program, with minor changes. With NEPA Assignment, FHWA assigned, and Caltrans assumed all the United States Department of Transportation Secretary's responsibilities under NEPA. This assignment includes projects on the State Highway System (SHS) and Local Assistance Projects off of the SHS within the State of California, except for certain categorical exclusions that FHWA assigned to the Department under the 23 USC 326 CE Assignment MOU, projects excluded by definition, and specific project exclusions.

The purpose of the proposed project is to:

- Improve interchange access and circulation

- Provide a westbound I-80 connection to Shellmound Street
- Provide safe bicycle and pedestrian connectivity across I-80
- Improve circulation at I-80/Powell Street and 7th Street
- Alleviate local surface street congestion

The interchange, constructed in the 1950s, does not provide access to or from westbound I-80 or Shellmound Street in the City of Emeryville. Additionally, the area including the interchange lacks connectivity for different modes of transportation (e.g., vehicular, bicycle and pedestrian users). For these reasons, the interchange suffers from the following key operational issues:

- The existing interchange provides no access to Shellmound Street to/from westbound I 80 and no access from Shellmound Street to Frontage Road
- Access from westbound traffic to Emeryville is forced to use the Powell Street interchange
- There is no direct pedestrian and bicyclist access to the San Francisco Bay Trail from 65th Street/Shellmound Street area

The proposed project would alleviate congestion, improve multi-modal access, and support implementation of local and regional land use and transportation plans.

Two alternatives are currently under consideration. The alternatives are the “Build Alternative” and the “No Build Alternative.” The Build Alternative would replace the existing elevated interchange connector ramps with a new bridge over I-80, realign West Frontage Road, and introduce a new bicycle and pedestrian overcrossing connection from 65th Street/Shellmound Street to the San Francisco Bay Trail.

Under the No Build Alternative, none of the improvements included under the proposed project would occur. The No Build Alternative is considered the environmental baseline against which potential environmental effects of the Build Alternative are evaluated.

Table S-1 summarizes the adverse effects of the Build Alternative and the No Build Alternative. The proposed avoidance and minimization measures to reduce the effects of the Build Alternative are also presented. For a complete description of potential adverse effects and recommended measures, refer to the specific sections within Chapter 2.0 Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures.

Table S-1 Potential Environmental Impacts of the Proposed Project

Affected Resource	Potential Effect		Avoidance, Minimization and or Mitigation Measures
	No Build Alternative	Build Alternative	
Land Use (2.1.1)	None	Temporary intersection closures and construction staging areas may cause traffic inconveniences to surrounding businesses.	None
Consistency with Regional and Local Plans and Programs (2.1.2)	The No Build Alternative would not support the implementation of local and regional plans related to transportation and bicycle/pedestrian connectivity improvements.	The Build Alternative would support implementation of the Regional Transportation Plan, Plan Bay Area, and local general plans that call for transportation and bicycle/pedestrian connectivity improvements.	None
Coastal Zone (2.1.3)	None	There would be no permanent effect on resources, views, or access to the San Francisco Bay. A temporary detour around the construction area would be constructed to ensure continuous public access and function of the San Francisco Bay Trail.	**AMM TRA-1:** (Public Access to the San Francisco Bay Trail) During construction of the new outfall area, a temporary detour around the construction area will be installed to ensure continuous access to the San Francisco Bay Trail is maintained.
Parks and Recreation Facilities (2.1.4)	None	The proposed project would not require permanent acquisition of parks or recreational facilities. Temporary construction effects would be minimized through the incorporation of	AMMs TRA-1 through TRA-5: Impacts to traffic would be minimized by planning construction activities that require road closure and detours during nighttime hours, installing temporary access ramps, and informing the public well in

Affected Resource	Potential Effect		Avoidance, Minimization and or Mitigation Measures
	No Build Alternative	Build Alternative	
		standard Caltrans BMPs into the proposed project.	advance of any anticipated road closures and detours.
Community Impacts, including Community Character and Cohesion Relocations and (2.1.5)	None	The proposed project would not negatively affect the cohesion of existing communities surrounding the project area. The proposed project would not change the character of the area, as it is located in a mostly urbanized area that supports a I-80 and associated facilities.	**AMMs TRA-1** through **TRA-5**: Impacts on access to nearby homes and businesses would be minimized by planning construction activities that require road closure and detours during nighttime hours, installing temporary access ramps, and informing the public well in advance of any anticipated road closures and detours.
Real Property Acquisitions (2.1.6)	None	Relocation of homes and/or businesses would not be required. Partial acquisitions ("sliver takes") would be required near the KRE Radio Station building. Operations and use of the KRE Radio Station would not be affected.	None
Environmental Justice (2.1.7)	None	No disproportionately high adverse effects on any minority or low-income populations in accordance with the provisions of EO 12898.	None
Utilities/Emergency Services (2.1.8)	None	Early coordination with utility providers, removal or relocation of existing electric transmission lines and lights would minimize utility	**AMM UTL-1**: Detailed utility coordination and verification will be required during the final design phase of the proposed project to facilitate relocation of utilities.

Affected Resource	Potential Effect		Avoidance, Minimization and or Mitigation Measures
	No Build Alternative	Build Alternative	
		disruptions during construction. Short-term effects to police, fire, and emergency services during construction would occur but effects would be reduced with incorporation of AMMs.	**AMM UTL-2**: Emergency service providers will be notified prior to construction of any temporary road closures and/or detours as part of the TMP.
Traffic and Transportation/Pedestrian and Bicycle Facilities (2.1.9)	None	Temporary road closures and detours would be required. AMMs TRA-1 through TRA-5 would be implemented for any anticipated road closures and traffic detours.	**AMMs TRA-1** through **TRA-5**: Impacts to traffic would be minimized by planning construction activities that require road closure and detours during nighttime hours, installing temporary access ramps, and informing the public well in advance of any anticipated road closures and detours.
Visual/ Aesthetics (2.1.10)	None	Changes to the visual environment would be noticeable, but would not substantially alter scenic vistas, scenic resources, or degrade the existing character and quality of the project area. The backdrop of the existing visual setting would continue to be the existing I-80 corridor. The overall visual impact under the Build Alternative would be moderate.	**AMM VIS-1**: To avoid the inadvertent creation of areas that appeal to human usage (e.g., open areas under bridge structures and isolated vacant lots), the final design will include measures to discourage the creation of encampments. **AMM VIS-2**: To reduce the visual impact of new retaining walls and bridge structures, aesthetic treatments consisting of color, texture and/or patterning will be applied to reduce visual impacts.

Affected Resource	Potential Effect		Avoidance, Minimization and or Mitigation Measures
	No Build Alternative	Build Alternative	
			AMM VIS-3: Caltrans will use additional standard construction equipment and protocol for the Build Alternative, such as replacement of damaged or removed vegetation and irrigation systems and providing highway planting.
Cultural Resources and Tribal Cultural Resources (2.1.11)	None	No known cultural or tribal cultural resources are present within the project area of potential effects (APE). Standard project features would ensure that any unrecorded resources are protected.	None
Hydrology and Floodplain (2.2.1)	None	Drainage improvements and construction of a new outfall, in conjunction with stormwater best management practices (BMPs) application, would help minimize impacts due to surface runoff and/or sea level rise. The proposed project would not cause a significant or longitudinal encroachment on any floodplain.	None
Water Quality and Storm Water Run-Off (2.2.2)	None	Temporary effects related to stormwater runoff during construction would be minor and would be minimized	**AMM WQ-1:** Pursuant to the Construction General Permit, a Stormwater Pollution Prevention Program would be developed..

Affected Resource	Potential Effect		Avoidance, Minimization and or Mitigation Measures
	No Build Alternative	Build Alternative	
		through the implementation of best management practices (BMPs). Operational effects would be minimized. Project features would serve to reduce pollutants, in particular the release of gross solids. The proposed project would not significantly affect water quality.	**AMM WQ-2**: Design pollution prevention BMPs would be employed to minimize hydromodification impacts. **AMM WQ-3**: Treatment BMPs. Post-construction treatment BMPs shall be required to ensure the proposed project does not increase stormwater volumes in existing stormwater conveyance channels. **AMM WQ-4:** Work within the San Francisco Bay will be limited to the smallest area possible. A cofferdam spanning planned in-water work areas will be implemented to avoid water quality impacts and potential impacts to aquatic wildlife habitat. **AMM WQ-5:** Implementation of standard operations and maintenance BMPs to prevent pollutants from being discharged to surface waters.
Geology/ Soils/ Seismic/ Topography (2.2.3)	None	Temporary effects associated with soil erosion and construction worker risk from seismicity minimized through the application of PF-GEO-1, GEO-2, GEO-3, and AMM-WQ-1 and WQ-2 measures. Operational risks from	None

Affected Resource	Potential Effect		Avoidance, Minimization and or Mitigation Measures
	No Build Alternative	Build Alternative	
		expansive soils, corrosive soils, erosion, and seismicity would similarly be avoided or minimized through implementation of project features.	
Paleontology (2.2.4)	None	Construction activities may encounter paleontologically sensitive Pleistocene deposits. No adverse effects are anticipated with implementation of a Paleontological Mitigation Plan (PMP).	**AMM PAL-1**: Prior to construction, a PMP shall be drafted and would include provisions for periodic spot checks to check for the presence of unanticipated paleontological resources during deeper excavations.
Hazardous Waste/ Materials (2.2.5)	None	There are several potential hazardous materials sites near the project area. There is risk of encountering contaminated groundwater associated with these sites during project construction. Soil in and around the project area may contain naturally occurring asbestos, aerially deposited lead (ADL), pesticides from previous agricultural land uses and other heavy metals. Standard measures will be applied to minimize these risks.	**AMM HAZ-1**: During the design phase, a Preliminary Site Investigation (PSI) of the project area shall be performed to investigate hazardous materials concerns related to soil, groundwater, and construction materials identified in the Phase I ISA. professional. **AMM HAZ-2:** At a minimum, groundwater from dewatering of excavations, if any, would be stored in Baker tank(s) during construction activities and the water would be characterized prior to disposal or recycling. **AMM HAZ-3:** In accordance with Caltrans' standards, a site safety plan shall be prepared and

Affected Resource	Potential Effect		Avoidance, Minimization and or Mitigation Measures
	No Build Alternative	Build Alternative	
			implemented prior to initiation of any construction/development activities to reduce health and safety hazards to workers and the public. **AMM HAZ-4:** Hazardous building materials surveys shall be conducted by a qualified professional. **AMM HAZ-5**: Yellow thermoplastic and yellow paint striping and markings on existing roadways shall be analyzed for lead chromate prior to disturbance or removal in accordance with Chapter 7 of Caltrans' Construction Manual. **AMM HAZ-6**: Asphalt-concrete and Portland-cement concrete grindings shall be reused in accordance with San Francisco Bay RWQCB guidelines for Caltrans' projects or transported offsite for recycling or disposal.
Air Quality (2.2.6)	None	Criteria air pollutant emissions during construction would be below applicable thresholds and would be in conformity with state and federal air quality standards. Operation of the proposed project would be in conformity on a regional and	None

Affected Resource	Potential Effect		Avoidance, Minimization and or Mitigation Measures
	No Build Alternative	Build Alternative	
		project level. Operational criteria air pollutants would be below applicable thresholds.	
Noise (2.2.7)	None	Construction activities associated with the proposed project would be relatively short in duration and intensity and would potentially result in temporary increases in noise levels. Construction noise levels would be reduced through the application of Project Features PF NOI-1 through PF NOI-6. There would be no substantial increase in permanent noise levels over the future No Build Alternative conditions.	None
Energy (2.2.8)	None	The proposed project would improve traffic flow during peak travel times, thereby reducing overall energy consumption in the form of gasoline.	None
Natural Communities (2.3.1)	None	No impacts to sensitive natural communities would occur within the project footprint. The proposed project would require removal of 149 trees.	**AMM BIO-1:** Removed or damaged trees will be replaced within the existing interchange. Trees will be replaced at a 1:1 ratio with native trees and will be irrigated for up to five years.
Wetlands and other Waters (2.3.2)	None	The proposed project would require fill within 0.012 acre	**AMM BIO-3:** Limits in-water work area to smallest area possible.

Affected Resource	Potential Effect		Avoidance, Minimization and or Mitigation Measures
	No Build Alternative	Build Alternative	
		of wetlands within USACE's jurisdiction and 0.007 acre of permanent impact to USACE jurisdictional non-wetland waters in the San Francisco Bay.	**Compensatory Mitigation Measure BIO-1**: Caltrans will provide compensatory mitigation to offset the unavoidable loss of aquatic resources at the new outfall within the biological study area (BSA). Compensatory mitigation would occur at a minimum 1:1 in accordance with regulatory permit requirements.
Plant Species (2.3.3)	None	No special-status plant species were observed within the biological study area and no suitable habitat exists.	None
Animal Species (2.3.4)	None	Active nests of Cooper's Hawk (*Accipiter cooperii*), great egret *(Ardea alba)*, and great blue heron *(Ardea herdias)* and nesting birds protected by the Migratory Bird Treaty Act could be indirectly affected by project construction noise.	**AMM BIO-3**: Caltrans would avoid initiating vegetation clearing, ground-disturbance and other construction activities during the nesting bird season (February 1 to September 30) to the extent feasible. **AMM BIO-5**: A cofferdam would be used for all in-water work to create a dry work area to avoid adverse water quality impacts and potential impacts to aquatic wildlife habitat.
Threatened and Endangered Species (2.3.5)	None	Construction of the new outfall would permanently impact 0.007 acre of critical habitat for Chinook salmon (*Oncorhynchus*	**AMM BIO-2** would limit in-water work area to the smallest area possible. **AMM BIO-5** would require the use of cofferdams to create a dry work

Affected Resource	Potential Effect		Avoidance, Minimization and or Mitigation Measures
	No Build Alternative	Build Alternative	
		tshawytscha), (*Oncorhynchus mykiss irideus*), and longfin smelt (*Spirinchus thaleichthys*). Impacts would occur in shallow water along the coastline where these fish are not expected to occur. The proposed project would have no effect on threatened and endangered animal species or habitat.	area and avoid potential impacts to aquatic habitat for wildlife. **AMM BIO-6** would prohibit in-water work during fish migration periods (November through June).
Invasive Species (2.3.6)	None	Project activities would disturb invasive plants and soil within the BSA and could lead to the spread or introduction of invasive plants elsewhere. BMPs would be incorporated as part of the proposed project to minimize this impact.	None

1.0 PROPOSED PROJECT

1.1 INTRODUCTION

The California Department of Transportation (Caltrans) District 4, in partnership with the Alameda County Transportation Commission (Alameda CTC), proposes to provide interchange and local road improvements along Interstate 80 (I-80) at the Ashby Avenue Interchange. The project limits for the I-80/Ashby Avenue (State Route 13 [SR-13]) Interchange Improvement Project (proposed project) are depicted in Figure 1.1-1, and the project components are described in Section 1.4, Project Description. The project area overlaps with the jurisdictional boundaries of the City of Emeryville (Emeryville) and the City of Berkeley (Berkeley).

Caltrans, as assigned by the Federal Highway Administration (FHWA), is the lead agency under the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA).

The Metropolitan Transportation Commission (MTC) is the regional transportation planning agency in the San Francisco Bay Area and is the Metropolitan Planning Organization for the nine county Bay Area. MTC is responsible for updating the Regional Transportation Plan (RTP), which is a comprehensive blueprint for the development of mass transit, highway, freight, and bicycle and pedestrian facilities. MTC and the Association of Bay Area Governments (ABAG) program San Francisco Bay Area projects in the RTP *Plan Bay Area 2050*. The proposed project is included in the RTP under reference number ID 17-01-0037.

The proposed project is also included in the MTC 2019 Transportation Improvement Program (TIP) under reference number ID ALA170002. MTC adopted the TIP on May 17, 2021. FHWA approved and incorporated the TIP into the Federal Statewide Transportation Improvement Program (FSTIP) on July 16, 2021.

Project Location Figure **1.1-1**

Source: Google Earth, 2019; Circlepoint, 2020.

1.2 BACKGROUND

The existing interchange, which was constructed in the 1950s, was first proposed for modifications as early as 1980 by Caltrans. In early planning studies and by the year 2000, Caltrans concluded there was a need to upgrade the interchange. Conceptual plans were prepared for the upgrades and presented to Emeryville and Berkeley. Conceptual plans were developed with the local cities, but due to funding constraints, the proposal did not move forward.

In 1999, a preliminary alternatives analysis recommended two alternatives, and a subsequent value analysis study identified roundabouts as possible ramp terminal intersections. In 2006 a Supplemental Project Study Report (SPSR) evaluated roundabout intersections for one of the 1999 PSR alternatives.

In 2009, Emeryville initiated a PSR for a bicycle/pedestrian overcrossing (BPOC) across I-80. In partnership with Caltrans and the Alameda CTC, Emeryville proposed a BPOC over I-80 between Powell Street and Ashby Avenue. The slated purpose of the BPOC would be to provide connectivity between the San Francisco Bay Trail and the existing Class II bike path on the east side of I-80 at 65th Street. The BPOC would provide an additional safe crossing for pedestrians and bicyclists traveling over I-80. There is an existing pedestrian overcrossing at Powell Street, and a bicycle/pedestrian bridge adjacent to University Avenue in the City of Berkeley.

These past efforts have been combined and inform the currently proposed I-80/Ashby Avenue Interchange Improvement Project. The proposed project has been developed through a partnership effort among Caltrans, Alameda CTC, Emeryville, and Berkeley, and input from stakeholders, working groups, and local community members.

1.3 PURPOSE AND NEED

1.3.1 PURPOSE

The purpose of the proposed project is to:

- Improve interchange access and circulation
- Provide a westbound I-80 connection to Shellmound Street

- Enhance safe bicycle and pedestrian connectivity across I-80
- Improve circulation at I-80/Powell Street and 7th Street
- Alleviate local surface street congestion.

1.3.2 NEED

A Traffic Operations Analysis Report (TOAR) was completed for the proposed project on March 12, 2021. As documented in the TOAR, the interchange, constructed in the 1950s, does not provide access to or from westbound I-80 or Shellmound Street in Emeryville. Additionally, the area including the interchange lacks connectivity for different modes of transportation (e.g., vehicular, bicycle and pedestrian users). For these reasons, the interchange suffers from the following key operational issues:

- The existing interchange provides no access to Shellmound Street to/from westbound I-80 and no access from Shellmound Street to Frontage Road.
- Access from westbound traffic to Emeryville is forced to use the Powell Street interchange.
- There is no direct pedestrian and bicyclist access to the San Francisco Bay Trail from 65th Street/Shellmound Street.

Related findings from the TOAR are summarized below.

CAPACITY, TRANSPORTATION DEMAND, AND SAFETY

Capacity

Level of Service (LOS) is a congestion rating that varies from LOS A to F. LOS A represents stable flow and very slight delays. LOS E represents unstable flow, poor progression, and long cycle lengths or delays. LOS F represents forced flow or jammed conditions and is considered over capacity. LOS was used to evaluate the existing operating capacity of I-80 and intersections within the project study area.

I-80 Mainline

I-80 is a divided freeway consisting of four mixed-flow lanes in each direction and a high occupancy vehicle (HOV) center lane that operates on weekdays from 5 to 10 AM and 3 to 7 PM. The westbound freeway segments operate worse than LOS D during the AM and PM peak hours, and the eastbound freeway segments operate at LOS F during the PM peak hours.

Intersections

Eight intersections were analyzed in proximity to the project area to understand the volumes and patterns of traffic. None of the intersections operate at LOS E or LOS F. The proposed project would improve travel times and operational conditions of I-80. With respect to mobility on local streets, the proposed project would maintain operating conditions at LOS D or better.

Transportation Demand

Based on data projections from ABAG, Emeryville and Berkeley within Alameda County will continue to see population, housing, and employment growth over the next 20 years. Alameda County is projected to grow by 23 percent from 2020 to 2040. Likewise, vehicle miles traveled (VMT) in the project area is expected to grow from 2,239,684 in 2025 to 2,585,791 by 2045 (*Traffic Operations Analysis Report* [TOAR] March 2021).

Safety

State Highways

Collision data were collected over a 36-month period for the I-80 mainline and the I-80 at Ashby Avenue ramp and ramp terminal intersections. As summarized in Table 1.3-1, the I-80/Ashby Avenue interchange ramps generally have more “fatal + injury” and “total” collision rates compared to the statewide average.

Local Streets

As part of the TOAR, a collision history analysis was performed for state highways and local streets for a 36-month period. The collision history includes the total number of vehicular collisions, collisions with injuries, and collisions involving bicyclists and pedestrians. The intersections with the highest total collision rates and the highest pedestrian-involved collision rates on local streets are shown in Table 1.3-2. As summarized in the table below, I-80/Ashby Avenue interchange ramps generally have higher “fatal + injury” and “total” collision rates compared to the statewide average.

Table 1.3-1 Summary of Collision Data and Rates for I-80 Mainline (1/1/2017 – 12/31/2019)

Facility	Number of Collisions			Collision Rate (collisions/million vehicle miles)					
				Actual			State Average		
	Fatal	Fatal + Injury	Total	Fatal	Fatal + Injury	Total	Fatal	Fatal + Injury	Total
I-80 Mainline									
Eastbound between Ashby Avenue and University Avenue	2	46	193	0.012	0.28	1.16	0.003	0.29	0.92
Eastbound between Powell Street and Ashby Avenue	-	26	134	-	0.34	1.77	0.003	0.29	0.92
Westbound between Ashby Avenue and Powell Street	0	93	384	0	1.23	5.07	0.003	0.29	0.92
Westbound between University Avenue and Ashby Avenue	0	82	341	0	0.49	2.05	0.003	0.29	0.92

Note: Cells highlighted in grey represent collision rates that are greater than the state-wide average for similar facility types.
Source: Caltrans Traffic Accident Surveillance and Analysis System (TASAS Data January 1, 2017, to December 31, 2019)

Table 1.3-2 Summary of Collision Data and Rates for I-80 at Ashby Avenue (1/1/2017 – 12/31/2019)

Facility	Number of Collisions			Collision Rate (collisions/million vehicle miles)					
				Actual			State Average		
	Fatal	Fatal + Injury	Total	Fatal	Fatal + Injury	Total	Fatal	Fatal + Injury	Total
I-80 at Ashby Avenue Ramp and Ramp Terminal Intersection									
Eastbound 80 off to Southbound Route 13-Shellmound Street	-	-	-	-	-	-	-	-	-
Eastbound 80 on from W Frontage Road-Northbound Route 13	0	2	20	0	0.17	1.72	0.004	0.13	0.40
Eastbound 80 off to Southbound Route 13	0	1	2	0	0.09	0.19	0.001	0.07	0.25
Eastbound 80 off to Shellmound Street	0	1	2	0	0.29	0.59	0.008	0.39	1.03
Westbound 80 off to Southbound Route 13	0	0	3	0	0	0.10	0.004	0.17	0.51
Westbound 80 on from Northbound Route 13	0	2	7	0	0.20	0.69	0.005	0.15	0.48
Westbound 80 off to W Frontage Road-Southbound Route 13	0	1	4	0	0.07	0.28	0.004	0.10	0.51
Westbound 80 on from Northbound Route 13-Frontage Road	0	0	7	0	0	1.65	0.005	0.15	0.48

Note: Cells highlighted in grey represent collision rates that are greater than the state-wide average for similar facility types.
Source: Caltrans Traffic Accident Surveillance and Analysis System (TASAS Data January 1, 2017, to December 31, 2019)

ROADWAY DEFICIENCIES

Existing Roadway Conditions

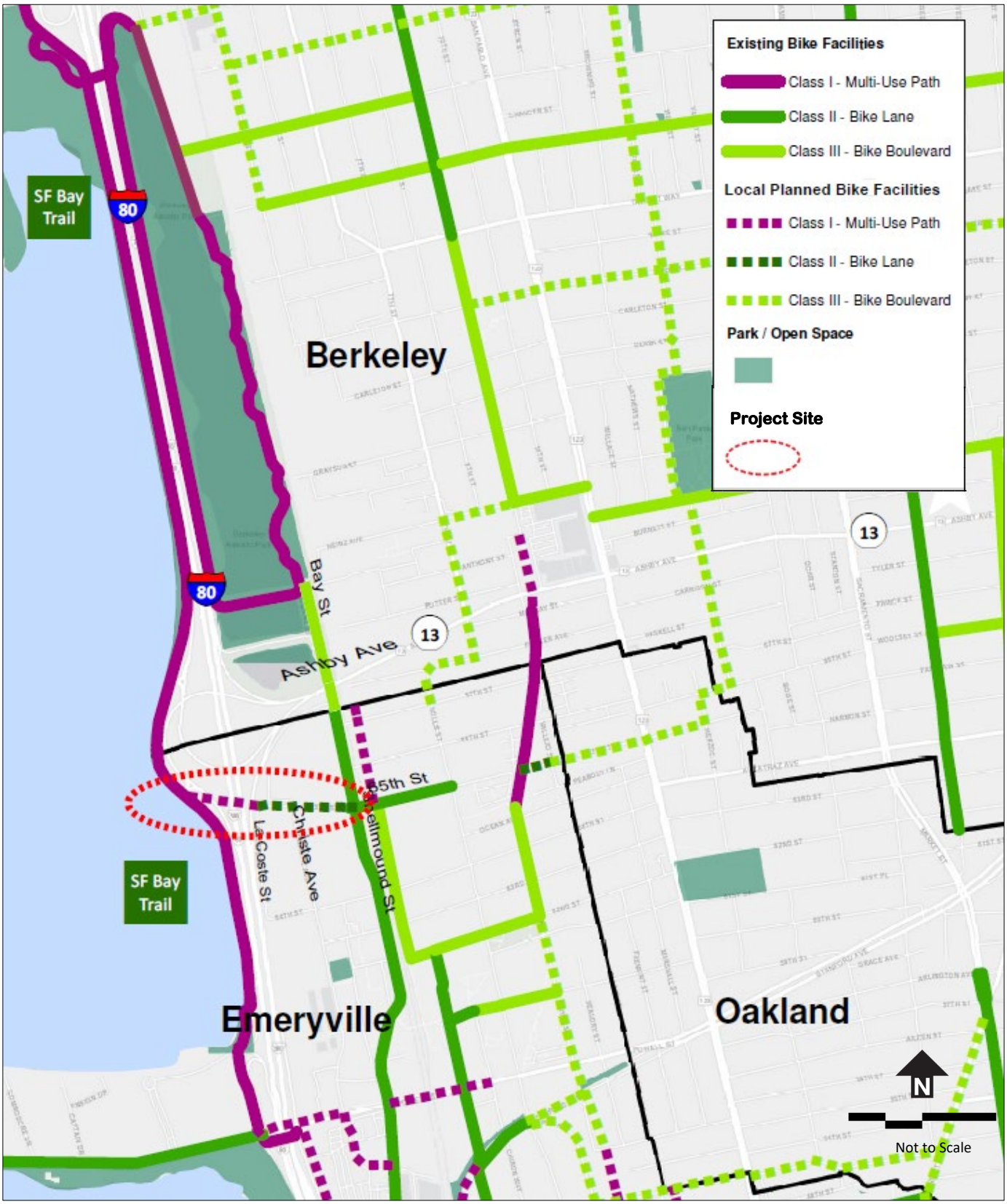
Based on a field evaluation and a desktop review of the roadways in the project vicinity, most existing roadway conditions, including ramps and surface streets, appear to be in good condition with limited signs of deterioration (cracking, patching, and/or potholing). Currently, cracking and potholing can be seen in the north and southbound directions before the overcrossing at Ashby Avenue, and at the overcrossing on I-80 heading eastbound. Ashby Avenue is constrained to 4 lanes with no shoulder as it proceeds under the Union Pacific Railroad (UPRR) right of way at a grade separation.

Existing Pedestrian and Bicycle Facility Conditions

As noted in the project's Purpose and Need statement, there is a notable gap in both pedestrian and bicycle access from Ashby Avenue to the San Francisco Bay Trail. Existing bicycle and multi-use paths are shown in Figure 1.3-1. Current design and connectivity issues that impede bicycle and pedestrian travel in the project study area include:

- No sidewalk facilities that to connect Ashby Avenue with the San Francisco Bay Trail west of where the sidewalk ends east of the UPRR grade separation.
- No immediate pedestrian connection between the sidewalk facilities on the Shellmound Street overpass and Ashby Avenue.
- No immediate connection over I-80 from Ashby Avenue to the San Francisco Bay Trail, except in traffic lanes from the westbound I-80 on-ramp. Off-street connections to the San Francisco Bay Trail are available at University Avenue (via the San Francisco Bay Trail Pedestrian Overcrossing on I-80) and at the Powell Street I-80 undercrossing.

The Build Alternative would include a new BPOC and new connections with the San Francisco Bay Trail through the Ashby Avenue area. The creation of these safety improvements would further prioritize bicycle and pedestrian movements and improve safety by reducing or eliminating potential conflicts with vehicular traffic.



Project Connection to Existing and Planned Networks Figure **1.3-1**

Source: Kittelson & Associates, Inc, 2020

1.3.3 FUNDING

The proposed project is eligible for federal-aid funding. However, early project development activities are funded by state and local fund sources. In July 2021, the California Transportation Commission (CTC) programmed $0.05 million in State Transportation Improvement Program (STIP) funds for design expenditures. The proposed project is a named project in the Alameda County voter approved 2014 Measure BB Transportation Expenditure Plan for a total local sales tax revenue of $52 million. Currently $12.6 million of the $52 million in Measure BB funds have been authorized for scoping, environmental, and final design phase expenditures. Alameda CTC is expected to allocate the remaining Measure BB funds for the right of way phase and construction. The total project cost is currently estimated at $157 million, and $105 million is needed to complete the project. Alameda CTC is working closely with funding partners to secure federal, state, regional and other local funds for project construction.

1.3.4 MODAL INTERRELATIONSHIPS AND SYSTEM LINKAGES

INTERSTATE

The Build Alternative would be connected to the broader I-80 corridor, which extends in a northwest/southwest direction on the east side of the San Francisco Bay, connecting Richmond and Oakland. It is the principal east-west route through northern California and the sole freeway crossing the Sierra Nevada range. I-80 terminates at US 101 in San Francisco.

ARTERIAL ROADS

Ashby Avenue (SR-13)

The project area is connected to Berkeley and Emeryville via SR 13 (known locally as Ashby Avenue), a state highway that connects to I-80 at the east shoreline of San Francisco Bay and runs eastward into Berkeley. Ashby Avenue is a two-lane roadway in each direction and provides a vital connection to I-80. It is generally a 4-lane facility with occasional landscaped medians and on-street parking. Ashby Avenue does not have any striped or dedicated bike lanes.

West Frontage Road

West Frontage Road runs parallel to I-80 between Gilman Street and Powell Street. The roadway enhances access to the San Francisco Bay Trail, which is a multi-use pathway used by pedestrians and bicyclists. The trail also provides access points to various shoreline amenities and attractions.

MASS TRANSIT

There are various transit service providers that operate within the 0.5-mile study area, including Bay Area Regional Transit (BART), Amtrak, and Alameda-Contra Costa Transit District (AC Transit). The closest BART station to the study area is the Ashby Station located 1.4 miles east of the project area. AC Transit is the third largest public bus system in California, serving 13 cities and adjacent unincorporated areas in Alameda and Contra Costa counties. Amtrak currently runs trains on the UPRR rail line north and south adjacent to the project area. The Amtrak stations nearest to the proposed project include the Emeryville Station 0.5 mile south of the project area, and Berkeley Station under the University Avenue overpass approximately 1 mile north of the project area.

MULTIMODAL ACCESSIBILITY

Bicycle and Pedestrian Trails

The San Francisco Bay Trail is a planned 500-mile walking and cycling path around the entire San Francisco Bay running through all nine Bay Area counties, 47 cities, and across the San Francisco Bay region's seven toll bridges. The San Francisco Bay Trail is an active transportation corridor that connects communities to parks, open spaces, schools, and transit. In the project area, the trail is an important connection with several amenities along the San Francisco Bay shoreline and other multimodal facilities around the project area, such as Berkeley Aquatic Park, Point Emery, and marinas in Emeryville. The proposed BPOC would improve access to the San Francisco Bay Trail from the east side of the I-80/Ashby Avenue interchange. The creation of these trails would enhance existing modal interrelationships and system linkages.

1.3.5 AIR QUALITY IMPROVEMENTS

Plan Bay Area

Senate Bill (SB) 375 requires that regional planning agencies in California include "sustainable community strategies" in their RTP updates to describe how greenhouse gas (GHG) emission reductions set by the California Air Resources Board (CARB) would be met through land use and transportation planning. The Build Alternative, included in the 2021 TIP, is part of the Plan Bay Area 2050 transportation network, and it would provide a more direct vehicular route from Oakland to Alameda and improve bicycle and pedestrian facilities. Air quality improvements would be expected from more efficient vehicular travel and increased non-motorized travel.

California has enacted aggressive GHG reduction targets. Assembly Bill (AB) 32 set the goal of reducing statewide GHG emissions to 1990 levels by 2020. It required CARB to develop a scoping plan detailing the approach California will take to achieve that goal and update the plan every five years. SB 743 requires vehicle miles traveled (VMT) to

be used to assess the impacts of capacity-increasing projects with the potential to increase VMT, effective July 1, 2020.

Bay Area 2017 Clean Air Plan

The Bay Area 2017 Clean Air Plan (CAP) is a multi-pollutant plan prepared by the Bay Area Air Quality Management District (BAAQMD) that addresses GHG emissions along with other air emissions in the San Francisco Bay Area Air Basin. This basin includes the nine counties that surround the San Francisco Bay, including Alameda County. The Build Alternative would be consistent with the CAP.

1.3.6 INDEPENDENT UTILITY AND LOGICAL TERMINI

Logical termini for a project area is defined as rational end points for transportation improvements within the proposed project area. A project with independent utility is defined as improvements that are usable and provide a reasonable expenditure of funds even if no additional transportation improvements are made in the area.

Several operational improvements were evaluated to determine the project configuration that most effectively addressed the project's need. In addition to identifying beginning and end points for the interchange improvements, the evaluation also considered the identification of an initial construction phase that would provide benefit to the study area at a lower cost than the full project given limited project funding. Based on the findings of the evaluation, the start and end points for the project were defined.

The proposed project is considered a single and complete project because it is not dependent on other capacity-increasing or operational improvements to realize mobility benefits. Further, individual project components also demonstrate independent utility for the same reason and may move forward as phased improvements. The proposed changes to the I-80/Ashby interchange would provide the intended mobility benefits without any additional improvements.

1.4 PROJECT DESCRIPTION

The interchange is located at post miles (PM) 3.95/4.93 on I-80 and 13.67/13.96 on SR-13 in the cities of Emeryville and Berkeley, Alameda County. Two Alternatives are under consideration: the Build Alternative and the No-Build Alternative. The Build Alternative would replace the existing elevated interchange connector ramps with a new bridge over I-80, realign access to West Frontage Road, and introduce a new BPOC connection over I-80 from 65th Street/Shellmound Street to the San Francisco Bay Trail. Figure 1.4-1 shows the specific project area and Environmental Study Limits (ESL) for the proposed project. The ESL is defined as the area in which direct and indirect environmental effects may occur. It is the boundary in which the potential environmental impacts of the proposed project were evaluated. The ESL is larger than the anticipated disturbance area.

Environmental Study Limit

Figure **1.4-1**

Source: Google Earth; Circlepoint, 2020.

1.5 PROJECT ALTERNATIVES

Two Alternatives are under consideration: the Build Alternative and the No-Build Alternative. The Build Alternative would comprise the following three improvements: (1) redesign of the elevated interchange, (2) realignment of West Frontage Road to intersect with Ashby Avenue, and (3) introduction of a new bicycle and pedestrian connection from the east side of I-80 to the Point Emery area and the San Francisco Bay Trail on the west side of the interchange. Caltrans and the project development team considered various alternatives and screened them for their ability to meet the proposed project's purpose, need, and operational standards. Early designs using simple signals or roundabouts and diamond interchange configurations were evaluated using six criteria:

1. Traffic operations
2. Pedestrian and bicycle treatment
3. Safety performance
4. Footprint
5. Design/service life
6. Level of interference with future projects

A detailed discussion of the alternatives that were evaluated is included under Section 1.5.3, Alternatives Considered but Eliminated from Further Discussion.

1.5.1 PROPOSED BUILD ALTERNATIVE

TIGHT DIAMOND CONFIGURATION WITH T-INTERSECTION

Interchange Design

The Build Alternative (Figure 1.5-1) would demolish the existing I-80/Ashby Avenue connector ramps and replace them with a tight diamond interchange. The tight diamond form is a compressed diamond interchange used in urban and suburban areas where there is limited right of way. This configuration has two closely-spaced signalized intersections at the crossing of the ramp terminals and side street.

The bridge structure associated with the Build Alternative would be approximately 118 feet wide by 160 feet long and would have a closed face on both abutments. The bridge would provide access to and from I-80, Ashby Avenue, Shellmound Street, Bay Street, and West Frontage Road. The overcrossing, which would accommodate 7 traffic lanes, would remove existing interference with truck traffic by raising vertical clearance of the structure above its current heigh of 15 feet, 4 inches. Traffic within the interchange would be controlled by two traffic signals, one at the westbound on- and off-ramps and one at the eastbound on and off-ramps. East of the eastbound on and off-ramp

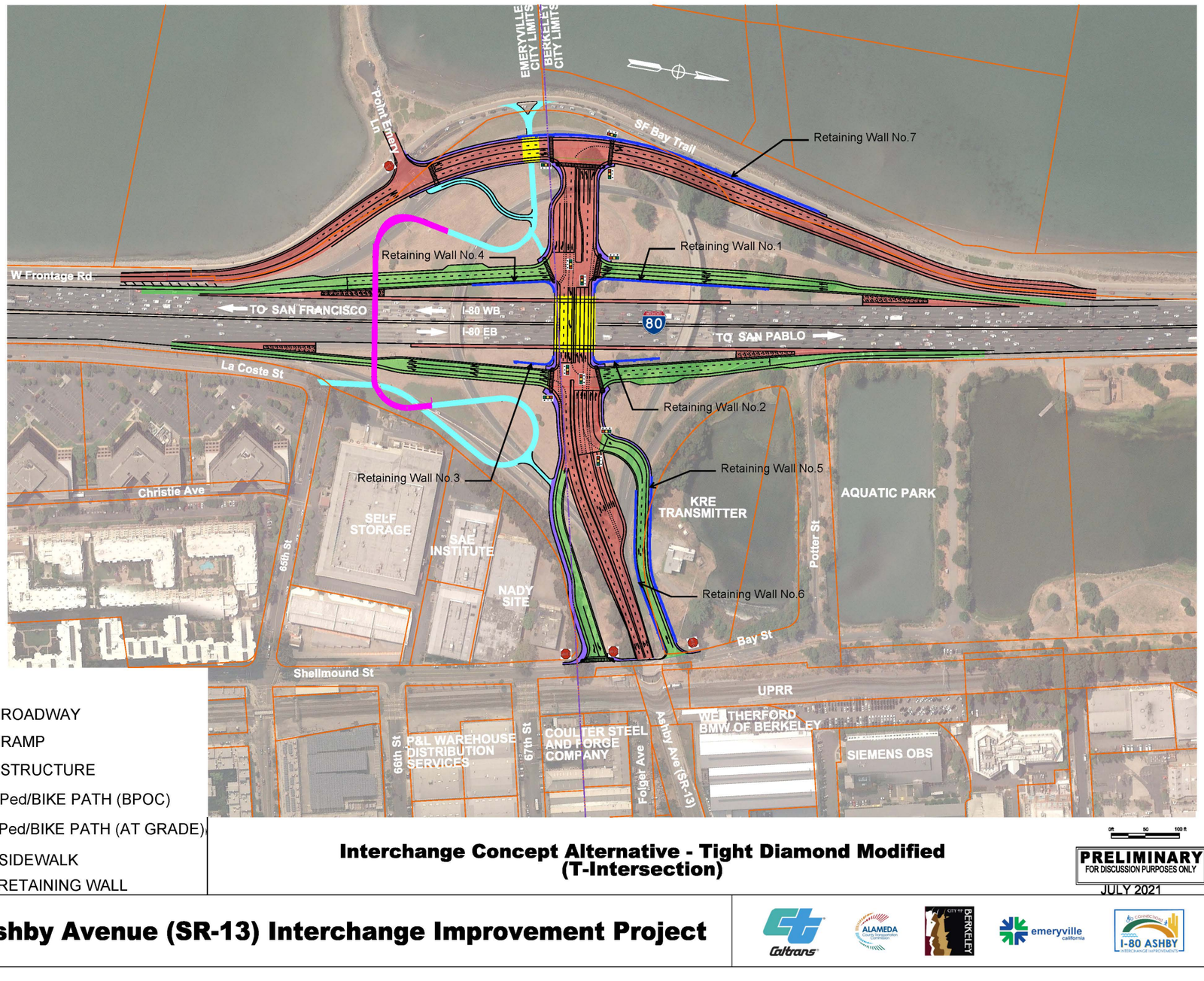
locations there would be a traffic signal for the Bay Street connector ramp and Ashby Avenue. A traffic signal would be located at the intersection of the Ashby Avenue and West Frontage Road. Both eastbound and westbound on-ramps would be metered.

As shown in Figure 1.5-1, Ashby Avenue would connect to the realigned West Frontage Road using a simple T-Intersection. West Frontage Road would be required to meet geometric and safety specifications for the three-way intersection along its new alignment. This realignment to the east would create greater separation between the realigned West Frontage Road and the San Francisco Bay Trail.

East of I-80, the Build Alternative would realign the existing eastbound off-ramp parallel to the existing East Bay Municipal Utility District 66-inch sanitary sewer main. The off-ramp would intersect Ashby Avenue. The existing connection from the eastbound off-ramp to Shellmound Street would also be modified. A new connection from Bay Street to Ashby Avenue would provide a connection to both the interchange and across the bridge to West Frontage Road on the west side of the interchange.

This connection would require installation of retaining walls between 8 and 32 feet in height (Figure 1.5-1). The current eastbound ramp at Potter Street would be replaced with a diagonal onramp and it would provide two general purpose lanes, maintenance vehicle pullouts (MVP), and California Highway Patrol (CHP) enforcement areas. These proposed improvements would also allow direct a ramp-to-ramp connection.

Proposed improvements along Bay Street would require relocation of one of the three guy wires (i.e., tensioned cables that add stability to a free-standing structure) for the transmitting tower. The project team will work with the property owner in making the appropriate modifications.



Build Alternative Figure **1.5-1**

Source: TYLIN 2021

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Landscaping and Irrigation

Mature existing highway planting would be removed as a result of the Build Alternative. All trees removed for the project would be replaced onsite and in-kind as much as practicable. Limitations may include setback requirements, such as needing to leave space for the "clear recovery zone" which limits Caltrans' legal ability to plant fixed objects near the edge of roadway. All replanted trees and shrubs would be monitored during a three-year plant establishment period which would be funded by the proposed project.

Replacement highway planting will be context sensitive, responsive to microclimate conditions, and easily and safely maintained. Any irrigation system required for the project would use "smart" irrigation controllers to minimize watering. In addition, the system will have a master control valve that will alert the controller to shut down the system if a loss of pressure is detected in a line. Such controllers can be operated remotely, including from a cellphone. Safety of maintenance workers and considerations will be a key component in the irrigation design. For instance, all equipment will be placed in areas away from traffic where it can be safely accessed by maintenance personnel, or where the maintenance vehicles can act as a protective barrier between highway traffic and maintenance personnel.

Bicycle/Pedestrian Connections

Access on the East Side of I-80

At-grade sidewalks and signalized crossings on the east side of I-80 at the ramps and adjacent to the Ashby Avenue would be included as part of the bridge structure. Bicyclists and pedestrians would access this connection via Ashby Avenue, Shellmound Street/Bay Street, and 65th Street on the east side of the proposed project.

Access to the San Francisco Bay Trail and Point Emery on the West Side of I-80

The San Francisco Bay Trail and Point Emery would be accessed by pedestrians and bicyclists from either the BPOC or the sidewalks on the Ashby Avenue bridge. Crossing West Frontage Road to these facilities would be accomplished at the at-grade crosswalk aligning with the Point Emery parking lot, or at a below-grade crossing under West Frontage Road just east of the T-intersection.

Bicycle/Pedestrian Overcrossing

A separate BPOC would be constructed south of the new interchange. The length of the BPOC, including its approaches, would be 836 feet long and 16 feet wide. This structure would include Americans with Disability Act (ADA) compliant switchbacks on the east and west sides of I-80 approaching the separate BPOC structure. Like the proposed bicycle/pedestrian improvements, the structure would be publicly accessible from 65th Street to the east and West Frontage Road to the west.

The new BPOC has multiple design options that would be considered during final design, once additional detail and information is available regarding cost and maintenance of the structures. The final design of the BPOC will be selected by Caltrans, Alameda CTC, and the cities of Emeryville and Berkeley. The following three designs are under consideration:

- Butterfly arch
- Basket-handle arch
- Box girder

These designs are depicted in Figure 1.5-2. In previous discussions with Caltrans and stakeholders, a preference for the butterfly arch was expressed. In addition, the cabled arch theme (butterfly and basket handle) is also consistent with the design theme of the I-80 corridor along this section of east San Francisco Bay.

Table 1.5-2 shows a comparison of the three BPOC design options under consideration and the pros and cons associated with each option. See Figure 1.5-2 for simulations of the design options. A truss design was considered as a fourth design option. However, it was eliminated from further consideration due to its inconsistency with the cabled arch theme throughout the I-80 corridor segment. The industrial appearance of the truss design is not used along this section of the I-80 corridor nor is it consistent with the fence design on the Ashby bridge structure which also reflects the arch design. For additional discussion about the truss design option and why it was eliminated, please see Section 1.5.3 Alternatives Considered but Eliminated from Further Discussion.

Table 1.5-2 Bicycle/Pedestrian Overcrossing Design Options Comparison

BPOC Design Option	Pros	Cons
Butterfly Arch	• Consistent with cable arch theme throughout I-80 corridor • Aesthetically preferred option • No freeway structural support required	• Maintenance costs (cleaning, graffiti removal, painting, repair, etc.,) believed to be moderate
Basket Handle Arch	• Also consistent with cable arch theme throughout I-80 corridor • No freeway structural support required	• Maintenance of structure needs to be negotiated • Maintenance costs believed to be moderate
Box Girder	• Believed to have lower maintenance costs	• Maintenance of structure needs to be negotiated • Not consistent with I-80 corridor cable arch theme • Structural support required on freeway • Least preferred aesthetic design

BOX GIRDER DESIGN

BASKET HANDLE DESIGN

BUTTERFLY ARCH DESIGN

BPOC Variations Figure **1.5-2**

Source: TYLIN 2021

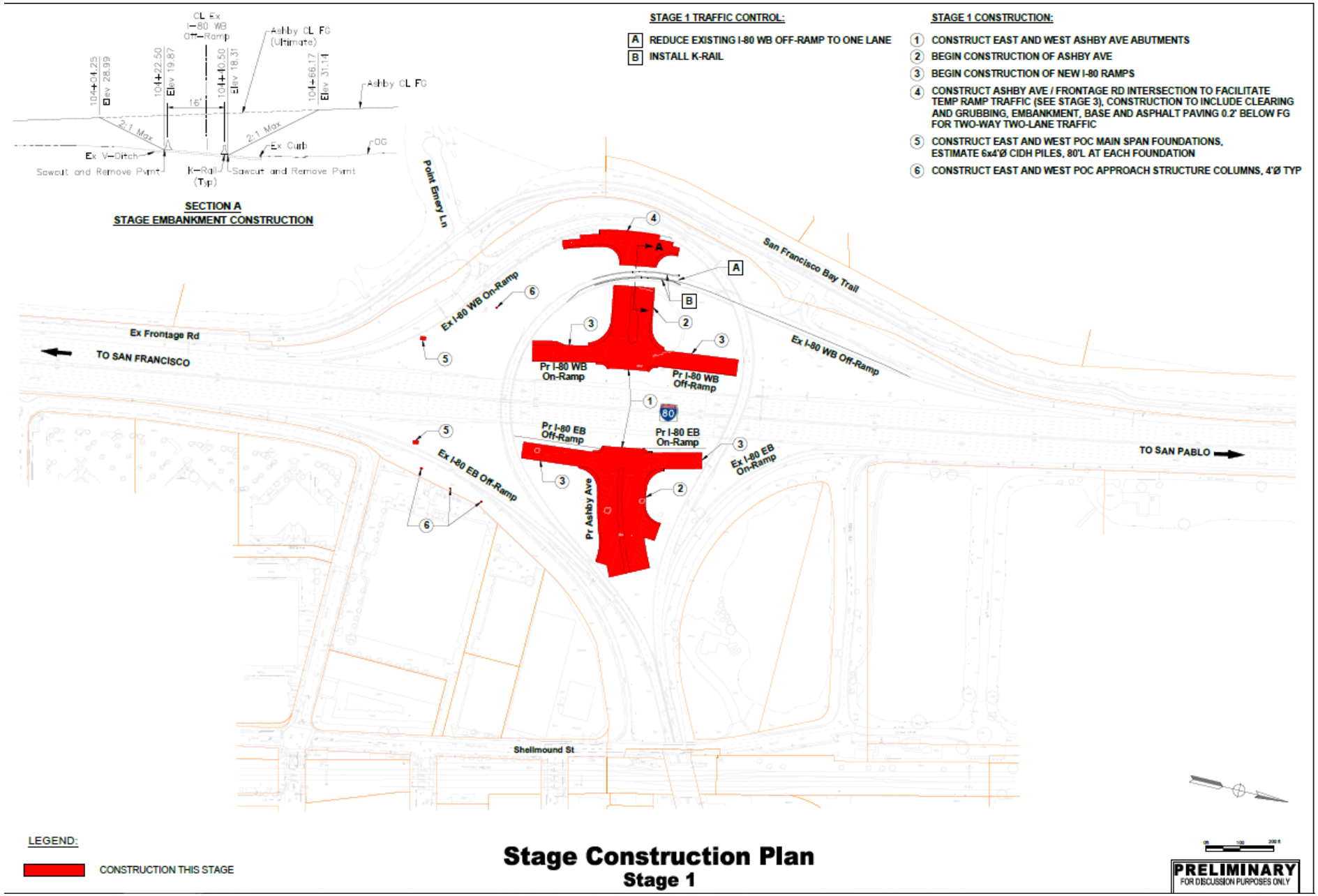
CONSTRUCTION

Construction of the proposed project would take an estimated 30 months to complete. Construction work for the Build Alternative would be done primarily during daylight hours from 7:00 a.m. to 6:00 p.m. However, night-time work and temporary closures would be necessary to avoid major disruption for tasks that could interfere with traffic or create safety hazards such as demolition of the existing connectors.

Construction activities would include excavation, drilling, dewatering, pavement demolition, bridge demolition, mass grading, concrete form work, pavement installation, storm system installation, landscaping and irrigation, sign installation, striping operations, and traffic control. Such activities would require the use of the following types of equipment: drill rig, forklift, scissor lift, backhoe, track excavator, compactor, concrete pump, crane, bulldozer, grader, front-end loader, dump trucks, jackhammer, and vibratory roller. These activities would require lane and ramp closures with detours.

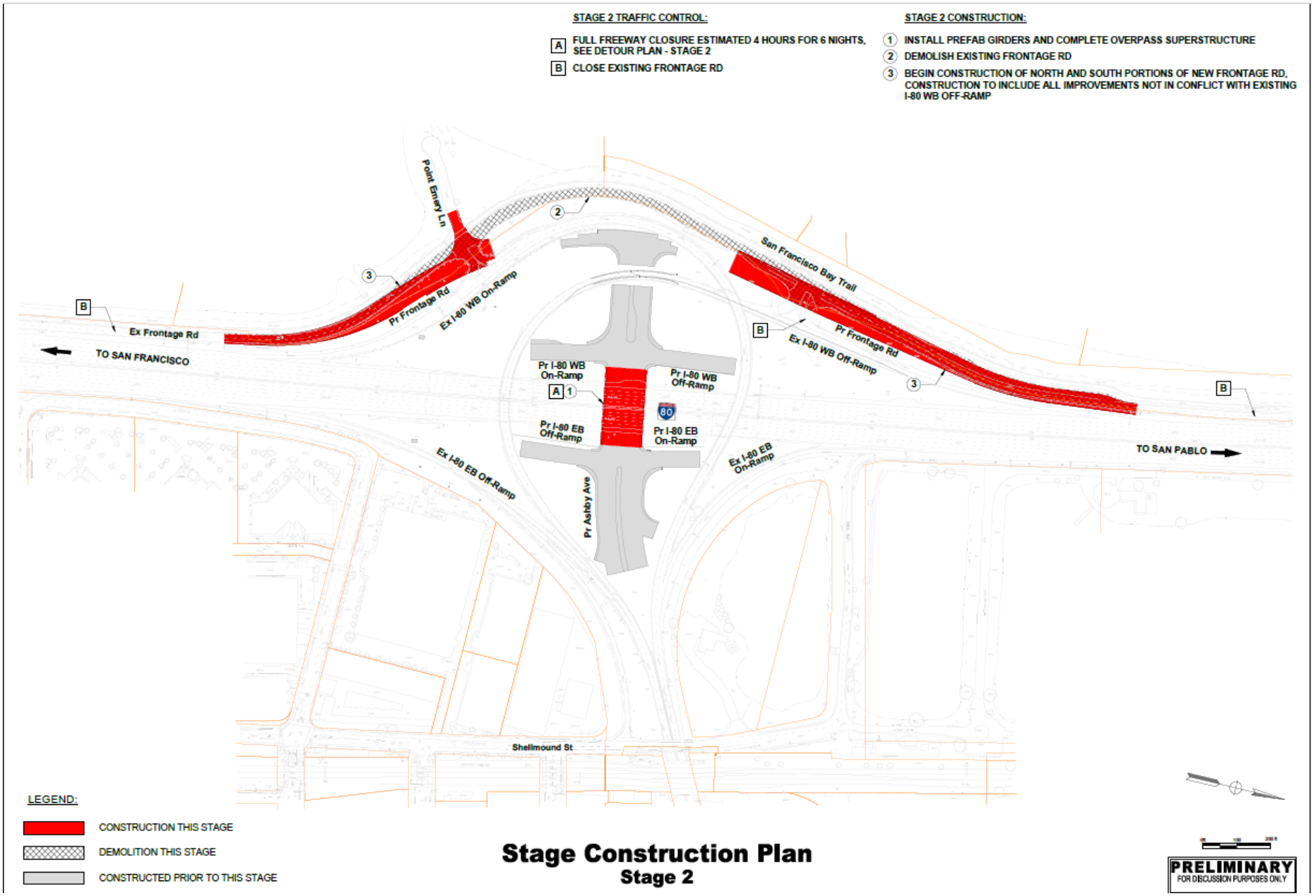
Construction staging areas (i.e., the storage of materials and equipment) are anticipated to be accommodated within the existing Caltrans right of way. The largest potential construction staging area would be on the west side of the interchange. Caltrans would finalize construction staging area locations during the design phase of the proposed project, in conjunction with potential contractors. These areas would be carefully reviewed to ensure that the staging areas are sufficient and within the ESL evaluated in this environmental document.

Locations with anticipated night work and use of right lane closures are likely to be at the westbound and eastbound ramp connections to I-80. These operations may involve excavation, base compaction, and asphalt concrete paving.



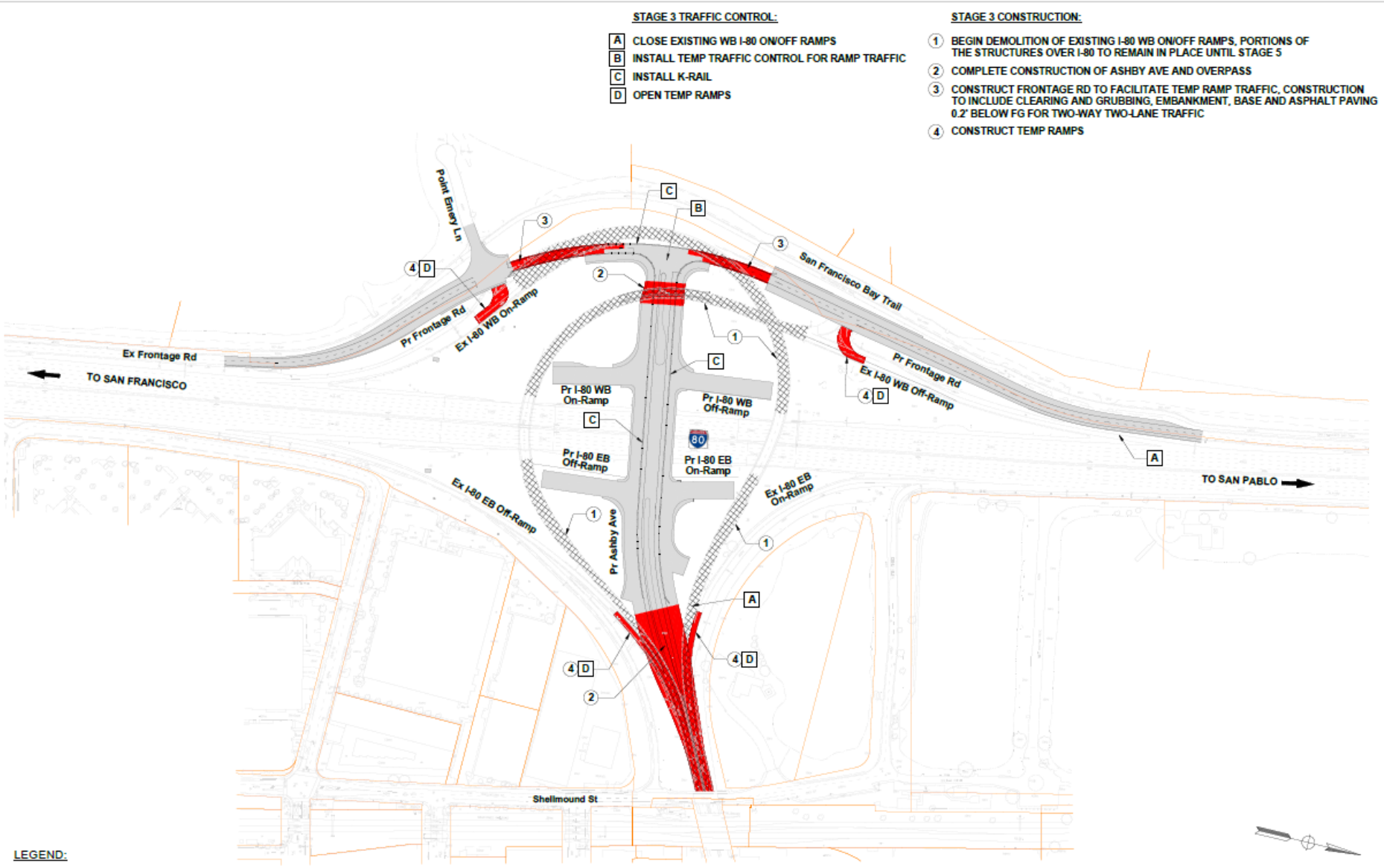
Ashby Staging Concept Plans (Stage 1) Figure **1.5-3**

Source: Circlepoint, 2021



Ashby Staging Concept Plans (Stage 2) Figure **1.5-4**

Source: Circlepoint, 2021

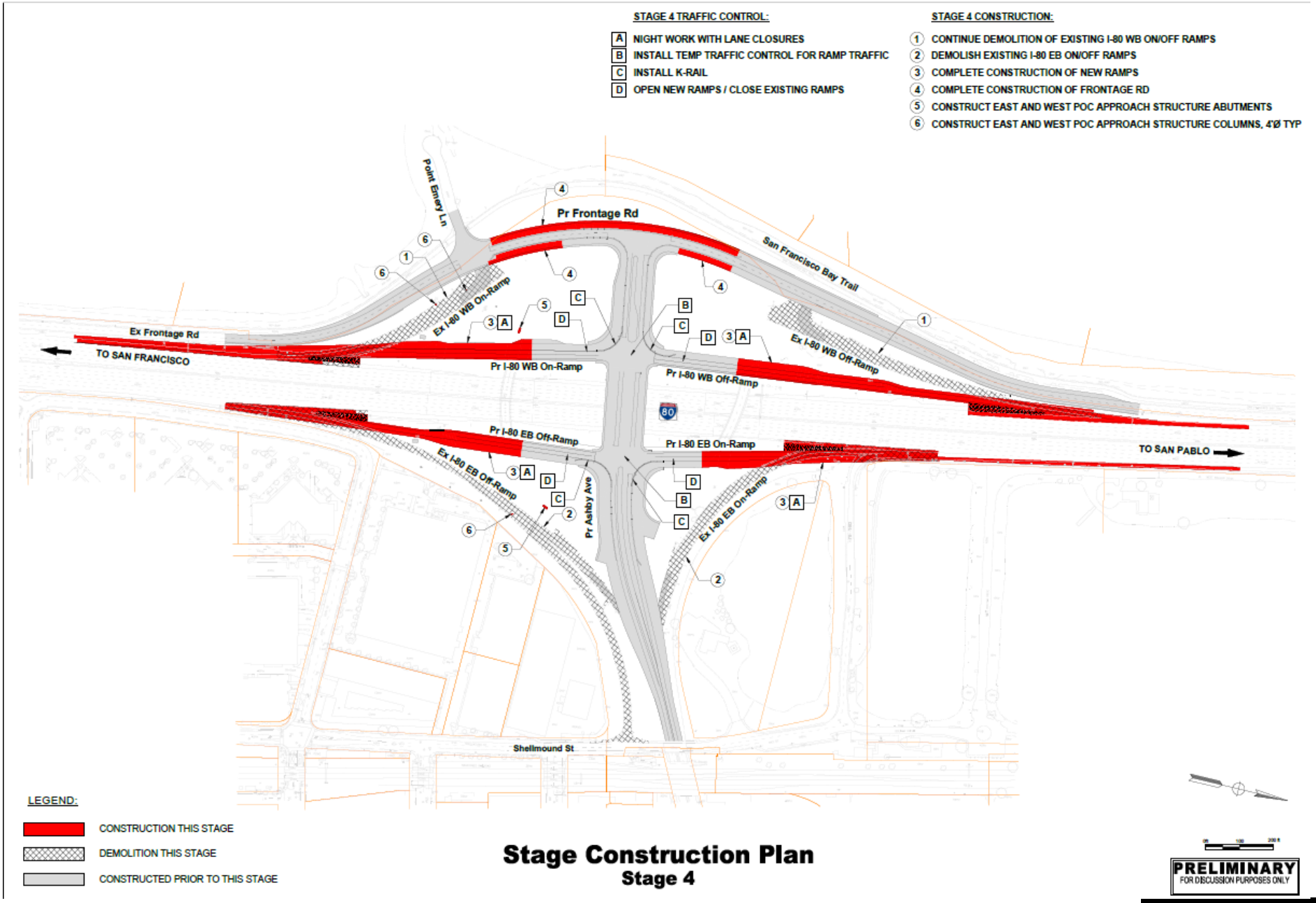


Stage Construction Plan
Stage 3

Ashby Staging Concept Plans (Stage 3)

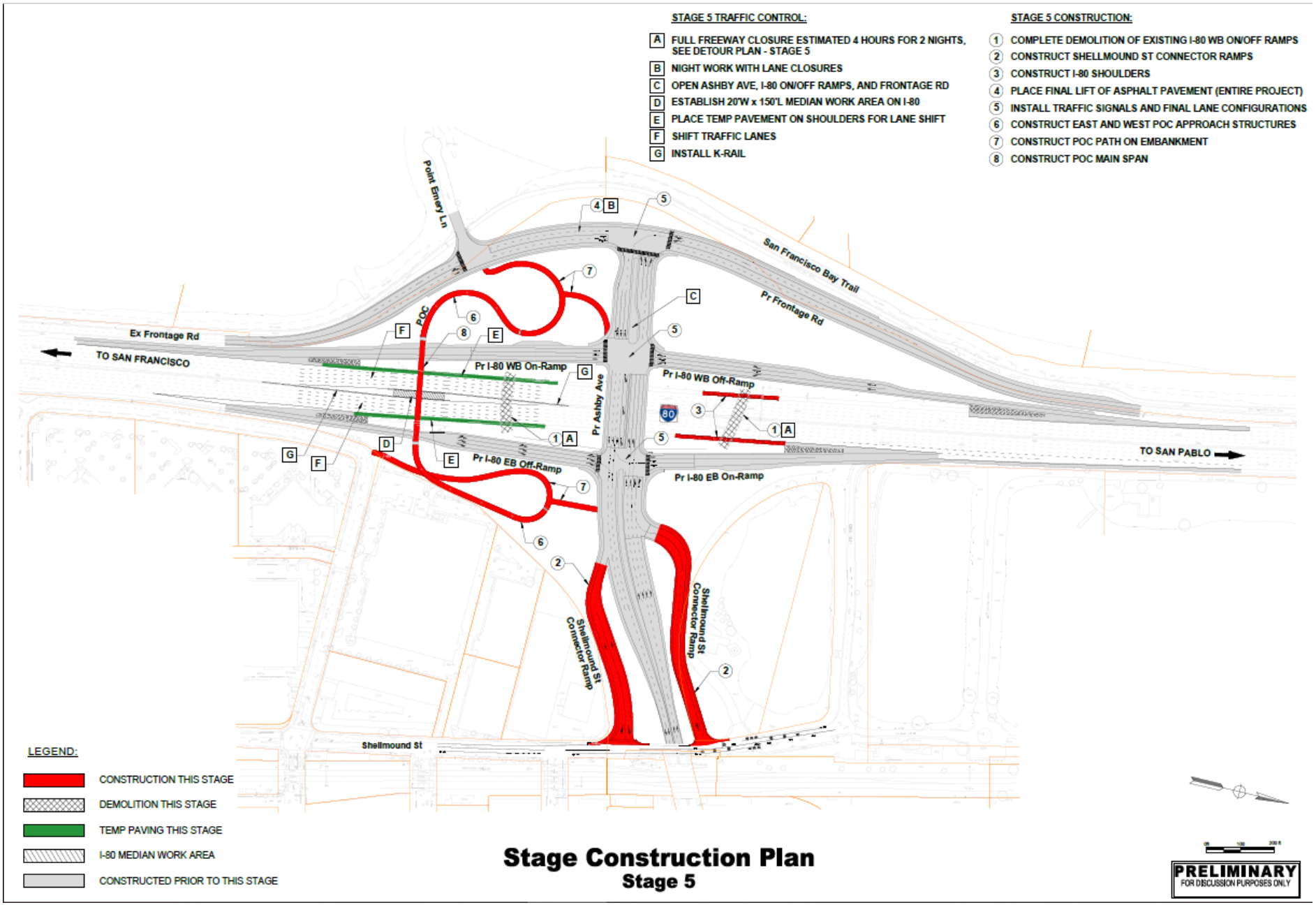
Figure **1.5-5**

Source: Circlepoint, 2021



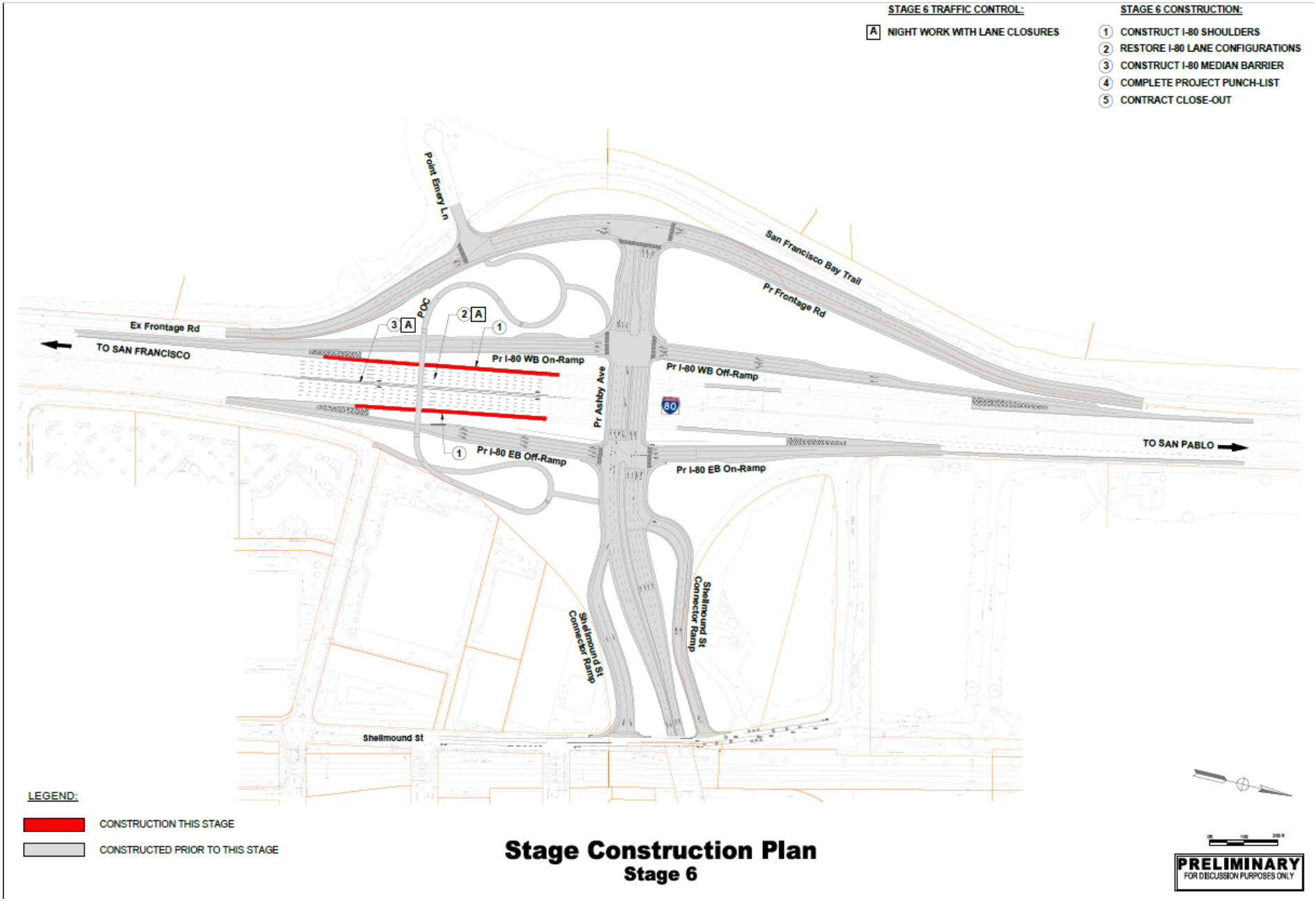
Ashby Staging Concept Plans (Stage 4) Figure **1.5-6**

Source: Circlepoint, 2021



Ashby Staging Concept Plans (Stage 5) Figure **1.5-7**

Source: Circlepoint, 2021



Ashby Staging Concept Plans (Stage 6)

Figure **1.5-8**

Source: Circlepoint, 2021

Construction Methods

Grading

The existing slopes at the connector ramp abutments would be re-graded using smooth, flowing contours to help integrate highway improvements with the surrounding environment. Grading would reduce erosion and maintain water quality by breaking the slope into smaller tributary areas that disperse runoff. Grading would be limited to slopes of 1V:4H (1 foot of vertical gain for every 4 feet distance). However, steeper slopes (1V: 2H) may be used at the proposed bridge abutments.

Demolition

Demolition would occur in stages over the course of approximately 20 months, allowing for construction of proposed project improvements prior to demolition of existing structures to minimize detours and delays to the extent feasible. Demolition work would include removal of existing connector ramp structures, abutments, columns, overhead sign foundations, retaining wall/barrier removal, clearing and grubbing, tree removal, pavement removal, and drainage systems removal.

Drainage and Water Quality

Existing drainage systems would be abandoned due to their poor integrity. New drainage pipe and inlet systems would be introduced to accommodate tributary areas within the ESL. Multiple pipes would be installed under I-80 through bore and jack installation. A new outfall would also be constructed, just south of Point Emery to replace the existing outfall north of Point Emery that is buried by the sediment accumulated in the area. The proposed outfall is shown on Figure 1.5-2. No work would be conducted at the UPRR/Ashby Avenue underpass just east of the area at the portal undercrossing, near the existing Caltrans pump station.

Right-of-Way Requirements

The Build Alternative would require acquisition of a single parcel in the northeast quadrant of the interchange near the KRE radio station building. The acquisition would be necessary for construction of the Bay Street connector to Ashby Avenue. Proposed improvements along Bay Street would require relocation of one of the three guy wires for the transmitting tower. Relocation of an existing driveway adjacent to Bay Road that provides access to the KRE property, may be required. The project team will work with the property owner in making the appropriate modifications. The right of way acquisition process would take place after completion of the project design. A permanent construction easement would also be required for maintenance of the retaining walls shown in Figure 1.5-2.

Vehicular Detours and Closures

Temporary mainline and ramp closures would be required during demolition and construction. In addition, West Frontage Road will also be temporarily closed between University Avenue and Powell Street while the new alignment is under construction. The I-80 mainline closures would occur at night for the placement of the pre-cast girders for the proposed Ashby overcrossing, demolition of the remaining original ramp structures over I-80 and false work erection and removal for the BPOC. All closures and detours will be advertised well in advance as part of the public information campaign and emergency/law enforcement will also be notified. The planned duration and staging of roadway closures and implementation of detours are discussed in Section 2.1.8, Traffic and Transportation/Pedestrian and Bicycle Facilities. The preliminary detour plans are shown in Figure 1.5-9, Figure 1.5-10, and Figure 1.5-11. These plans are subject to change during final design.

San Francisco Bay Trail Detour

During the construction of the new outfall area, a temporary detour around the construction area will be implemented to ensure the continuous access and function of the San Francisco Bay Trail. The West Frontage Road closure would not interfere with the use of the San Francisco Bay Trail. However, it would limit access to Point Emery via automobile and any waterborne vehicle launching at Point Emery during the temporary closure.

DETOUR PLAN - I-80 CLOSED FOR PRE-CAST GIRDER PLACEMENT

Preliminary Detour Concept (1 of 3)

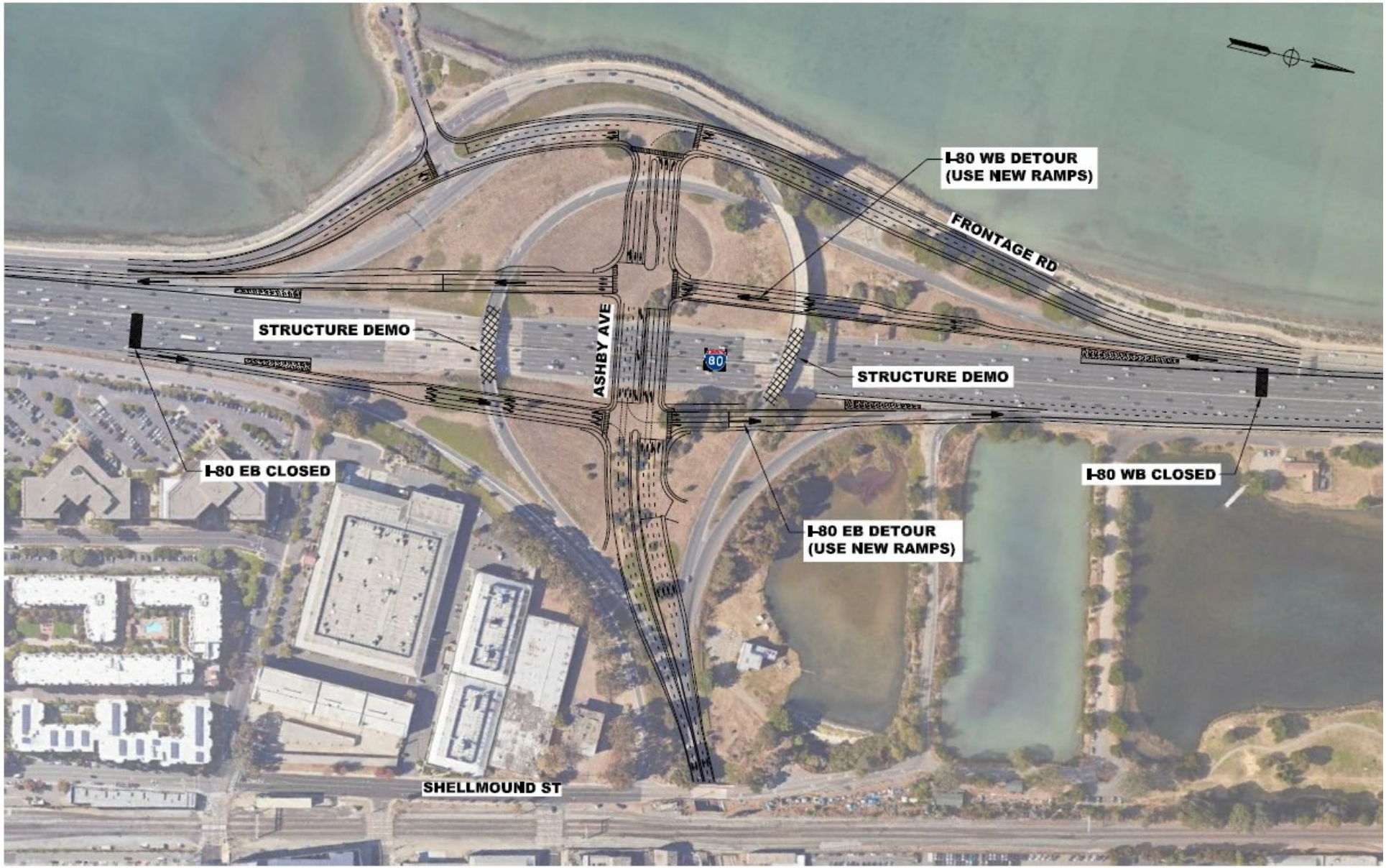
Figure **1.5-9**

Source: Circlepoint, 2021

DETOUR PLAN - I-80 WB ON/OFF RAMPS CLOSED AT ASHBY AVE

Preliminary Detour Concept (2 of 3) Figure **1.5-10**

Source: Circlepoint, 2021



Preliminary Detour Concept (3 of 3) Figure **1.5-11**

Source: Circlepoint, 2021

PROJECT FEATURES

This proposed project would include implementation of several standardized project measures that are employed on most, if not all, Caltrans projects and were not developed in response to any specific environmental impact resulting from the proposed project. The project features in Table 1.5-3 would be included in this proposed project. The descriptions provided in Table 1.5-3 are summaries. For the full text of these project features, refer to Appendix C.

Table 1.5-3 Project Features

Project Feature Number	Description
Standard Construction Specifications (CON)	
CON-1	Adherence to Caltrans' standard specifications for noise control, dust abatement, demolition, hazardous materials, and other good housekeeping measures and best management practices (BMPs) for the construction site.
CON-2	The contractor will be responsible for securing all work zones in and around the construction sites until completion of construction.
Communities and Community Facilities (COM)	
COM-1	Access to all properties for property owners and users will be maintained by the contractor during construction.
COM-2	Caltrans will coordinate relocation work with the affected utility companies to minimize disruption of services to customers in the area during construction.
COM-3	Caltrans will coordinate with emergency service providers and the public information office to avoid emergency service delays by ensuring that all providers are aware well in advance of lane closures.
COM-4	During the design phase of the project, prepare a TMP in accordance with Caltrans requirements and guidelines and in coordination with local agencies, service providers, local communities, business associations, and affected drivers.
COM-5	A public outreach program will be implemented throughout construction to keep the public informed of the construction schedule and scheduled parking and roadway closures, including detour routes and, if available, alternative parking.

Project Feature Number	Description
Aesthetics and Visual Resources (VIS)	
VIS-1	Existing vegetation will be preserved in place as much as possible by protecting existing vegetation outside the clearing and grubbing limits, placing high visibility temporary fencing around vegetation to be protected, and providing truck watering of vegetation when automated irrigation is interrupted by construction.
VIS-2	Fund required replacement planting through the parent roadway contract to be completed as a separate contract, (within 2 years of roadway completion,) with a three-year plant establishment period (PEP), unless the estimated cost is below $300,000 (then only one-year PEP).
VIS-3	Revegetation Planting Measures. All disturbed areas shall receive hydroseeded treatment of erosion control grasses, and if appropriate, locally native grasses.
VIS-4	Landscape Plantings. Use drought-tolerant plants, including California native species, as part of the planting palette where regionally appropriate.
VIS-5	Landscape Plantings. Plantings within the state right of way will follow the 1997 Caltrans Plant Setback and Spacing Guide.
VIS-6	Light and Glare. As directed by Caltrans, appropriate light and glare screening measures will be used at the construction staging areas including the use of downward cast lighting. Shielding will be used to the extent feasible for new lighting apparatuses within the project area. Lighting of the transportation facilities would be shielded and directed to only areas that required for operations and safety, to the maximum extent feasible.
VIS-7	Construction Impact Measure. Caltrans will use standard construction equipment and protocols for the Build Alternative, such as placing unsightly materials and equipment so that they are not visible within the forefront of highway corridor and local streets where feasible.
Cultural Resources (CUL)	
CUL-1	If cultural materials are discovered during construction, all earthmoving activity within and around the immediate discovery area will be diverted until a Caltrans qualified archaeologist is contacted to assess the nature and significance of the find.
CUL-2	If Caltrans Professionally Qualified Staff determines that cultural materials contain human remains, State Health and Safety Code

Project Feature Number	Description
	Section 7050.5 states that further disturbances and activities shall stop in any area or nearby area suspected to overlie remains. Caltrans' Cultural Resources Studies Office will contact the Alameda County Coroner.
Geology and Soil (GEO)	
GEO-1	With respect to worker safety during construction, OSHA requires employers to comply with hazard-specific safety and health standards. Pursuant to Section 5(a) (1) of OSHA, employers must provide their employees with a workplace free from recognized hazards likely to cause death or serious physical harm. Potential seismic-related hazards to workers during construction are expected to be less than substantial with compliance with the OSHA and Caltrans standard design and construction guidelines.
GEO-2	As part of final design, expansive soils shall be addressed through treatment or removal as designated on construction plans, to reduce the potential for structural damage.
GEO-3	Preparation of structure foundation reports and geotechnical design reports that incorporate the results of subsurface field work and laboratory testing to inform the final design of project structures.
Water Quality (WQ)	
WQ-1	Temporary construction site BMPs will be implemented during construction to prevent any construction materials or debris from entering storm drains or drainage ditches within the project vicinity.
WQ-2	Compliance with Caltrans MS4 permit, municipal regional permit (MRP), construction general permit (CGP), and other regulatory agency requirements.
WQ-3	The CGP, Caltrans, and local standards require the project's contractor to implement a Stormwater Pollution Prevention Program (SWPPP) to comply with the conditions of the CGP.
WQ-4	Prior to any soil disturbance, a Notice of Intent will be filed with the State Water Resources Control Board's (SWRCB) Storm Water Multiple Application and Report Tracking System.
WQ-5	Temporary impacts to water quality during construction will be avoided or minimized by implementing temporary construction site BMPs.
WQ-6	Dewatering activities and the clean water diversion will comply with Caltrans Standard Specifications and Field Guide to Construction Site Dewatering.

Project Feature Number	Description
WQ-7	Compliance with California Office of Emergency Services Hazardous Materials Incident Contingency Plan.
WQ-8	Drainage features, such as energy dissipation devices (e.g., flared end sections and tee dissipaters), will be considered at drainage outfalls to reduce the velocity and dissipate flows as they discharge from the culvert.
WQ-9	Rock slope protection will be placed at culvert outfalls and within drainage ditches and swales where velocities may result in drilling or scouring.
WQ-10	Permanent erosion control measures will be applied to all exposed areas once grading or soil disturbance work is completed as a permanent measure to achieve final slope stabilization.
WQ-11	Implementation of low-impact development measures for stormwater treatment controls. These measures include harvesting and use, infiltration, evapotranspiration, and biotreatment. Other conventional treatment measures (e.g., basins and vaults) are allowable under special conditions outlined in the permit.
WQ-12	Inclusion of nonstandard treatment measures such as the use of low flow pumps to convey runoff to a treatment facility where necessary. The final drainage design, selection of treatment BMP types and locations, and determination of impervious area treated will be refined during the design phase when detailed design information is developed.
Hazardous Wastes and Materials (HW)	
HW-1	Caltrans specification SSP 14-11.12 (2015B) will be included in the contract specifications and implemented during construction to contain any debris produced during removal of yellow thermoplastic and yellow paint.
Air Quality (AQ)	
AQ-1	Water or dust palliative shall be applied to the site and equipment as often as necessary to control fugitive dust emissions.
AQ-2	Measures to reduce PM_{10}, $PM_{2.5}$, and diesel particulate matter from construction including watering exposed surfaces, covering haul trucks, and reducing vehicle speeds on unpaved roads.
Noise and Vibration (NOI)	

Project Feature Number	Description
NOI-1	Standard Caltrans construction noise BMPs including use of mufflers, prohibiting unnecessary idling, and avoiding staging of construction equipment within 100 feet of residences.
NOI-2	Inspection of equipment by the contractor to ensure that all equipment onsite is working properly, in good condition, and effectively muffled.
NOI-3	Construction activities shall be minimized in the study area during evening, nighttime, weekend, and holiday periods.
NOI-4	Restrict the hours of vibration-intensive equipment or activities such as vibratory rollers so that impacts to study area users are minimal.
NOI-5	The Resident Engineer will be responsible to collect and respond to any complaints related to construction noise.
NOI-6	Truck loading, unloading, and hauling operations will be minimized so that noise and vibration are kept to a minimum through the study area to the greatest possible extent.
Biological Resources (BIO)	
BIO-1	The project limits near all environmentally sensitive areas (riparian area of Radio Tower Pond and the San Francisco Bay) will be delineated with high visibility fencing to prevent contractors from entering sensitive areas.
BIO-2	Standard water quality protection BMPs to prevent any off-site movement of construction materials, sediment, or debris.
BIO-3	Development of and adherence to a Stormwater Pollution Prevention Program (SWPPP).
BIO-4	Wetlands Protection: A water quality inspector will inspect the site after a rain event to ensure that stormwater BMPs are adequate.
BIO-5	Before commencing construction, a qualified Caltrans-approved biologist will conduct a nesting birds education program for all project personnel.
BIO-6	Trees, shrubs, and native vegetation will be preserved in place to the extent practicable.
BIO-7	The work in San Francisco Bay will be limited to the smallest area possible.

Project Feature Number	Description
BIO-8	The names and qualifications of biological monitors will be submitted for agency approval prior to initiating construction.
BIO-9	Before construction of the new outfall, a qualified Caltrans-approved biologist will conduct an educational program for all relevant project personnel. Species to be covered will include green sturgeon and special-status salmonids.
BIO-10	Invasive Species: If species ranked by the California Invasive Plant Council as moderate- or high-priority invasive weeds are disturbed or removed during construction-related activities, the contractor will contain the plant material and dispose of it in a manner that will not promote the spread of the species.
BIO-11	Invasive Species: The landscaping included in the project will not use species listed on the California list of invasive species.
Traffic and Transportation (TRA)	
TRA-1	A Transportation Management Plan (TMP) would be developed as part of the project construction planning phase.

COMPATIBILITY WITH PLANNED AND PROGRAMMED PROJECTS

The proposed project has been developed in close coordination with other programmed projects within the I-80 corridor. The proposed project would not preclude other planned improvements within the project area, such as the conceptually planned Vista Park. The proposed project does not preclude future planned improvements within the corridor and is compatible with other improvements within the corridor.

1.5.2 NO BUILD (NO ACTION) ALTERNATIVE

Under the No Build Alternative, the existing I-80/Ashby Avenue connector ramps would not be demolished and none of the proposed project features described under the Build Alternative would be constructed. The existing transportation facilities within the project area would remain unchanged except for planned and programmed improvements and the existing deficiencies described under Section 1.3.2, Need, would persist.

The No Build Alternative is the baseline for comparing environmental impacts under NEPA.

1.5.3 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER DISCUSSION

As previously discussed, the proposed project has been contemplated since the 1980s in some form. As a result of its lengthy history, many alternatives have been considered. This section discusses the previously considered alternatives for both the interchange design and BPOC design. Table 1.5-3 summarizes all alternatives that have been considered but eliminated from further discussion.

Table 1.5-3 Summary of Eliminated Alternatives

Alternative	Reason for Elimination
Interchange Design Concepts	
Single Point Diamond (Alt. 1)	• More costly than project without any added benefit or advantage of proposed project
Diverging Diamond (Alt. 2)	• Traffic operations • Traffic safety • Large development footprint
Signal Only (Alt. 3)	• Large footprint of the loop onramp connecting to westbound I-80 • Limited flexibility and tight fit of the roundabout connection at West Frontage Road
2006 SPSR Single Roundabout (Alt. 4)	• Did not meet design year projected traffic operations • Provided no safety performance benefits
1999 PSR Modified Partial Cloverleaf plus La Coste St. On-ramp (Alt. 5)	• Eliminated due to infeasibility of La Coste on-ramp
1999 PSR Ramps Only (Alt. 6)	• Did not meet purpose and need regarding Shellmound St. • Did not address connectivity for bicyclists and pedestrians
1999 PSR Modified Partial Cloverleaf (Alt.7)	• Value Analysis determined that the 1999 PSR alternatives should be further evaluated and that a roundabout design should be considered
West Frontage Road Connection	
Frontage Road Roundabout Options A and B	• Less functional than proposed project • Larger footprint
Frontage Road Roundabout Options C, D, and E	• Tight turning radii • Substantial walls
I-80 Bicycle/Pedestrian Crossing Designs	
Zero Conflict Undercrossing Options A and B (Alt. 1)	• Very limited design area and tight fit
BPOC Truss Design Option (Alt. 2)	• Industrial appearance does not match with design theme of crossings along this section of I-80

Alternative	Reason for Elimination
Interchange Design Concepts	
2009 BPOC Alternatives 2E, 1D and 1E (Alt. 3)	• New interchange design was not considered

The I-80/Ashby Interchange has been evaluated for improvements on two occasions before the proposed project, in 1999, and again in 2006. The purpose and need for the proposed project has not changed much over the years and has always included a direct connection to Shellmound Street in order to balance the traffic at both Ashby Avenue and Powell Street interchanges. An additional purpose of improving bicycle and pedestrian access across I-80 in the cities of Emeryville and Berkeley had also been previously included.

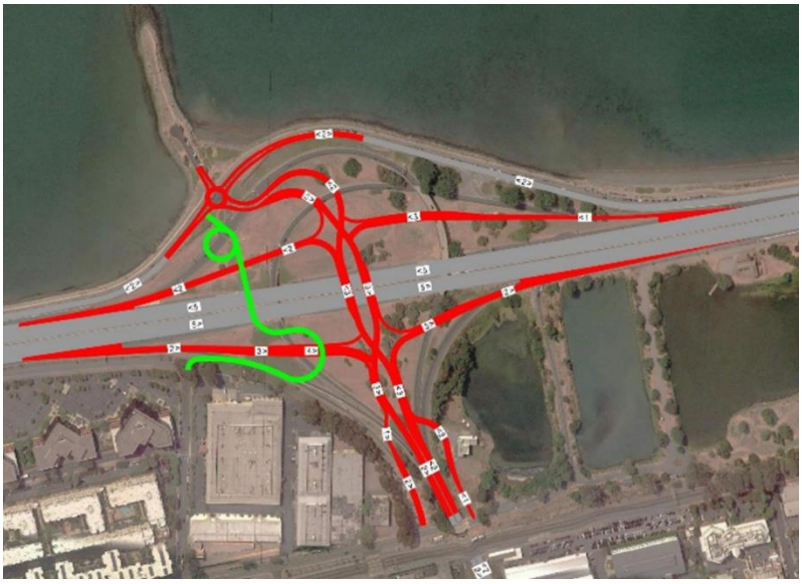
SINGLE POINT DIAMOND ALTERNATIVE

While the intersection control evaluation showed a single point diamond interchange would function very similarly to the proposed project (Tight Diamond, as shown in Figure 1.5-13), the drawbacks of the alternative were that it took up more space, limited the design of the connection with West Frontage Road and was considerably more costly without any added benefit or advantage of the Tight Diamond. As a result, it was dropped from further consideration with concurrence from the project development team.

DIVERGING DIAMOND ALTERNATIVE

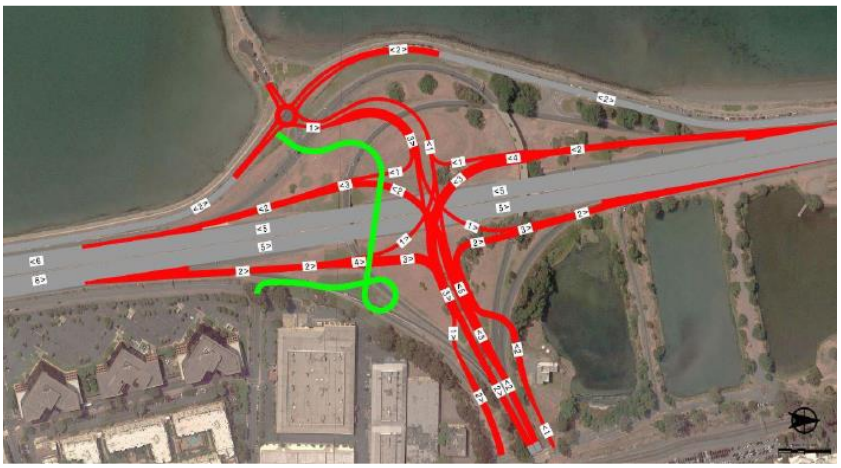
While the Intersection Control Evaluation analysis showed that the Diverging Diamond Alternative met the desired intersection controls, it was dropped from further consideration based on traffic operational, safety and footprint considerations (shown in Figure 1.5-12).

Figure 1.5-12 Diverging Diamond Alternative



Source: Value Analysis, 2020

Figure 1.5-13 Single Point Diamond Alternative



Source: Value Analysis, 2020

Signal Only Alternative

The Signal Only Alternative is a variant of the original 1999 Alternative 2 with a roundabout at West Frontage Road. The Signal Only Alternative was dropped due to the large footprint of the loop onramp connecting to westbound I-80 and the limited flexibility and tight fit of the roundabout connection at West Frontage Road.

OLDER ALTERNATIVES

In 1999, three build alternatives were included in the SPSR. Alternative 1 entailed only adding ramps and was dropped because it did not meet the purpose and need or address the connectivity gaps between I-80 and Shellmound Street. It also did not address the bicycle/pedestrian access from the east side of I-80 to the San Francisco Bay Trail and Point Emery on the west side of I-80. Therefore, it was eliminated from further evaluation.

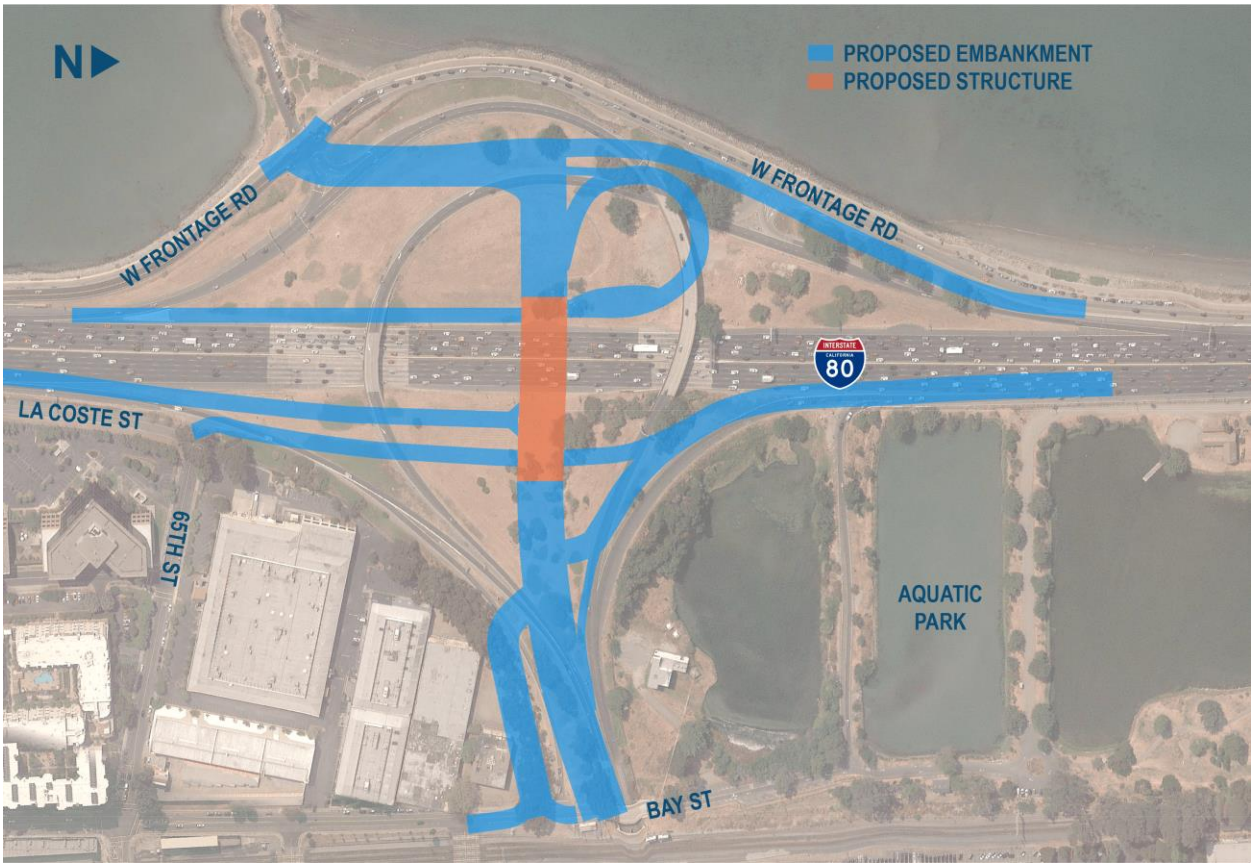
Alternative 2 entailed the reconstruction of the interchange to a modified partial cloverleaf and diamond interchange and is shown in Figure 1.5-14.

Figure 1.5-14 1999 PSR Alternative 2

Source: 1999 I-80 Ashby PSR

Alternative 3 was the same as Alternative 2 but with the added separate northbound onramp from 65th Street. Given the similarities between Alternative 2 and 3, the Value Analysis recommended that Alternative 3 be replaced by an alternative featuring roundabouts, as shown in Figure 1.5-15.

Figure 1.5-15 1995 PSR Alternative 3



Source: 1999 I-80 Ashby PSR

Alternative 2 and a new roundabout alternative were included in the 2006 Supplemental PSR. The 2006 roundabout alternative included three roundabouts, as shown in Figure 1.5-16.

The Roundabout Alternative included the following major modifications to the existing 1-80/Ashby Interchange:

- A new connection at Shellmound Street and the eastern roundabout. This connection would provide the access to both EB and WB I-80 on-ramps from Shellmound Street.
- A new bridge over 1-80 with barrier separated pedestrian-bike path
- An eastbound 1-80 diagonal on- and off-ramp modifications with a CHP enforcement area and ramp metering at the on-ramp. No HOV bypass lane would be provided.
- A two-lane roundabout on the east side of I-80 (northbound)
- A single lane roundabout on the west side of 1-80 (southbound)

- A loop on-ramp with a CHP enforcement area and ramp metering serving NB Ashby to WB 1-80. No HOV bypass lane would be provided.
- A WB I-80 diagonal off-ramp
- A single lane roundabout serving West Frontage Road access to/from 1-80 and Ashby.
- The demolition and removal of existing I-80/Ashby ramps and structures

Figure 1.5-16 2006 Roundabout Alternative/Signal Only Roundabout Alternative

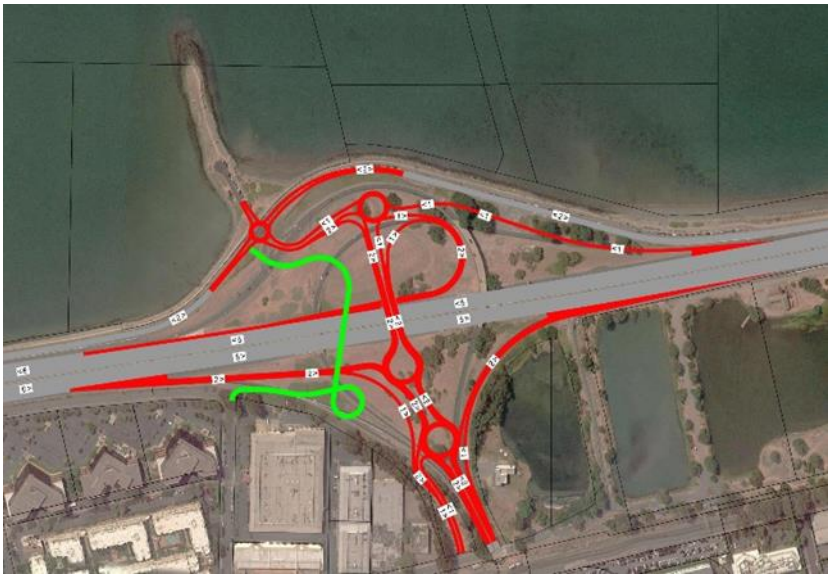
Source: Value Analysis, 2020

The proposed project was delayed due to funding availability. When the proposed project was re-initiated additional designs for the interchange were considered and screened for functionality and efficiency.

2006 Roundabout Alternative

The 2006 Roundabout Alternative (shown in Figure 1.5-16) was dropped from further consideration because the 2045 forecast traffic volumes require at least 4 circulating roundabout lanes, it did not meet design year projected traffic operations, and it provided no safety performance benefits.

Figure 1.5-17 Signal as Roundabout Alternative



Source: Value Analysis, 2020

The Signal as Roundabout Alternative (Figure 1.5-17) was dropped from further consideration for the same reasons as the 2006 Roundabout Alternative: the 2045 forecast traffic volumes require at least 4 circulating roundabout lanes, it did not meet design year projected traffic operations, and it would not have provided safety performance benefits.

The intersection control analysis (Kittelson 2020) concluded that three alternatives should be considered: 1) the tight diamond, 2) single point diamond, and 3) the diverging diamond configurations. These were further evaluated and are discussed below.

Intersection Control Evaluation Screening

An intersection control evaluation was conducted in support of this project (Kittelson 2020) . The purpose of the analysis was to test the validity of interchange concepts presented in the 2006 SPSR and to consider other potential interchange designs. In addition, the original barrier separated design for the BPOC would not meet modern Americans with Disabilities Act (ADA) compliance standards, so the design approach for the BPOC was also revisited by Emeryville in 2009 as a separate BPOC project, and by Alameda CTC and Caltrans as part of the current project. The additional designs for the interchange configuration and BPOC are discussed separately below. The green line represents the approximate BPOC alignment.

CONNECTIONS WITH WEST FRONTAGE ROAD DESIGN OPTIONS

Frontage Road Design Variations (for Alternatives 1 and 2)

For the project design, variations of the Ashby Avenue connection with the Frontage Road to the west of the interchange have been developed. The variations are shown below as Options A through E. Options A and B both connect to a roundabout and connect with the existing Frontage Road. Option C connects with the existing Frontage Road through an S-curve ramp. Options D and E propose realignment of the Frontage Road parallel and adjacent to the southbound I-80 on and off-ramps.

The realignment allows for more usable open space on the west side of the interchange but requires additional walls to support the Frontage Road and ramp. The Frontage Road Variation Options A through E are described and shown below. All design variations are identical on the east side of the of the interchange with the connections to Shellmound Street, Bay Street, and the connection of Ashby Avenue at the UPRR undercrossing. Design Options A and B were eliminated because the T-intersection option functioned just as well and required far less space. Design Options C through E were dropped due to turning design requirements and turning radii and the substantial walls needed for Option D and E.

Roundabout Options

Roundabout Option A

The Option A Frontage Road design variation includes a western extension of Ashby Avenue to a roundabout that has two intersections with the existing Frontage Road on the north and south sides of the roundabout. Option A is shown below in Figure 1.5-18.

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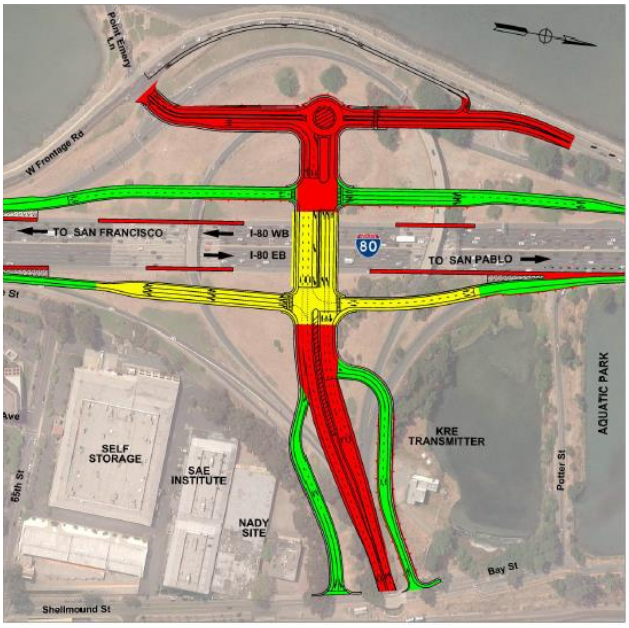
Figure 1.5-18 Roundabout Option A

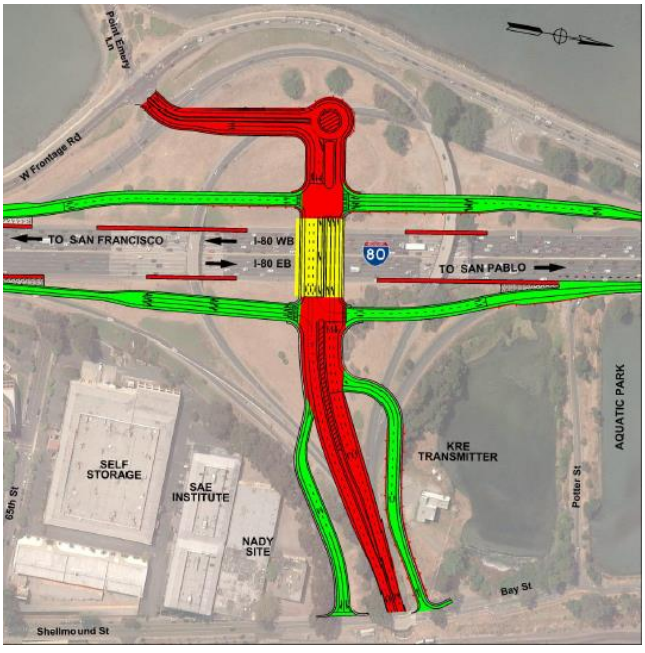


Source: TY Lin, 2021

Roundabout Option B

The Option B Frontage Road design variation is similar to Option A and also includes a roundabout. However, this variation has only one access point to the existing Frontage Road on the south side of the roundabout. Option B is shown below in Figure 1.5-19.

Figure 1.5-19 Roundabout Option B

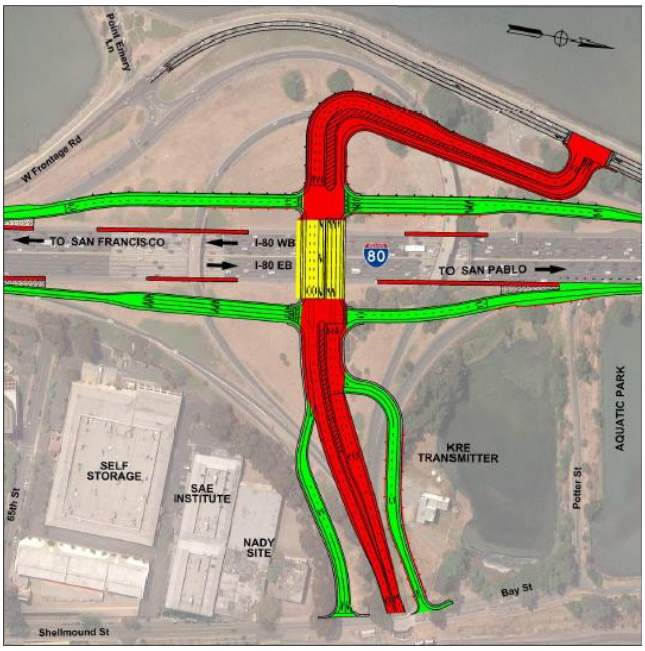


Source: TY Lin, 2021

S-Curve Ramp Option

The Option C Frontage Road design variation includes an S-curve ramp which connects to the existing Frontage Road on the north side of the Ashby Avenue extension. Option C is shown below in Figure 1.5-20.

Figure 1.5-20 S-Curve Ramp Option



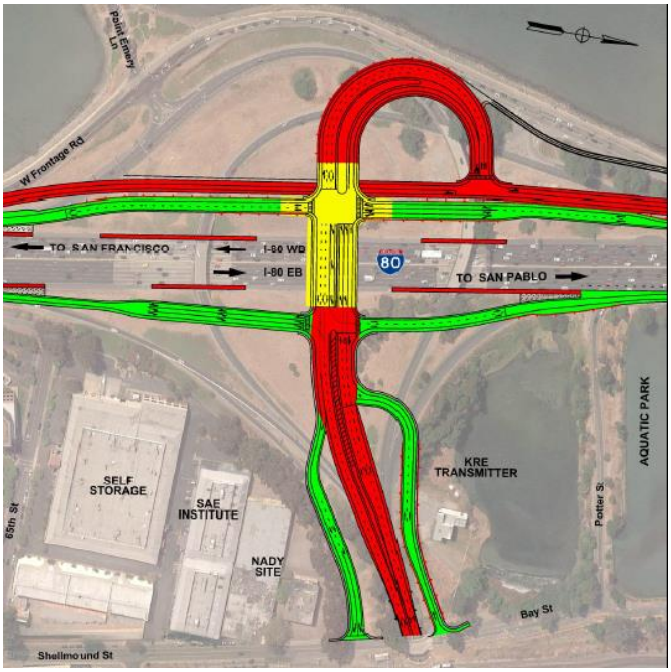
Source: TY Lin, 2021

Frontage Road Realignment Options

Loop Ramp

The Option D Frontage Road design variation includes the complete realignment of the Frontage Road to the east to be adjacent to the southbound on and off-ramps. The realignment includes a loop ramp to connect with the realignment of the Frontage Road and an undercrossing of the extension of Ashby Avenue. Option D is shown below in Figure 1.5-21.

Figure 1.5-21 Loop Ramp Option

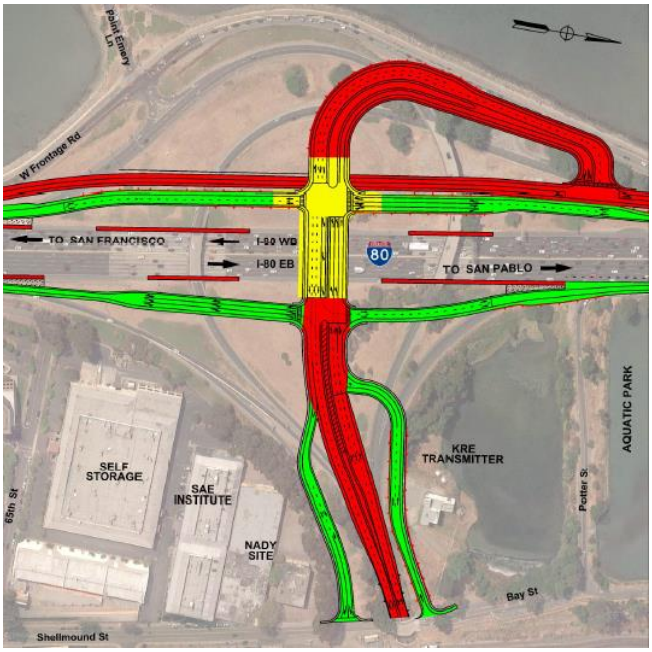


Source: TY Lin, 2021

Extended Loop Ramp

The Option E Frontage Road design variation is similar to Option D, but instead of a tight loop connection with Frontage Road, it is an elongate connection meeting the realigned Frontage Road much further north. Option E is shown below in Figure 1.5-22.

Figure 1.5-22 Extended Loop Ramp



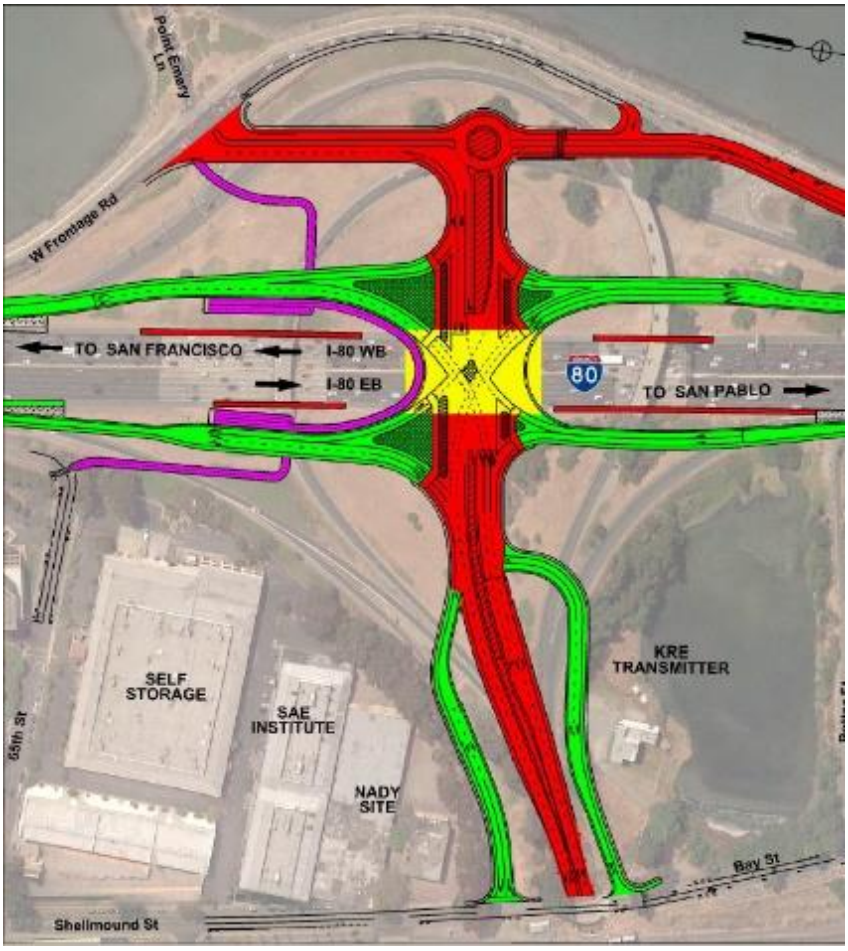
Source: TY Lin, 2021

BICYCLE/PEDESTRIAN OVERCROSSING

ZERO CONFLICT SWITCHBACK/RAMP UNDERCROSSINGS

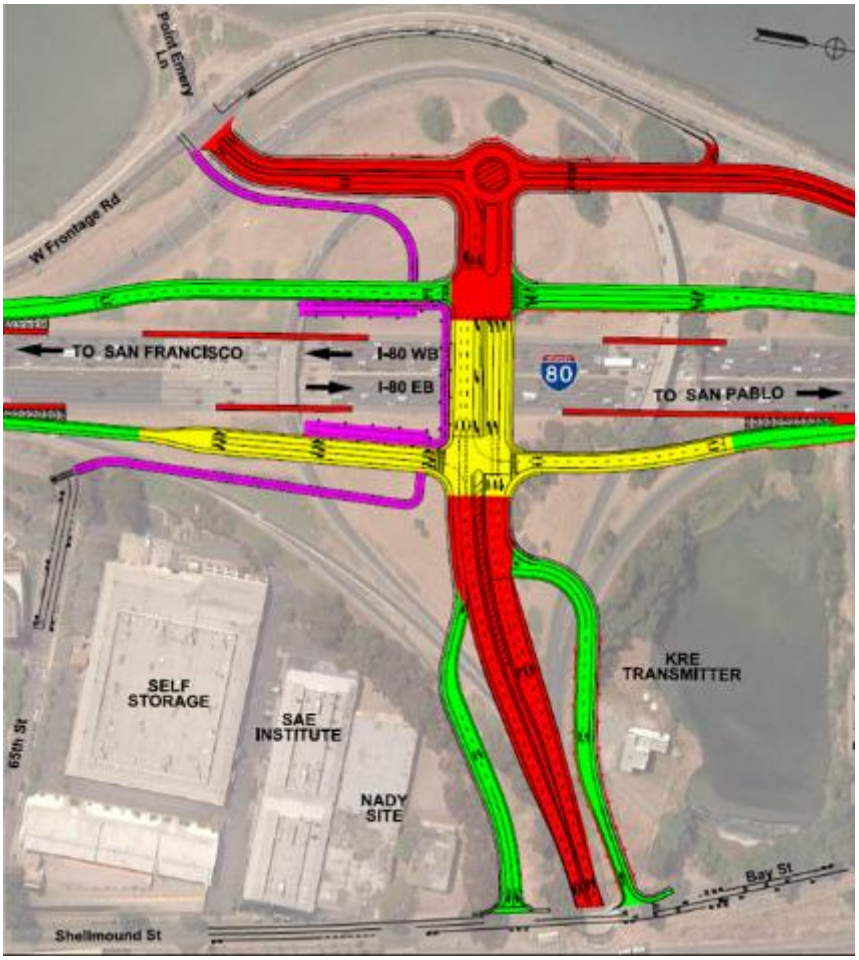
This variation includes switchbacks (to meet ADA grade requirements) on the east and west sides of I-80 approaching the south side of the Ashby Avenue bridge structure, as shown in Figure 1.5-23 and Figure 1.5-24. The access points are from 65th Street and the Frontage Road. The alignment of the zero conflict concept for the interchange alternatives is shown below in purple. The undercrossing variations were dropped from further consideration because the BPOC structure provided a more efficient route while still providing zero conflicts between motorists and bicyclists/pedestrians.

Figure 1.5-23 Zero Conflict Option A



Source: TY Lin, 2021

Figure 1.5-24 Zero Conflict Option B



Source: TY Lin, 2021

Current Bicycle/Pedestrian Overcrossing Design - Truss Design Option

As part of the current design process, a truss design option was considered for the BPOC. As previously discussed, it was eliminated due to its inconsistency with the more graceful cabled-arch theme that is characteristic of the bridges and overcrossings of the Emeryville and Berkeley area. The industrial appearance of the truss did not match the more context sensitive design options of the butterfly and basket-handles arches, nor did it accomplish the neutral and unassuming appearance of the box girder. Therefore, it was dropped from further consideration due to its inconsistent aesthetics. The truss design option is shown below in Figure 1.5-25.

Figure 1.5-25 Truss Design Option

2009 Emeryville BPOC Design Effort

In 2009, Emeryville independently commenced a project to examine BPOC design. A PSR was developed showing three build alternatives with three different alignments, as shown in Figure 1.5-26, Figure 1.5-27, and Figure 1.5-28. All the BPOC alignments were located south of the I-80 Interchange and the alignment of the interchange assumed a bridge and roundabout design at the interchange, and the southbound I-80 onramp and West Frontage Road were assumed to remain in their existing locations. These assumptions were used so the BPOC design could move forward independently of the interchange design. The three designs were evaluated and were used to inform the currently proposed design of the BPOC. Alternative 2E was most like the current design. However, the current design is being proposed along with the interchange design. The realignment of the ramps and frontage road have been considered in the current BPOC design. Therefore, the BPOC is much closer to the proposed bridge connection to Ashby Avenue and I-80.

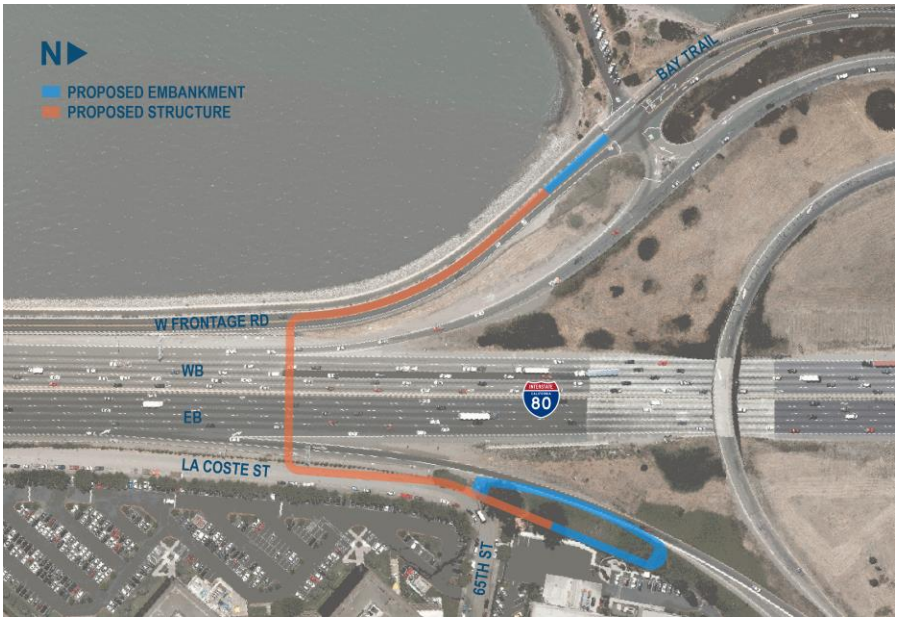
Figure 1.5-26 BPOC Alternative 2E

Source: 2009 Emeryville BPOC PSR

Figure 1.5-27 BPOC Alternative 1D

Source: 2009 Emeryville BPOC PSR

Figure 1.5-28 BPOC Alternative 1E



Source: 2009 Emeryville BPOC PSR

1.6 PERMITS AND APPROVALS NEEDED

Table 1.6-1 identifies the permits and approvals that would be required for project construction.

Table 1.6-1 Permits and Approvals Needed

Agency	Permit/Approval	Status
Regional Water Quality Control Board	Section 401 water quality certification	Issued during the final design phase
United States Army Corps of Engineers	Section 404, Clean Water Act, Permit – Nationwide Section 10, Rivers and Harbors Act, Authorization	Issued during the final design phase
National Marine Fisheries Service (NMFS)	Letter of concurrence	Issued before completion of final environmental document
California Department of Fish and Wildlife	1602 Lake and Streambed Alteration Agreement	Issued during the final design phase
State Historic Preservation Officer (SHPO)	Concurrence on Eligibility Determinations	SHPO Letter of Concurrence received on November 3, 2020. No Register-eligible resources present.
Metropolitan Transportation Commission Air Quality Conformity Task Force	Regional air quality conformity	MTC Task Force reviewed the proposed project on July 23, 2020, and found that the proposed project is not a Project of Air Quality Concern.
Federal Highway Administration	Concurrence on air quality conformity determination	FHWA will provide air quality conformity concurrence prior to issuance of the final environmental document and Finding of No Significant Impact.
San Francisco Bay Conservation and Development Commission	Permit	Permit application to be filed during final design

Agency	Permit/Approval	Status
United States Coast Guard	Notification	During the design phase

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2.0 AFFECTED ENVIRONMENT, ENIVIRONMENTAL CONSEQUENCES, AND AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

As part of the scoping and environmental analysis carried out for the proposed project, the following environmental issues were considered but either found not to be present in the study area or the Build Alternative would have no adverse impact. As a result, there is no further discussion about these issues in this document (see Table 2.0-1).

Table 2.0-1 Topics Considered But Determined Not to be Relevant

Environmental Issue	Description
Farmlands/Timberlands	The study area is not located near any prime farmland, unique farmland, or land of statewide or local importance according to the California Department of Conservation's Farmland Mapping and Monitoring Program. The study area is not located near any land protected under the Williamson Act.
Growth	Project improvements proposed under the Build Alternative are freeway operational improvements that would not increase capacity of Interstate 80, create new access to local communities, or directly or indirectly induce growth. Improvements would indirectly support improved access to Emeryville and Berkeley where population growth is expected.
State Scenic Highways	There are no officially designated state scenic highways or eligible highways within the visual study area (VSA).
Wild and Scenic Rivers	The project area is not located near any wild and scenic rivers according to the National Wild and Scenic Rivers System.

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2.1 HUMAN ENVIRONMENT

2.1.1 EXISTING AND FUTURE LAND USE

This section evaluates impacts associated with land use and planning that could occur as a result of the proposed project. Sources of information used to prepare the analysis include:

- City of Emeryville General Plan (2019)
- City of Berkeley General Plan (2001)
- City of Emeryville Zoning Ordinance
- City of Berkeley Zoning Ordinance
- Plan Bay Area (2050)
- Alameda County General Plan (2019)
- *Community Impact Assessment* (October 2021) prepared for the proposed project

AFFECTED ENVIRONMENT

Existing Land Uses and Zoning

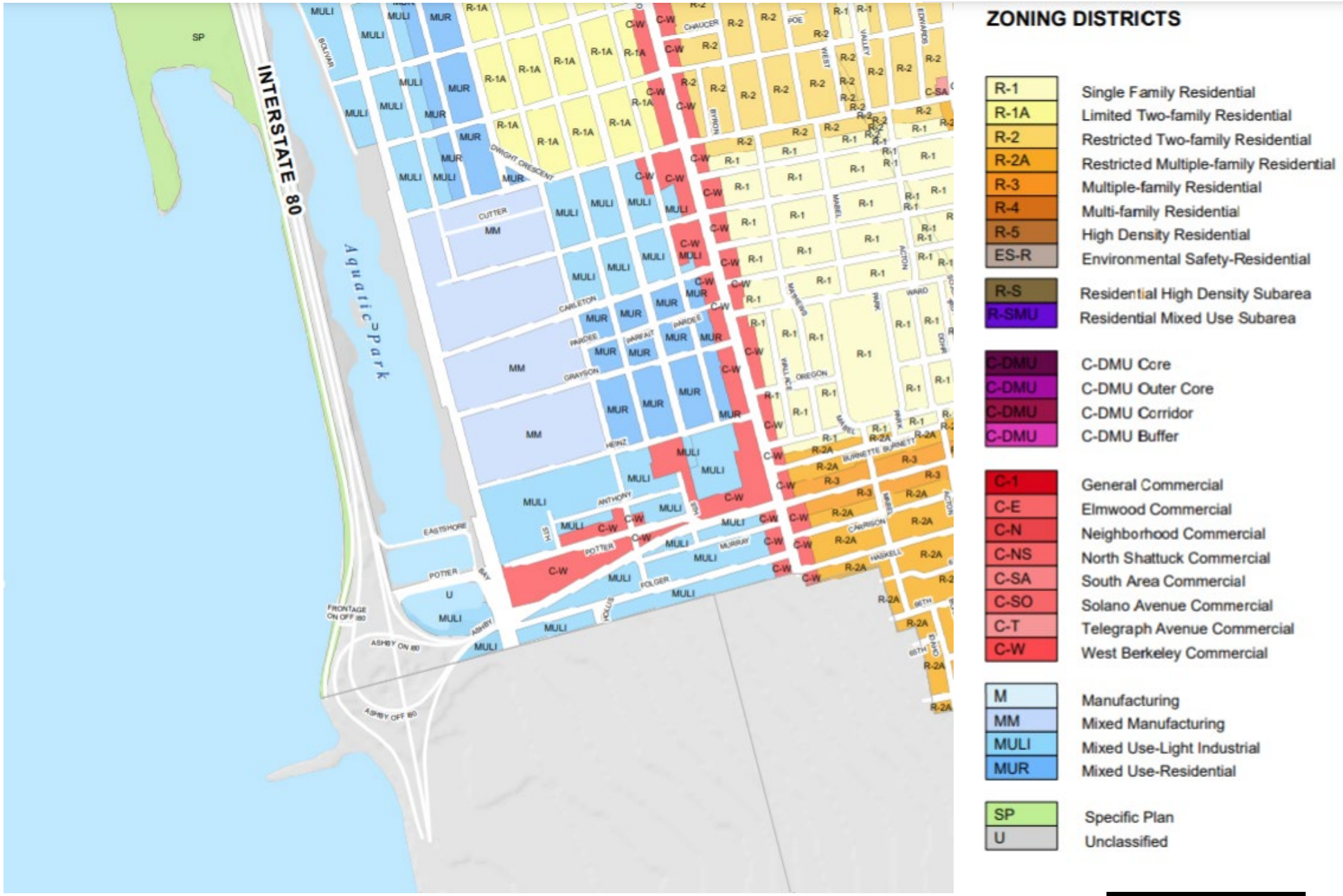
Aside from transportation uses associated with the interchange itself, there are two primary land use classifications within the land use study area: parks/open space and commercial (Figure 2.1-1 and Figure 2.1-2). Park lands are located on the west side of the interchange (San Francisco Bay Trail and Point Emery) and to the northeast (Aquatic Park in Berkeley). Commercial uses are located to the southeast of the interchange in Emeryville. This portion of the project area is zoned as “Mixed Use with Residential” and “Mixed Use with Non-Residential.” Other land uses within the land use study area include a private college and an apartment complex. The apartment complex is located at 6400 Christie Avenue, less than 100 feet southeast of the interchange in Emeryville. There are no farmlands present in the area.

Planned Developments

A majority of Berkeley’s planning area is currently built out; however, the areas of Berkeley near the interchange are primarily parkland and open space. Berkeley Aquatic Park borders the northeast side of the project area. Similarly, the area west of the interchange including the San Francisco Bay Trail and Point Emery is characterized by

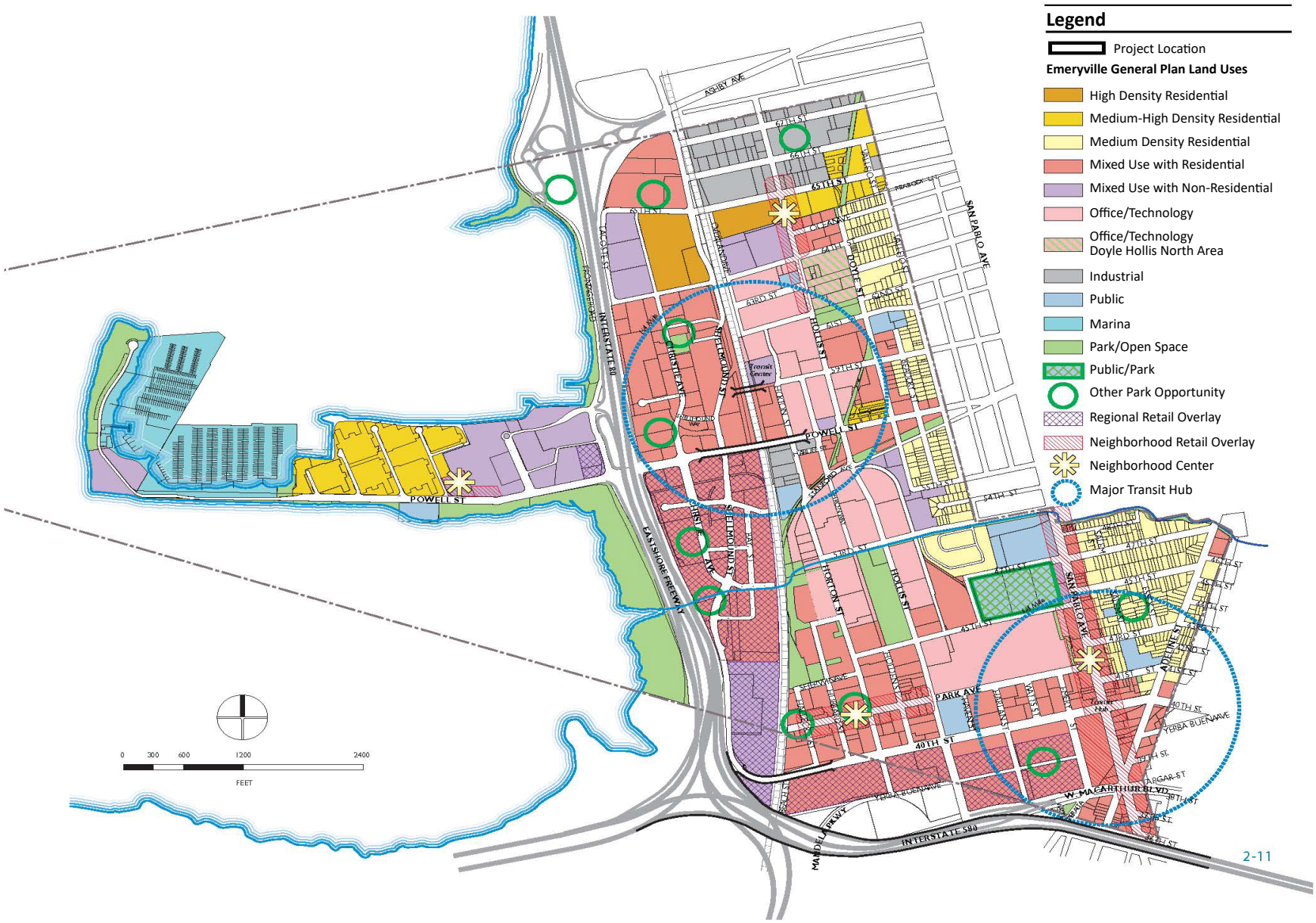
park and trail uses, as well as sensitive bay lands. None of these areas are available for development.

According to the Emeryville General Plan, land use goals include redevelopment of existing underutilized sites due to the scarcity of vacant land. The majority of planned infill development projects in Emeryville are residential (single-family, multifamily, mixed-use and live/work). This includes the planned development of approximately 186 residential units at 6701 Shellmound Street (the “Nady Site”), located 250 feet east of the project area in Emeryville. Other planned projects near the project area include the redesign and expansion of Christie Park, located approximately 0.3 mile to the south on Christie Avenue.



Berkeley Land Use Map Figure **2.1-1**

Source: Circlepoint 2020, City of Berkely 2019



Emeryville Land Use Map Figure **2.1-2**

Source: Circlepoint 2020; City of Emeryville 2019.

ENVIRONMENTAL CONSEQUENCES

No Build Alternative

Under the No Build Alternative, no changes would be made to the interchange within the project area. The No Build Alternative would not conflict with existing or proposed land uses. Therefore, the No Build Alternative would have no effect on land use.

Build Alternative

Permanent Operational Impact

The Build Alternative would alleviate congestion, improve multi-modal access, and support implementation of local and regional land use and transportation plans. The Emeryville and Berkeley general plans identify the interchange as an area that could benefit from improved circulation and enhanced mobility. Additionally, the Emeryville General Plan identifies the need for a bicycle/pedestrian overcrossing (BPOC) on the south side of the interchange. The Metropolitan Transportation Commission (MTC) has also included the proposed project in the Regional Transportation Plan (RTP).

The project would promote the implementation of local general plans and regional plans. The proposed project would not require or result in changes in existing land use patterns in the surrounding area. The proposed project would require acquisition of portions of a disused parking lot associated with the KRE radio station building for the construction of the Bay Street connector to Ashby Avenue and relocation of the driveway. The operation of the KRE radio station would not be affected by the property acquisitions. Based on the above, the Build Alternative would not result in an adverse effect related to existing or future land use.

Temporary Construction Impact

Construction activities and construction staging areas may result in traffic inconveniences for local roadway users and surrounding businesses. Temporary intersection closures would be required during construction, and detour routes would be provided within each jurisdiction (refer to AMM TRA-1 through AMM TRA-5 in Appendix C for a full description of these detours). Given that closures would be temporary and detour routes would be provided, construction of the Build Alternative would not result in an adverse effect related to land use.

Cumulative Impacts

Cumulative impacts arise due to the combination of impacts from past, present, and foreseeable future projects in the region. Past and future development within Emeryville and Berkeley consists of mostly commercial and residential projects. As previously

discussed, none of the areas directly west or northeast of the project area in Berkeley are proposed for development. Projects proposed within Emeryville to the southeast of the interchange would be redevelopment or infill development consistent with local land use patterns. The proposed project is accounted for in applicable plans and regulatory documents locally and within the region. The proposed project would be consistent with applicable land use goals, policies, and objectives of each jurisdiction's General Plan, as demonstrated in 0. Therefore, the proposed project would not result in a considerable contribution to a significant cumulative impact related to land use.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Project Features

No project features would be required to help minimize impacts.

Avoidance and Minimization

No avoidance, minimization, or mitigation measures would be required.

Mitigation Measures

No mitigation would be required.

2.1.2 CONSISTENCY WITH REGIONAL AND LOCAL PLANS AND PROGRAMS

AFFECTED ENVIRONMENT

This section identifies existing regional, local, and area plans and policies that apply to the study area. Future growth and development in the study area are guided by land use policies and programs set forth in the following planning documents. The proposed project's consistency with these planning documents and the policies therein is addressed in Table 2.1-1.

Local Regulations

Plan Bay Area

Plan Bay Area 2050 is an updated long-range RTP and Sustainable Communities Strategy for the nine-county San Francisco Bay Area. This document discusses how the Bay Area will grow over the next two decades and identifies transportation and land use strategies to enable a more sustainable, equitable and economically vibrant future.

Alameda County General Plan

The Alameda County General Plan is a long-range policy document approved by the Board of Supervisors to guide physical, economic, and environmental growth. State law requires the County to have a General Plan which contains seven elements: Land Use; Circulation; Housing; Open Space; Conservation; Safety and Noise. The plan expresses the County's vision for the future and is the roadmap for achieving the community's desired quality of life.

City of Berkeley

City of Berkeley General Plan

The portion of the project area north of Ashby Avenue, is within the City of Berkeley. Land uses in this area are governed by the City of Berkeley's General Plan. The Berkeley General Plan is the comprehensive planning document which governs development within the City. The plan sets forth goals, policies, and programs for the growth and development of Berkeley.

City of Berkeley Zoning Ordinance

The Berkeley Zoning Ordinance is an evolving set of regulations that define how property in specific zones within Berkeley can be used. The purpose is to divide a municipality into residential, commercial, and industrial districts or zones.

Emeryville

Emeryville General Plan

Most of the project is in Emeryville. In these areas, the surrounding land uses are governed by the City's General Plan. The Emeryville General Plan is the comprehensive planning document that governs development within Emeryville

Emeryville Zoning Ordinance

The City of Emeryville Zoning Ordinance is an evolving set of regulations that define how property in specific zones within Emeryville can be used. The purpose is to divide a municipality into residential, commercial, and industrial districts or zones.

ENVIRONMENTAL CONSEQUENCES

The Build Alternative's consistency with relevant local plans and policies is discussed in Table 2.1-1. The No Build Alternative's consistency is also discussed for comparison.

Table 2.1-1 Consistency with State, Regional, and Local Plans and Programs

General Plan Policy	Build Alternative	No Build Alternative
Regional Transportation Plan	Consistent. The proposed project is listed in the Regional Transportation Plan (RTP).	Not Consistent. Under the No Build Alternative, the planned project in the RTP would not be implemented.
Plan Bay Area	Consistent. The proposed project is listed in Plan Bay Area's assumptions for planned roadway improvements.	Not Consistent. Under the No Build Alternative, this anticipated road improvement project would not be implemented.
Caltrans Complete Streets		
To ensure that travelers of all ages and abilities can move safely and efficiently along and across a network of complete streets.	Consistent. The Build Alternative includes enhancements that would provide safe mobility for all users, including bicyclists, pedestrians, transit vehicles, truckers, and motorists.	Not Consistent. Under the No Build Alternative, planned improvements to the existing interchanges would not occur.
Berkeley Pedestrian Master Plan		
Goal 1**:** Plan, Build, and Maintain Pedestrian Supportive Infrastructure.	Consistent**.** The Build Alternative includes a bicycle/pedestrian overcrossing (BPOC), which would provide a safer way for pedestrians to travel through the interchange. Sidewalk improvements, shared-use path, and pedestrian-friendly signal improvements would be included throughout the project area.	Not Consistent. Under the No Build Alternative, no additional pedestrian facilities would be implemented.
Policy 2.1: Disabled Access**:** Improve pedestrian access for the entire disabled community**.**	Consistent. The BPOC, intersections, and sidewalks would be designed to be American with Disabilities Act (ADA) compliant, which would improve access for people with disabilities.	Not Consistent. Under the No Build Alternative, no pedestrian facilities would be implemented, which would not improve access for the disabled community**.**

General Plan Policy	Build Alternative	No Build Alternative
Policy 2.2: Pedestrian Safety and Accessibility: Provide safe and convenient pedestrian crossings throughout the city.	Consistent. The Build Alternative includes a BPOC, which would provide a safer way for pedestrians to travel through the interchange. Sidewalk improvements, a shared-use path, shortened intersection crossings, and pedestrian-friendly signal improvements would be included throughout the project area.	Not Consistent. Under the No Build Alternative, no additional pedestrian facilities would be implemented. Currently, the project area lacks ADA curb ramps and other pedestrian safety features.
Policy 2.3: Intersection with Severe or High Collision Rates: Reduce pedestrian and bicycle collisions, injuries, and fatalities.	Consistent. Under the Build Alternative, a BPOC would be implemented and provide a safer way for pedestrians to travel through the interchange. Sidewalk improvements, a shared-use path, shortened intersection crossings, and pedestrian-friendly signal improvements would be included throughout the project area. This would help reduce the occurrence of accidents.	Not Consistent. Under the No Build Alternative, no additional pedestrian facilities would be implemented, which would not improve safety in the study area.
Berkeley Bicycle Plan		
Policy D-1: Design a Low Stress Bikeway Network: Design a Low Stress Bikeway Network suitable for the "Interested but Concerned" cyclists, which would include people of all ages and ability levels riding bicycles in Berkeley. Policy D-1 Action: Design a network of continuous Low Stress Bikeways as identified in the Berkeley Bicycle Plan.	Consistent. The Build Alternative includes implementation of a BPOC, which would provide a safer way for bicyclists to travel through the interchange.	Not Consistent. The No Build Alternative does not include any improvements to bicycle facilities in the study area. Under the No Build Alternative, the bikeway network would not connect to existing bike paths.

General Plan Policy	Build Alternative	No Build Alternative
Policy PD-1: Construct projects within the Bicycle Plan: Utilizing all available internal and external resources.	Consistent. The bicycle improvements included under the Build Alternative are fully funded from available resources.	Not Consistent. The No Build Alternative does not include any improvements to bicycle facilities in the study area.
Berkeley General Plan Consistency		
Policy LU-9: Non-Residential Traffic: Minimize or eliminate traffic impacts on residential areas from institutional and commercial uses through careful land use decisions.	Consistent. The proposed project would minimize traffic impacts on residential areas surrounding the interchange by providing a new off-ramp towards Emeryville.	Not Consistent. Under the No Build Alternative, existing conditions would remain.
Policy LU-11: Pedestrian- and Bicycle-Friendly Neighborhoods: Ensure that neighborhoods are pedestrian- and bicycle-friendly with well-maintained streets, street trees, sidewalks, and pathways.	Consistent. The Build Alternative includes the implementation of a BPOC, which would provide a safer way for pedestrians and bicyclists to travel through the interchange.	Not Consistent. The No Build Alternative would not ensure neighborhoods are pedestrian- and bicycle-friendly because there would remain no pedestrian/bicycle access from Ashby Avenue to the west side of I-80.
Transportation Objective 6: Create a model bicycle- and pedestrian-friendly city where bicycling and walking are safe, attractive, easy, and convenient forms of transportation and recreation for people of all ages and abilities.	Consistent. The Build Alternative includes the implementation of a BPOC, which would provide a safer way for pedestrians and bicyclists to travel through the interchange.	Not Consistent. The No Build Alternative does not include any improvements to pedestrian or bicycle facilities in the study area.

General Plan Policy	Build Alternative	No Build Alternative
Policy T-22: Traffic Circles and Roundabouts: Encourage the use of landscaped traffic circles to calm traffic in residential areas. Action: A. Consider roundabouts as a viable traffic-calming device, especially at the Shattuck and Adeline intersection, the Gilman Street Freeway on- and off-ramps, and at other appropriate intersections in the city.	Slightly Inconsistent. The Build Alternative considered a roundabout alternative but did not believe it was feasible because it did not satisfy the purpose, need and operational requirements of the proposed project.	Not Consistent. Under the No Build Alternative, roundabouts would not be implemented at the interchange.
Policy T-29 Infrastructure Improvements: Facilitate mobility and the flow of traffic on major and collector streets (shown on the Vehicular Circulation Network map at the end of the Element), reduce the air quality impacts of congestion, improve pedestrian and bicycle access, and speed public transportation throughout the city by making improvements to the existing physical infrastructure. F: Improve freeway approaches and interchanges at Ashby Avenue (including removal of Potter Street ramp) and Gilman Street (to improve pedestrian and bicycle circulation to the waterfront and facilitate truck access to West Berkeley).	Consistent. The Build Alternative includes a westbound off-ramp at I-80/Ashby Avenue to improve mobility and the flow of traffic, which also helps reduce air quality impacts from idling vehicles. The Build Alternative also includes a BPOC, which would provide a safer way for pedestrians and bicyclists to travel through the interchange which creates a direct path to the San Francisco Bay Trail. These pedestrian and bicycle improvements improve pedestrian and bicycle access in the area.	Not Consistent. Under the No Build Alternative, new on- and off- ramps would not be implemented at the interchange, and congestion, delay, and air quality would continue to worsen. In addition, no pedestrian or bicycle facilities would be implemented, which would hinder access in the area.

General Plan Policy	Build Alternative	No Build Alternative
Policy OS-10 Access Improvements: Improve transit, bicycle, disabled, and pedestrian access to and between open space and recreation facilities, including regional facilities such as the Berkeley Marina, UCB open space, EBRPD lands, the McLaughlin Eastshore State Park, and recreational facilities in other cities.	Consistent. The Build Alternative includes a BPOC, which would provide a safer way for pedestrians and bicyclists to travel through the interchange. This pedestrian and bicycle improvement will improve access to the San Francisco Bay Trail.	Not Consistent. Under the No Build Alternative, no pedestrian or bicycle facilities would be implemented, which would not improve access to recreational facilities in the area.
Emeryville General Plan		
T-G-1: A Comprehensive Transportation System: A transportation system that is efficient, safe, removes barriers, (e.g., accessibility near freeways and rail lines), and optimizes travel by all modes.	Consistent**.** The Build Alternative includes a BPOC, which would provide a safer way for pedestrians to travel through the interchange. Sidewalk improvements, a shared-use path, and pedestrian-friendly signal improvements would be included throughout the project area.	Not Consistent. The No Build-Alternative does not include any improvements that would optimize travel by all modes.
T-G-2: Universally accessible—A transportation system that meets the needs of all segments of the population, including youth, seniors, persons with disabilities, and low-income households.	Consistent. The Build Alternative includes the implementation of an ADA-compliant BPOC, which would provide a safer way for pedestrians and bicyclists to travel through the interchange.	Not Consistent. The No Build-Alternative does not include any improvements that would benefit all segments of the population.

General Plan Policy	Build Alternative	No Build Alternative
T-G-4 A walkable city—A universally accessible, safe, pleasant, convenient, and integrated pedestrian system that provides links within the city and to surrounding communities and reduces vehicular conflicts.	Consistent**.** The Build Alternative includes the implementation of a BPOC, which would create a more pleasant and convenient route to the San Francisco Bay rather than crossing I-80 on- and off-ramps.	Not Consistent. The No Build-Alternative does not include any improvements that would create a more walkable city.
T-G-5 A safe, comprehensive, and integrated bicycle system—A system and support facilities throughout the city that encourage accessible bicycling for all community members.	Consistent. The Build Alternative would provide a safer way for bicyclists to travel through the interchange**.**	Not Consistent. The No Build-Alternative does not include any improvements that would support bicycles facilities around the interchange.
T-P-5 The City encourages development that minimizes Vehicle Miles Traveled (VMT).	Consistent. The Build Alternative would contribute to regional reductions in VMT by improving access to the San Francisco Bay shoreline and enhancing active transportation opportunities. It would also decrease VMT by allowing vehicles to exit the freeway closer to their destination.	Not Consistent. The No Build-Alternative does not include any improvements that would minimize VMTs.
T-P-20 Safe and direct pedestrian access to Aquatic Park and the peninsula will be provided and maintained.	Consistent. The Build Alternative includes implementation of a BPOC that would provide improved access to the Aquatic Park via the Ashby Avenue overcrossing.	Not Consistent. The No Build Alternative does not include any improvements including access to the Aquatic Park.

Source: City of Emeryville 2019, City of Berkeley 2001

2.1.3 COASTAL ZONE

This section evaluates effects associated with costal zones that occur within the Project area. The Sea Level Rise Memorandum (November 2021) prepared for the proposed project was used to prepare the analysis in this section.

REGULATORY SETTING

The proposed project has the potential to affect resources protected by the Coastal Zone Management Act (CZMA) of 1972. The CZMA is the primary federal law enacted to preserve and protect coastal resources. The CZMA sets up a program under which coastal states are encouraged to develop coastal management programs. States with an approved coastal management plan have authority to review federal permits and activities to determine if they are consistent with the state's management plan.

California has developed a coastal zone management plan and has enacted its own law, the California Coastal Act of 1976, to protect the coastline. The policies established by the California Coastal Act are similar to those for the CZMA. They include the protection and expansion of public access and recreation, the protection, enhancement, and restoration of environmentally sensitive areas, the protection of agricultural lands, the protection of scenic beauty, and the protection of property and life from coastal hazards. The California Coastal Commission is responsible for implementation and oversight under the California Coastal Act.

Just as the federal CZMA delegates power to coastal states to develop their own coastal management plans, the California Coastal Act delegates power to local governments to enact their own local coastal programs. This proposed project is subject to the Bay Conservation and Development Commission (BCDC) local coastal program. Local Coastal Programs contain the ground rules for development and protection of coastal resources in their jurisdiction consistent with the California Coastal Act goals. BCDC also oversees implementation of the San Francisco Bay Plan. A Federal Consistency Certification will be needed as well. The Federal Consistency Certification process will be initiated prior to final environmental document and will be completed during the NEPA process.

BCDC, created prior to the California Coastal Act, retains oversight and planning responsibilities for developed and conservation of coastal resources in the Bay Area. The regulatory authority for BCDC is the McAteer-Petris Act and the Suisun Marsh Protection Act.

AFFECTED ENVIRONMENT

The proposed project is situated within the coastal zone. The entire western portion of the proposed project is located within BCDC jurisdiction. However, most construction would be located within Caltrans' right of way (ROW) along I-80.

ENVIRONMENTAL CONSEQUENCES

No Build Alternative

The No Build Alternative would not affect San Francisco Bay resources because none of the improvements of the proposed project would be implemented. Only scheduled routine maintenance of the area would occur along with other planned and programmed projects and would not result in any impacts to the San Francisco Bay.

Build Alternative

Permanent Operational Impacts

The proposed project would not adversely affect resources, views, or access to the San Francisco Bay (along the San Francisco Bay Trail). Meanwhile, public access to the San Francisco Bay Trail and other bay resources would improve as a result of the proposed project.

Temporary Construction Impacts

The proposed project comprises the following three improvements: (1) redesign of the elevated interchange, (2) realignment of West Frontage Road to intersect with Ashby Avenue, and (3) introduction of a new bicycle and pedestrian connection from the east side of I-80 to the Point Emery area and the San Francisco Bay Trail on the west side of the interchange. Portions of the project area that fall within BCDC's jurisdiction include the San Francisco Bay, West Frontage Road, the San Francisco Bay Trail, and the Radio Tower Pond. The following activities would be required within BCDC jurisdiction: clearing of vegetation and conflicting structures utility relocation; demolishing the existing I-80/Ashby Avenue connector ramps and replacing them with a tight diamond interchange, and road improvements. Construction activities include clearing, demolition, grading, excavation, grubbing of vegetation, and increasing impervious surfaces adjacent to the San Francisco Bay shoreline. As a result, sedimentation and pollutants could enter neighboring bodies of water, tidal flats, and marsh areas including Berkeley Aquatic Park and San Francisco Bay.

There would be temporary impacts to shoreline access next to the San Francisco Bay Trail. Vehicular detours and closures are anticipated during construction activities along West Frontage Road as described in Section 1.5.1, Proposed Project. During this time, West Frontage Road will be temporarily closed to traffic between University Avenue and Powell Street while the new alignment is under construction. The West Frontage Road closure would not interfere with the use of the San Francisco Bay Trail. However, it would limit vehicular and water vessel launching access to Emery Point during the temporary closure.

Under the McAteer-Petris Act, BCDC has regulatory responsibility over development in the San Francisco Bay and shoreline margins within its jurisdiction. In more recent years, BCDC has adopted policies to require projects to be resilient to rising sea level based on a project's expected life. BCDC issues permits for project activities in the San Francisco Bay or within 100 feet of the shoreline, including filling, dredging, dredged sediment disposal, shoreline development and other work. In addition to its permit authority under state law, BCDC exercises authority under Section 307 of the federal Coastal Zone Management Act (CZMA)(16 U.S.C. section 1456) over federal activities and development projects and non-federal projects that require a federal permit or license or are supported by federal funding.

Caltrans has begun early consultation with BCDC regarding the required permit for temporary work within BCDC jurisdiction. As part of the permitting process, BCDC requires a Sea Level Rise Assessment and a comprehensive construction closure, detour, and signage plan. A Sea Level Rise Memorandum was prepared for the project, and approved November 1, 2021. As discussed in the Sea Level Rise Memorandum, the proposed project is currently evaluating the addition of a tidal flap gate or a duck bill valve at the proposed new outfall structure as a near-term mitigation measure to prevent backwater flow conditions. This may be the first step to add resiliency to the project and to aid in incorporating other management strategies to be considered in the future as part of other regional projects.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Project Features

There are no applicable project features associated with coastal zone resources.

Avoidance and Minimization

AMM TRA-1: (Public Access to the San Francisco Bay Trail) During construction of the new outfall area, a temporary detour around the construction area will be installed to ensure continuous access to the San Francisco Bay Trail is maintained.

See Appendix C for the full text of AMM TRA-1.

Mitigation Measures

No mitigation would be required.

2.1.4 PARKS AND RECREATIONAL FACILITIES

REGULATORY SETTING

Federal

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 coordination 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 is also needed.

Responsibility for compliance with Section 4(f) has been assigned to the Department 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.

State

Park Preservation Act

The Park Preservation Act (California Public Resources Code [PRC] Sections 5400-5409) prohibits local and state agencies from acquiring any property which is in use as a public park at the time of acquisition unless the acquiring agency pays sufficient compensation or land, or both, to enable the operator of the park to replace the park land and any park facilities on that land.

AFFECTED ENVIRONMENT

Section 4(f)

There are no historic or archaeological resources subject to the provisions of Section 4(f) in the project area. There are four recreational facilities present within the project area that are subject to Section 4(f) provisions: Berkeley Aquatic Park, the San Francisco Bay Trail, Point Emery Park, and Christie Park.

Public Parks

Emeryville and Berkeley have extensive park systems offering a diverse range of outdoor facilities to meet the needs of both communities. Table 2.1-2 lists the three public parks and recreational facilities located within 0.5-mile of the project area: Christie Park, Point Emery, and Aquatic Park. These parks are public parks and subject to the provisions of the Park Preservation Act.

Table 2.1-2 Parks and Recreational Facilities

Name	Size	Status	Distance from Project area (within 0.5 mile)	Jurisdiction	Featured Activities
Christie Park	N/A	Under renovation	0.5 mile south	Emeryville	Children's playground, dog park.
Point Emery	1.37 acres	Built	0.1 mile west	Emeryville	Walking, hiking, watercraft activities
Aquatic Park	32.76 land acres, 67.7 water acres	Built	Adjacent to the northside of the proposed project	Berkeley	Boating, hiking, playground, bird watching.

Trails and Bikeways

The existing bike and trail system in Emeryville and Berkeley consists of on- and off-street facilities. Off-street bike paths include the Neighborhood Convergence Trail, San Francisco Bay Trail, Shellmound Trail, and the Amtrak Bike Path. These trails are protected under the provisions of Section 4(f), because they are publicly owned and designated or functioning primarily for recreational purposes. The San Francisco Bay Trail and the Neighborhood Convergence Trail are located within 0.5 mile of the proposed project, to the west and south, respectively.

On-street bike paths provide vital connections throughout Emeryville and Berkeley, including connections to regional parks and schools. However, the existing bikeways in both cities are often incomplete, leaving cyclists with sections of road that are difficult and dangerous to ride. Bicycle facilities include the following general types:

- Class I: Shared Use Path – These facilities provide a separate ROW and are designated for the exclusive use of bicycles and pedestrians with vehicle cross-flow minimized.
- Class II: Bicycle Lane – Bicycle lanes provide a restricted ROW and are designated for the use of bicycles for one-way travel with a striped lane on a street or highway. Bicycle lanes are generally a minimum of 5 feet wide. Vehicle parking and vehicle/pedestrian cross-flow are permitted.
- Class III: Bicycle route with “sharrows” – These bikeways provide ROW designated by signs or pavement markings for shared use with motor vehicles. These include “sharrows” or shared lane markings to highlight the presence of bicyclists.

I-80 Ashby Avenue Interchange

The Berkeley Bicycle Master Plan of 2017 shows an existing Class III bike lane that runs along Bay Street, including Shellmound Street. However, this bike lane has signage only, and shares a lane with vehicular traffic. This bike lane is not protected under Section 4(f).

ENVIRONMENTAL CONSEQUENCES

No Build Alternative

Under the No Build Alternative, none of the project features described under the Build Alternative would be constructed. The existing transportation facilities within the project area would remain unchanged except for the planned and programmed improvements.

No other projects are planned within the project area. The No Build Alternative would not result in an adverse effect to parks or recreation resources.

Build Alternative

Section 4(f)

The following analysis is a summary of the findings detailed in Appendix A: Section 4(f). Potential increases in construction emissions and noise attributable to the proposed project would be temporary and would not substantially impair features or attributes of Berkeley Aquatic Park, the San Francisco Bay Trail, Point Emery, or Christie Park. Detours during construction periods would be temporary and would be managed as part of PF TRA-1, and AMM TRA-1 through AMM TRA-5 (see Appendix C for the full text of these features and measures). PF TRA-1 requires a TMP to be prepared to ensure efficient movement of local and regional traffic during construction. The TMP will provide outreach to inform community agencies, such as the fire department, and the public of the times and locations of upcoming construction, signage in and approaching the project area, and incident management for traffic control in the vicinity of the construction activities. Therefore, the proposed project would not result in any direct use or temporary occupancy of recreational resources. The proposed project would not result in a constructive use of the described Section 4(f) resources. The proposed project would not result in a use of any other Section 4(f) resources.

Parks and Recreational Resources

Permanent Operational Impacts

The Build Alternative would not require permanent acquisition of parks or recreational facilities. Once operational, the Build Alternative would not reduce access to parks or recreational facilities or increases in ambient noise levels. The Build Alternative would include a Class I shared pedestrian and bicycle path along Shellmound Street and Bay Street, which would extend over I-80 via the proposed BPOC. This would improve bicycle and pedestrian connectivity across the interchange. Proposed improvements to the local and regional bicycle and pedestrian network are consistent with local and regional plans. Additionally, as a roadway project, the Build Alternative would not have growth-inducing effects that would increase demands for parks or recreational facilities such that expansion of existing facilities or creation of new parks and recreation facilities would be required. Therefore, operation of the Build Alternative would not result in adverse effects to parks or recreation resources.

Temporary Construction Impacts

Construction work has the potential to affect Aquatic Park and Point Emery. Potential increases in ambient noise levels during construction could result in noise impacts in the areas where parks and recreational facilities are located, due to the relative distance between the project area and both parks (less than 1,000 feet, respectively). However, the noise levels during construction would be temporary, and limited to daytime construction hours. Incorporation of project features PF NOI-1 through PF NOI-6 would ensure that adverse effects would not occur (refer to Appendix C for the full text of these project features). Additionally, construction of the Build Alternative would require a temporary detour for the San Francisco Bay Trail during the construction of the new outfall (AMM TRA-5). Disruptions related to this detour would be minimized through the incorporation of a TMP during construction (PF TRA-1).

Construction work would not occur within Christie Park identified in Table 2.1-2. Potential increases in ambient noise levels during construction would not result in noise impacts in the areas where parks and recreational facilities are located, because of the relative distance between the project area and nearby parks (0.3 mile) and the presence of intervening multistory commercial and residential buildings. Therefore, construction of the Build Alternative would not result in an adverse effect related to this resource.

Cumulative Impacts

The Build Alternative would not affect parks, recreational resources, or Section 4(f) resources. Construction of the Build Alternative would require a temporary detour for the San Francisco Bay Trail during the construction of the new outfall. Additionally, West Frontage Road would be closed to traffic from University Avenue to Powell Street during construction, which would limit access to Point Emery for automobiles and waterborne vehicle launching (AMM TRA-2). However, disruptions related to these closures would be temporary and would be minimized through incorporation of the TMP (PF TRA-1). Therefore, the proposed project would not contribute to cumulative effects on these resources.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Project Features

PF-TRA-1: A TMP will be prepared to ensure efficient movement of local and regional traffic during construction.

PF NOI-1: Caltrans Standard Noise Control BMPs such as limiting paving and demolition activities to between 7:00 a.m. and 7:00 p.m.

PF NOI-2: Inspection of equipment by the contractor will ensure that all equipment onsite is working properly, in good condition, and effectively muffled. All equipment will have sound-control devices no less effective than those provided on the original equipment.

PF NOI-3: Construction activities shall be minimized in the study area during evening, nighttime, weekend, and holiday periods.

PF NOI-4: Restrict the hours of vibration-intensive equipment or activities such as vibratory rollers so that impacts to study area users are minimal (e.g., restrict the hours to weekdays during daytime hours).

PF NOI-5: The Resident Engineer will be responsible to collect and respond to any complaints related to construction noise.

PF NOI-6: Truck loading, unloading, and hauling operations will be minimized so that noise and vibration are kept to a minimum through the study area to the greatest possible extent.

(Refer to Appendix C for the full text of these project features).

Avoidance and Minimization

AMM TRA-1: The I-80 mainline closures would occur at night for the placement of the pre-cast girders for the proposed Ashby overcrossing, demolition of the remaining original ramp structures over I-80 and false work erection and removal for the bike and pedestrian overcrossing.

AMM TRA-2: During the construction of West Frontage Road, vehicular detours and closure would be anticipated. West Frontage Road would be closed to traffic from University Avenue to Powell Street. Once the construction of West Frontage Road is completed in Stage 3, temporary access ramps would be put in place and vehicular access would be restored.

AMM TRA-3: Mainline traffic would be transitioned temporarily onto the right shoulder to accommodate the median falsework support structure for BPOC. This temporary lane shift would be striped and signed accordingly. Nighttime work is anticipated for the following construction activities; k-rail installation and removal, installation of precast girders, existing ramp and abutment demolition, falsework erection and removal, temporary striping for the lane shifts during BPOC construction and permanent striping activities. Lane closure plans would be developed for nighttime closures at each construction stage.

AMM TRA-4: The Potter Street eastbound I-80 On-Ramp would remain open until the construction of the new on-ramp and then it would be permanently closed and replaced by the new on-ramp. In the interval between the closure of the Potter Street on-ramp and the opening of the new eastbound on-ramp, detours would be established to direct traffic to use either University Avenue or Powell Street to access eastbound I-80.

AMM TRA-5: During construction of the new outfall area, a temporary detour around the construction area will be implemented. The West Frontage Road closure would not interfere with the use of the San Francisco Bay Trail. However, it would limit access to Point Emery and Barkley Beach via automobile and any waterborne vehicle launching at Point Emery and Barkley Beach during the temporary closure.

See Appendix C for the full text of AMM TRA-1 through AMM TRA-5.

Mitigation Measures

No mitigation would be required.

2.1.5 COMMUNITY CHARACTER AND COHESION

REGULATORY SETTING

Federal

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

State

Under the California Environmental Quality Act (CEQA), an economic or social change by itself is not to be considered a significant effect on the environment. However, if a social or economic change is related to a physical change, then social or economic change may be considered in determining whether the physical change is significant. Since this proposed project would result in physical change to the environment, it is appropriate to consider changes to community character and cohesion in assessing the significance of the project's effects.

AFFECTED ENVIRONMENT

Information in this section is based on the CIA prepared for the project (October 2021). The CIA considered and analyzed impacts to the communities within Emeryville and Berkeley. As described in the CIA, a 0.5-mile buffer was established for the study area for addressing indirect effects such as community character and population and housing. For indirect effects that could encompass larger areas, such as economic conditions, the jurisdictions are evaluated as a whole (Emeryville, Berkeley, and Alameda County).

Land Use

The area southeast of the interchange primarily consists of commercial businesses with some high-density residential housing. The west and northeast sides are bordered by the San Francisco Bay Trail and Berkeley Aquatic Park, respectively. For more detail on existing and planned land uses in the project area, refer to Section 2.1.1, Existing and Future Land Use.

Neighborhoods/Communities/Community Character

The values and issues that are important to a community set the character and baseline context for how the proposed project would fit into the community's ideologies. The community character of each city is described below, including key community and activity centers.

Emeryville

There are several parks and recreational facilities within 2 miles of the project area that contribute to the community, such as Christie Park and the Emeryville Center of Community Life. Point Emery is located 100 feet west of the existing interchange and provides scenic views of the San Francisco Bay as well as recreational fishing opportunities.

Berkeley

Berkeley provides a variety of community recreational activities and facilities. Recreational resources located within 2 miles of the project area include Frances Albrier Community Center, Malcolm X School Park, Martin Luther King Jr. Center, South Berkeley Senior Center and more. Berkeley Aquatic Park is located 800 feet north of the existing interchange.

Population and Housing

The following population data was compiled from the 2017 American Communities Survey (ACS), which is the most recent U.S. Census data available after the U.S. Census in 2010.

Alameda County is part of the nine counties that make up the San Francisco Bay Area. It is the second most populous county in the region and the seventh most populous county in the state. Alameda County has a population of approximately 1.6 million people. According to the Association of Bay Area Governments (ABAG), the County saw an increase of 3.6 percent in employed residents between 2000 and 2011, increasing to 718,035 employed residents ages 16 and over.

The population in Emeryville is projected to experience significant growth, from 10,105 people in 2010 to 34,310 people by 2040 (209 percent) (ABAG and MTC, 2018). Growth in Emeryville is anticipated to outpace growth in nearby cities and in Alameda County as a whole. The population in Berkeley is projected to increase from 112,660 people in 2010 to 140,935 people in 2040 (ABAG and MTC, 2018). Most of this population growth would occur in commercial corridors (San Pablo Avenue, University Avenue) due to the availability of housing and additional housing development.

According to ABAG and MTC, Alameda County had 545,105 households in 2010, while Berkeley had 46,030 households and Emeryville had 5,695 households. Based on ABAG and MTC's 2018 projections, Alameda County would have 734,710 households by 2040, an increase of 35 percent, while Berkeley would have 55,370 households, an increase of 20 percent, and Emeryville would have 11,616 households, an increase of 204 percent.

MTC and ABAG (2018) provide population, housing, and employment projections for Bay Area counties and cities in the Plan Bay Area reports. Using ABAG data, Emeryville is expected to increase in population by 209 percent and Berkeley by 25 percent.

Income

As reported by the 2018 ACS, Emeryville and Berkeley's employment rate is 70.5 percent and 58.1 percent respectively. Unemployment in Emeryville is roughly 3.8 percent, and 4.2 percent in Berkeley.

Housing

As described in Section 2.1.1, Existing and Future Land Use, land uses surrounding the interchange are primarily parkland/open space and commercial development. The closes housing to the project area is an apartment complex located at 6400 Christie Avenue, less than 100 feet southeast of the interchange in Emeryville.

ENVIRONMENTAL CONSEQUENCES

No Build Alternative

Under the No Build Alternative, no improvements would occur, and the programmed and planned interchange improvements would not be met. The existing transportation facilities within the project area would remain unchanged. The No Build Alternative would have no effect on the exiting community character or cohesion, regional population characteristics, housing, or other community impacts.

Build Alternative

Neighborhoods/Community/Community Character and Population

Permanent Operational Impacts

The Build Alternative would not change the character of the area because it is already a heavily urbanized area that supports a major interstate (I-80) and associated facilities. Rather, the proposed improvements would enhance access and connectivity of the communities on the east side of the interchange with park and trail resources on the west side of the interchange, thereby increasing community cohesion in the area.

Temporary Construction Impacts

During construction, temporary roadway closures might inconvenience community members for a short period but would not affect general travel routines with incorporation of AMM TRA-1 through AMM TRA-5. Additionally, during the construction period, standard project features PF COM-1 through PF COM-5 would avoid effects on the community during the construction period by maintaining access to local residences and business and ensuring the continued provision of utilities and services.

The Build Alternative would not displace residences or otherwise divide an existing neighborhood. Construction activities would not occur in proximity to any community facilities where people congregate for festivals, farmer's markets, or other community events. For these reasons, construction of the Build Alternative would not negatively affect community cohesion.

Housing

The Build Alternative would not displace residences or residents, necessitating the construction of replacement housing elsewhere. The Build Alternative would not introduce any population growth requiring the construction of additional housing.

There are some people experiencing homelessness within and surrounding the project area, specifically under the I-80 overcrossing and around Aquatic Park. It should be

noted that persons experiencing homelessness are not, by definition, an environmental justice population. Caltrans District Maintenance Procedures will be followed if needed before construction.

Cumulative Impacts

The Build Alternative would improve traffic circulation and mobility in a built-out urban area. Improvements to the interchange would improve or replace existing infrastructure and would not encroach on existing communities. The Build Alternative would support identified growth projections and would not negatively affect the cohesion of existing communities surrounding the project area. The Build Alternative would not change the character of the area because it is already a mostly urbanized area that supports a major interstate (I-80) and associated facilities. The proposed project would not result in a cumulatively considerable contribution to a significant cumulative impact related to community character and cohesion.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Project Features

PF-COM-1: Access to all properties for property owners and users will be maintained by the contractor during construction.

PF-COM-2: Caltrans will coordinate relocation work with the affected utility companies to minimize disruption of services to customers in the area during construction.

PF-COM-3: Caltrans will coordinate with emergency service providers and the public information office to avoid emergency service delays by ensuring that all providers are aware well in advance of lane closures.

PF-COM-4: During the design phase of the project, prepare a TMP in accordance with Caltrans requirements and guidelines and in coordination with local agencies, service providers, local communities, business association, and affected drivers.

PF-COM-5: A public outreach program will be implemented throughout the construction period to keep the public informed of the construction schedule and scheduled parking and roadway closures, including detour routes and, if available, alternative parking.

Avoidance and Minimization

AMM TRA-1: The I-80 mainline closures would occur at night for the placement of the pre-cast girders for the proposed Ashby overcrossing, demolition of the remaining original ramp structures over I-80 and false work erection and removal for the bike and pedestrian overcrossing.

AMM TRA-2: During the construction of West Frontage Road, vehicular detours and closure would be anticipated. West Frontage Road would be closed to traffic from University Avenue to Powell Street. Once the construction of West Frontage Road is completed in Stage 3, temporary access ramps would be put in place and vehicular access would be restored.

AMM TRA-3: Mainline traffic would be transitioned temporarily onto the right shoulder to accommodate the median falsework support structure for BPOC. This temporary lane shift would be striped and signed accordingly. Nighttime work is anticipated for the following construction activities; k-rail installation and removal, installation of precast girders, existing ramp and abutment demolition, falsework erection and removal, temporary striping for the lane shifts during BPOC construction and permanent striping activities. Lane closure plans would be developed for nighttime closures at each construction stage.

AMM TRA-4: The Potter Street eastbound I-80 On-Ramp would remain open until the construction of the new on-ramp and then it would be permanently closed and replaced by the new on-ramp. In the interval between the closure of the Potter Street on-ramp and the opening of the new eastbound on-ramp, detours would be established to direct traffic to use either University Avenue or Powell Street to access eastbound I-80.

AMM TRA-5:During construction of the new outfall area, a temporary detour around the construction area will be implemented. The West Frontage Road closure would not interfere with the use of the San Francisco Bay Trail. However, it would limit access to Point Emery and Barkley Beach via automobile and any waterborne vehicle launching at Point Emery and Barkley Beach during the temporary closure.

See Appendix C for the full text of AMM TRA-1 through AMM TRA-5.

Mitigation Measures

No mitigation would be required.

2.1.6 RELOCATIONS AND REAL PROPERTY ACQUISITION

REGULATORY SETTING

Federal

The Department's Relocation Assistance Program (RAP) is based on the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (Uniform Act), 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. Please see Appendix C for a summary of the RAP.

All relocation services and benefits are administered without regard to race, color, national origin, persons with disabilities, religion, age, or sex. Refer to Appendix B for a copy of the Department's Title VI Policy Statement

AFFECTED ENVIRONMENT

Land uses surrounding the existing interchange are generally either parks and open space, or commercial uses. The San Francisco Bay Trail and Berkeley Aquatic Park border the project area to the west and northeast, respectively. Commercial uses border the project area to the southeast. The closest residential building is located at 6400 Christie Avenue, less than 100 feet southeast of the interchange in Emeryville. No housing is located within the area of disturbance for the Build Alternative. However, the Build Alternative would require the relocation of the KRE radio tower located next to the pond at Ashby Avenue and Bay Street at the Aquatic Park just northwest of its current location.

ENVIRONMENTAL CONSEQUENCES

The Build Alternative would not require relocation of any households or businesses, nor does it require the acquisition of entire properties. The Build Alternative would also not affect any residential properties within the project area.

KRE Property

Proposed improvements along Bay Street would require relocation of one of the three guy wires for the KRE radio transmitting tower. In addition, some partial takes along the edge of the KRE property adjacent to the proposed Bay Street would be required. This area was once part of a parking lot for the KRE building that is no longer in use. The implementing agency will work with the property owner in making these modifications to avoid effects on operation of the KRE Radio Station.

The KRE Radio Station building is a historic property eligible for listing on the NRHP. For a discussion of cultural resources impacts related to the KRE Radio Station, refer to Section 2.1.11, Cultural Resources and Tribal Cultural Resources.

2.1.7 ENVIRONMENTAL JUSTICE

REGULATORY SETTING

All projects involving a federal action (funding, permit, or land) must comply with Executive Order (EO) 12898, Federal Actions to Address Environmental Justice in

Minority Populations and Low-Income Populations, signed by President William J. Clinton on February 11, 1994. This EO directs federal agencies to take the appropriate and necessary steps to identify and address disproportionately high and adverse effects of federal projects on the health or environment of minority and low-income populations to the greatest extent practicable and permitted by law. Low income is defined based on the Department of Health and Human Services poverty guidelines. For 2021, this was $26,500 for a family of four.

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

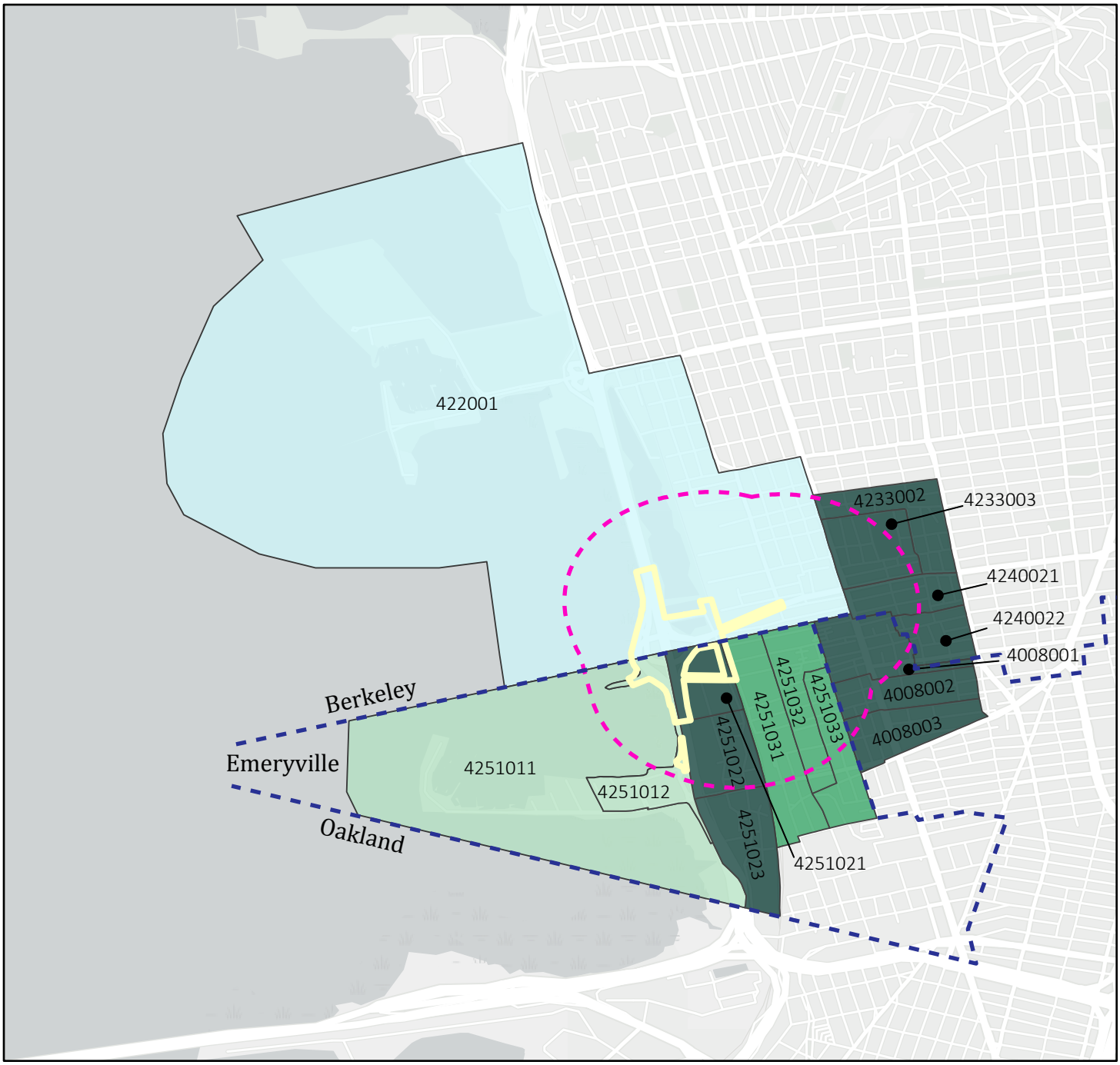
AFFECTED ENVIRONMENT

Information in this section is based on the CIA (October 2021) prepared for the proposed project. This section determines the presence of environmental justice communities to analyze whether indirect impacts borne from the proposed project would be disproportionately felt by low income and/or minority communities. Per EO 12898, a population, as evaluated by U.S. census block groups, is subject to environmental justice analysis if it meets at least one of the following criteria:

- A low-income population that is greater than 25 percent of the total population of the community, or a minority population that is greater than 50 percent of the total population of the community
- A low-income and/or minority population that is more than 10 percentage points higher than the City or County average

Race

Alameda County is home to a diverse population, representing many races and ethnicities. Minority groups comprise 67.8 percent of the County, 56.5 percent of Emeryville, 45.4 percent of Berkeley, and 56.4 percent of the study area population. Figure 2.1-3 illustrates the minority populations for Alameda County, Emeryville, Berkeley, and the 0.5-mile study area. Table 2.1-3 describes the population distribution in Alameda County, Emeryville, Berkeley, and the overall study area. As shown in Figure 2.1-3, block groups within the southern and eastern portions of the study area would be environmental justice communities based on minority status.



Legend

- 0.5-Mile Study Area
- Project Location
- 2017 Census Tracts
- City Boundary

Minority Population

- Less than 40%
- 40-50%
- 50-60%
- Greater than 60%

N

Not to Scale

Minority Population

Figure **2.1-3**

Source: American Community Survey 2018

Table 2.1-3 Ethnic and Race Composition of the Study Area

Category	Study Area		Emeryville		Berkeley		Alameda County	
	Number of Residents	%	Number of Residents	%	Number of Residents	%	Number of Residents	%
White	7,820	43.6	5,018	43.5	65,656	54.6	524,881	32.2
Black or African American	3,822	21.3	1,698	14.7	10,019	8.3	175,063	10.7
American Indian and Alaska Native	58	0.32	13	0.11	295	0.25	5,008	0.31
Asian	3,565	19.9	3,179	27.6	23,528	19.6	468,356	28.7
Native Hawaiian and Other Pacific Islander	68	0.38	49	0.43	567	.47	13,000	0.80
Other Race	34	0.19	22	0.19	323	.27	4,489	.028
Two or More Races	848	4.7	501	4.3	6,611	5.5	71,777	4.4
Hispanic	1,713	9.6	1,044	9.1	13,180	11.1	367,041	22.5
Total Minority	**10,108**	**56.4**	**6,506**	**56.5**	**54,523**	**45.4**	**1,104,734**	**67.8**

Source: ACS 2018 (2013-2017 American Community Survey Five-year Estimates); U.S. Census Bureau 2010.
[1] Minority refers to every person who is not of White Race and Non-Hispanic or Latino Ethnicity categories. The percentages were calculated by finding the numerical difference between the total population of all races and total, White, Non-Hispanic population. That number was then divided by the total population of all races.

Income

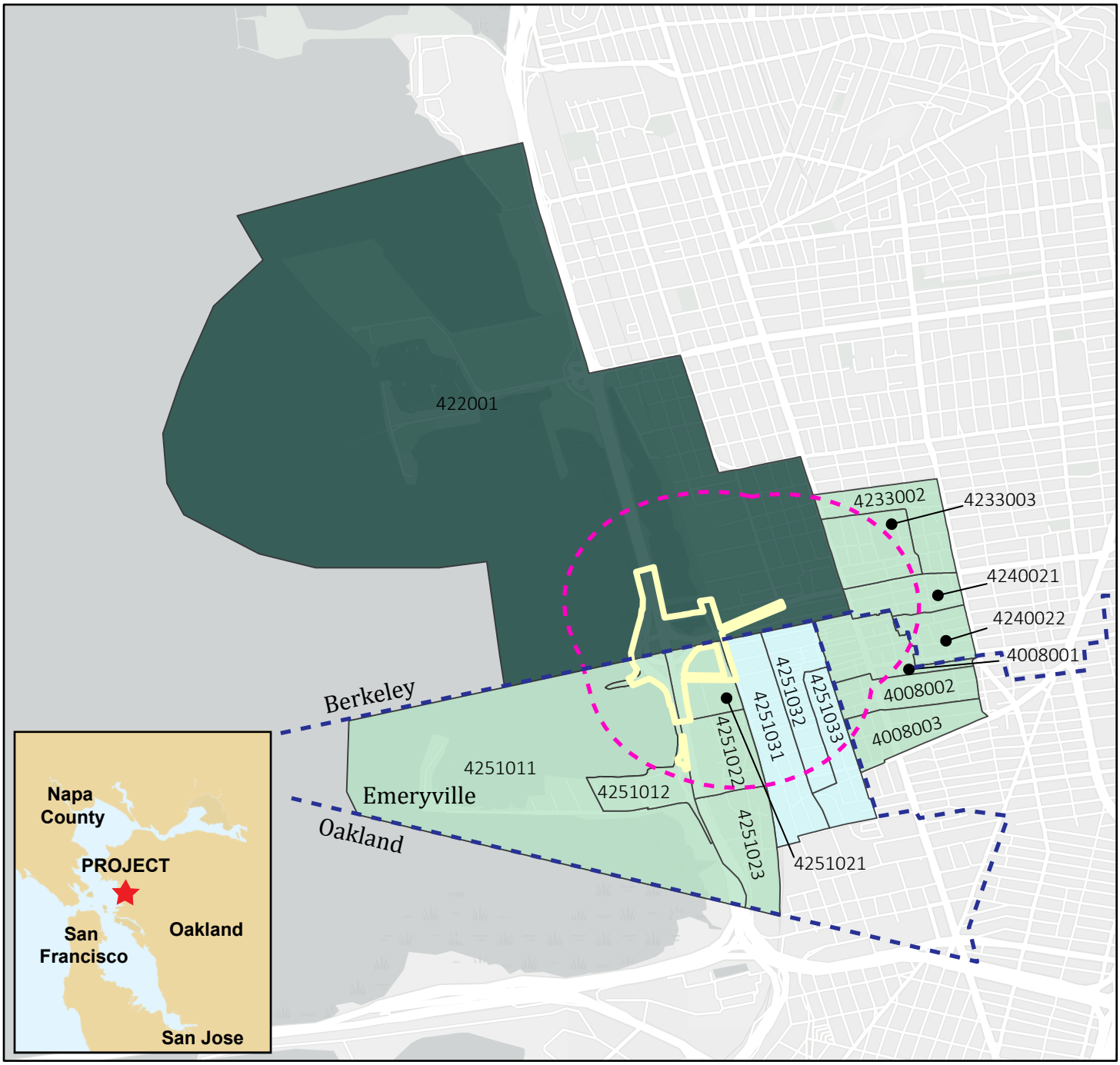
Table 2.1-4 summarizes 2018 ACS per capita and median household income levels for the County, Emeryville, Berkeley, and the 0.5-mile study area. Emeryville has the highest median household and per capita income out of the two cities. Both cities have a median income higher than the County overall. The study area's median household income level is slightly higher than the County overall.

None of the census block groups in the study area have a low-income population of 25 percent or higher. Within the study area, 13 percent of households are considered low-income, compared to 11 percent county-wide. Therefore, the study area does not have a concentration of low-income households greater than 10 percentage points higher than the county average. None of the census block groups in the study area qualify as environmental justice communities based on income. Figure 2.1-4 shows the distribution of households below the poverty level in the study area.

Table 2.1-4 Household Income and Poverty

Geographic Area	Median Household Income	Percent Individuals below Poverty Threshold
Study Area	$86,010	13.4
Emeryville	$88,661	11.7
Berkeley	$75,709	19.8
Alameda County	$85,743	11.3

Source: ACS 2018 (2013-2017 American Community Survey Five-year Estimates).



Legend

- 0.5-Mile Study Area
- Project Location
- 2017 Census Block Groups
- City Boundary

Poverty Population

- Less than 10%
- 10-15%
- 15-20%
- Greater than 20%

N

Not to Scale

Low-Income Population

Figure **2.1-4**

Source: American Community Survey 2018

ENVIRONMENTAL CONSEQUENCES

Build Alternative

The Build Alternative would be constructed partially within Census Block Groups that meet the environmental justice community criteria based on minority status. However, these environmental Block Groups extend beyond the project area (up to 1 mile) and encompass the residents of the larger housing developments in Emeryville and Berkeley. In looking at the regional context for community impacts, the proposed project's purpose as an improvement to east-west local roadway connectivity and congestion relief would benefit both environmental justice and non-environmental justice communities by providing improved access to jobs and better safety for multimodal transportation.

Noise

Construction noise for all receptors would be short-term and intermittent. Temporary construction impacts would be lessened through incorporation of Caltrans' standard noise control measures (PF NOI-1), discussed in Section 2.2.7, Noise.

Operation of the Build Alternative would result in increased noise levels for the 2045 design year in a range of 0 to 10 dBA over the existing condition. However, this increase would be similar to anticipated increases under the No Build Alternative. Furthermore, permanent increases in noise levels would affect both environmental justice and non-environmental justice communities given the demographics of the project area depicted in Figure 2.1-3 and Figure 2.1-4. As such, noise associated with the proposed project would not result in a disproportionately high and adverse effect on environmental justice communities.

Air Quality

The proposed project would improve local traffic circulation and reduce regional VMT by providing more pedestrian and bicycle connectivity. Daily emissions of criteria air pollutants would generally decrease for the Build Alternative compared to the No Build Alternative. As discussed in Section 2.2.6, Air Quality and the Air Quality Technical Report (October 2021), modeling results show that the Build Alternative would not result in an increase in criteria air pollutant emissions compared to the existing year conditions or the future No Build Alternative. Because emissions of criteria pollutants from project related traffic are not anticipated to cause or contribute to, or worsen air quality, or result in violations, air quality impacts associated with the proposed project would not result in an adverse effect to either environmental justice or non-environmental justice communities.

Aesthetic Character

Implementation of the Build Alternative would moderately change the visual character and alter the visual quality of the project area. Viewers would experience an increased level of roadway dominance where new on- and off- ramps, replacement bridge structures, and local roadway improvements are proposed. At night, new street lighting would introduce a minor new source of glare. Together, these visual changes would be moderate. The avoidance and minimization measures listed in Section 2.1.9 would minimize these visual changes. While implementation of the Build Alternative would result in the addition of new manmade features, the I-80 corridor would continue to be the dominant visual feature in the study area. As a result, the Build Alternative would not result in an adverse effect on environmental justice or non-environmental justice communities.

Cumulative Impacts

The proposed project is located within an environmental justice community which extends well beyond the project area. The proposed project would reduce congestion, improve traffic operation, and safety at the interchange, which would benefit the surrounding environmental justice communities. The proposed project would not result in adverse effects to either environmental justice or non-environmental justice communities but would instead provide a net benefit to both communities.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Project Features

PF NOI-1: Caltrans Standard Noise Control BMPs such as limiting paving and demolition activities to between 7:00 a.m. and 7:00 p.m.

Avoidance and Minimization

No avoidance or minimization measures specific to environmental justice would be required.

Mitigation Measures

No mitigation would be required.

2.1.8 UTILITIES AND EMERGENCY SERVICES

This section evaluates impacts to public utilities that may occur from implementation of the proposed project. The study area includes the cities of Emeryville and Berkeley, as well as utility service districts that would serve the proposed project. Information in this section draws upon multiple sources, including:

- City of Emeryville General Plan (Amended 2019)
- City of Berkeley General Plan (2003)

AFFECTED ENVIRONMENT

Emeryville and Berkeley are served by a variety of local and regional utilities. Table 2.1-5 summarizes utilities that are present within the study area.

Table 2.1-5 Public Utility Providers Serving Emeryville and Berkeley

Utility Type	Provider	Description
Water	East Bay Municipal Utility District (EBMUD)	Both Emeryville and Berkeley purchase its water from EBMUD. EBMUD captures the water from public and private watersheds in the Mokelumne River and collects it at Pardee Reservoir. About 325 million gallons daily come from the Mokelumne River watershed.
Wastewater	East Bay Municipal Utility District (EBMUD)	EBMUD operates the wastewater treatment plant that services both Emeryville and Berkeley and cleans the wastewater before discharging it into the San Francisco Bay. The wastewater solids are removed, treated, and beneficially reused.
Gas and Electricity	Pacific Gas and Electric (PG&E)	Provides electricity service and natural gas

Utility Type	Provider	Description
Waste Management	Waste Management of Alameda County (WMAC)	Community-based provider of waste, recycling and composting services.
Communication Services	Comcast and AT&T	Cable, high-speed internet, voice

Source: City of Emeryville 2020. City of Berkeley 2020. Available: https://www.cityofberkeley.info/Public_Works/Sidewalks-Streets-Utility/Utility_Service_Information.aspx. City of Emeryville, 2020. Available: https://www.ci.emeryville.ca.us/Environmental Consequences

ENVIRONMENTAL CONSEQUENCES

Build Alternative

Permanent Operational Impacts

Operation of the Build Alternative would not require expanded utility services. As a roadway and highway improvement project, the Build Alternative would not add demand to local utility providers. The existing I-80 corridor and local roadway network utilizes electrical utilities for nighttime lighting and signage. Once the Build Alternative is operational, it would require similar electrical power for nighttime lighting and support for electrical signage such as changeable message boards. Operation of the Build Alternative would not result in adverse effects to utilities, as the improved transportation facility would not generate a substantial demand for increased utility services.

Temporary Construction Impacts

Under the Build Alternative, construction activities have the potential to temporarily affect existing utilities in the project area. Demolition and excavation activities along the I-80 corridor, at interchange on- and off-ramps, bridge structures, and local roadway realignments would require the removal and replacement or relocation of existing utilities. Along I-80 and on the interchange ramps, utilities are typically limited to electrical conduit that provides power to lights and roadway signage. Improvements to I-80 and new ramp configurations would include appropriate utilities within the ROW to provide nighttime lighting and power for signage. Additionally, stormwater conveyance facilities such as drainage lines and inlets would be removed and replaced in-kind.

The Build Alternative would include relocation of existing utilities along local roadways in coordination with affected utility owners. Local roadways are anticipated to contain a

broader array of utilities within the ROW, including telecommunication lines, water, sewer, stormwater, and gas and electric lines. Construction of the Build Alternative would require temporary shutoffs of existing utilities to allow for local roadway improvements.

As a part of AMM UTL-1, utilities would be relocated to acceptable locations within the existing or new ROW and affected utility customers would be notified prior to any service interruption. Effects related to utilities would be temporary and would cease at the end of the construction period.

The closest fire station to the project area is Alameda County Fire Station No. 35, approximately 1 mile to the southeast. No property owned or used by emergency service providers would be acquired or otherwise used as part of the Build Alternative. However, construction activities would have the potential to temporarily disrupt roadway access within the project area, potentially affecting emergency access during construction. AMM UTL-2 would ensure that emergency service providers are notified in advance of any roadway closure or change in local access, as a part of the TMP. This would allow emergency service providers to be aware of detours in advance and plan alternate routes where needed.

Emeryville Police Department office is located 1.1 miles north of the interchange. Construction of the Build Alternative may temporarily disrupt roadway access within the project area. AMM UTL-2 would ensure that emergency service providers are notified in advance of any roadway closure or change in local access, as a part of the TMP. This would allow emergency service providers to be aware of detours in advance and plan alternate routes where needed.

Cumulative Impacts

Cumulative impacts arise due to the linking of impacts from past, present, and foreseeable future projects in the region. As discussed, the proposed project would not result in adverse effects to utilities or emergency services. Therefore, the proposed project would not contribute to any potential cumulative effects to these resources.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Project Features

There are no project features associated with utilities or emergency services.

Avoidance and Minimization

AMM-UTL-1**:** Relocation of Utilities. Detailed utility coordination and verification will be required during the final design phase of the proposed project to facilitate relocation of utilities.

AMM-UTL-2: Emergency Service Coordination. Emergency service providers will be notified prior to construction of any temporary road closures and/or detours as part of the TMP.

See Appendix C for the full text of AMMs UTL-1 through UTL-2.

Mitigation Measures

No mitigation would be required.

2.1.9 TRAFFIC AND TRANSPORTATION/PEDESTRIAN AND BICYCLE FACILITIES

This section summarizes impacts to traffic and transportation facilities that may occur from implementation of the proposed project based on the Traffic Operations Analysis Report (Kittelson 2021). The traffic study area includes the I-80 interchange at Ashby Avenue in the cities of Emeryville and Berkeley and the intersection of 7th Street and Ashby Avenue. The freeway mainline was not included in the analysis because the proposed project does not propose any changes to the freeway mainline capacity.

REGULATORY SETTING

Federal

Federal Highway Administration

The Department, as assigned by the 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.

Americans with Disabilities Act

In July 1999, the U.S. Department of Transportation issued an Accessibility Policy Statement pledging a fully accessible multimodal transportation system. Accessibility in

federally assisted programs is governed by the U.S. Department of Transportation regulations (49 CFR 27) implementing Section 504 of the Rehabilitation Act (29 United States Code [USC] 794). The 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.

AFFECTED ENVIRONMENT

This section describes the existing and planned transportation system within the project area, including the roadway network, transit services, and bicycle and pedestrian facilities, as discussed in the TOAR (March 2021).

Access, and Circulation

Interstate Route

The I-80 freeway extends in a northwest/southwest direction on the east side of the San Francisco Bay, connecting Richmond and Oakland. It is the principal east-west route through northern California and the sole freeway crossing of the Sierra Nevada range. I-80 terminates at its intersection with U.S. 101 in San Francisco.

Arterial Roads

Ashby Avenue connects to I-80 to the west and runs eastward into Berkeley. Ashby Avenue is a two-lane roadway in each direction and provides a vital connection to I-80. It is generally a 4-lane facility with occasional landscape medians and on-street parking. Ashby Avenue currently does not have striped or dedicated bike lanes.

West Frontage Road runs parallel to I-80 on the west side between San Francisco Bay and I-80. The street is part of the route that links pedestrians and bicyclist to create multimodal connectivity in the area. The road starts at Gilman Street and terminates at Powell Street.

Shellmound Street and Bay Street run parallel to I-80 on east side of the proposed project. Shellmound Street is called Bay Street north of Ashby Avenue. Bay Street is the primary access to the south end of the Aquatic Park and Bolivar Drive. Shellmound Street is currently not directly accessible from Ashby Avenue. Ashby Avenue runs under Shellmound Street, which must be accessed by backtracking through side streets at using 7th Street. Shellmound Street extends south from Ashby Avenue and terminates at 40th Street adjacent to the confluence of I-80, I-580, and I-880.

Study Area

The traffic study area includes the interchange in the cities of Emeryville and Berkeley.

Existing Traffic Operations

Level of service (LOS) describes the operating conditions experienced by users of a facility. LOS is a qualitative measure of the effect of various factors, including speed and travel time, traffic interruptions, freedom to maneuver, driving comfort and convenience. Levels of service are designated A through F from best to worst, which cover the range of potential traffic operations. LOS A through E generally represents traffic volumes at less than roadway capacity, while LOS F represents over capacity and/or forced flow conditions. Detailed methodologies for determining LOS for freeway and intersection operations is provided in the TOAR.

Freeway Operations

Operation of freeway segments were not analyzed because the proposed project does not include any changes to the freeway mainline that would affect freeway capacity. As such, freeway operations are not discussed further.

Intersection Operations

Traffic analysis models incorporated signal timing plans provided by the City of Berkeley for the 7th Street and Ashby Avenue intersection. The other three intersections are unsignalized. Results of the intersection LOS analysis for the existing condition AM and PM peak hours are shown in Table 2.1-6. As shown, none of the intersections analyzed operate below LOS D under existing conditions.

Transit

Alameda-Contra Costa Transit District (AC Transit)

AC Transit is the third-largest public bus system in California, serving 13 cities and adjacent unincorporated areas in Alameda and Contra Costa counties. AC Transit ridership includes approximately 14,500 transbay commuters. Bus lines that run on or near the project area include the following transbay service line:

- Transbay Line J: Sacramento – Christie Transbay

Pedestrian and Bicycle Facilities

Bicycle lanes around the study area are depicted in Figure 1.3-1 in Section 1.3, Purpose and Need. Existing facilities include the San Francisco Bay Trail, and a Class I multi-use path on the west side of the project area. Shellmound Street, on the east side of the

project area, is also connected to the San Francisco Bay Trail, providing Class II bicycle lanes. The study area including the interchange lacks connectivity for different modes of transportation (i.e., vehicular, bicycle and pedestrian users). Additionally, there is no direct pedestrian and bicyclist access to the San Francisco Bay Trail from 65th Street/Shellmound Street area. .

Table 2.1-6 Existing AM and PM Peak Hour Intersection Operations

Study Intersection	Control Type	Worst Movement	V/C	Delay (sec)	LOS
Weekday AM Peak Hour (7:50-8:50 AM)					
Frontage Road and I-80 SB off-ramp	All-way stop	SB Left	0.74	24.4	C
Frontage Road and I-80 SB on-ramp	All-way stop	SEB Thru	0.86	22.8	C
Shellmound Street and I-80 NB off-ramp	Two-way stop	EB Left	0.01	12.6	B
7th Street and Ashby Avenue	Signalized	SB Right	0.83	49.4	D
Weekday PM Peak Hour (5:15-6:15)					
Frontage Road and I-80 SB off-ramp	All-way stop	NB Thru	0.82	18.7	C
Frontage Road and I-80 SB on-ramp	All-way stop	NWB Thru	0.89	24	C
Shellmound Street and I-80 NB off-ramp	Two-way stop	EB Left	0.01	11.9	B
7th Street and Ashby Avenue	Signalized	SB Right	0.79	48.8	D

Source: Kittleson 2020

ENVIRONMENTAL CONSEQUENCES

As discussed in the TOAR, future traffic forecasts were developed for the following scenarios:

- Opening Year (2025) No Project
- Opening Year (2025) Plus Project
- Future Year (2045) No Project
- Future Year (2045) Plus Project

Permanent Operational Impacts

Intersection Analysis

To determine the project's impact on intersection operations, opening year (2025) projections of intersection performance and future year (2045) projections of performance were both compared to No Build Alternative conditions in these years. Opening year projections are shown in Table 2.1-7 (AM peak hour) and Table 2.1-8 (PM peak hour) while future year projections are shown in Table 2.1-9 (AM peak hour) and Table 2.1-10 (PM peak hour). All tables include both No Build Alternative and Build Alternative projections

In both scenarios, three of four existing intersections (numbers 7-10) would operate below the LOS D threshold under the No Build Alternative. Intersections built as part of the Build Alternative (numbers 1-6) would all operate at LOS D or better. The intersection of 7th Street and Ashby Avenue is anticipated to have an increase in the average vehicle delay under 2045 AM Build Alternative conditions compared to the No Build. However, the overall volume to capacity ratio in the AM peak hour will decrease with the Build Alternative. The PM peak hour shows the intersection of 7th Street and Ashby Avenue reducing the delay and volume to capacity ratio.

Table 2.1-7 2025 AM Peak Hour Intersection Operations

ID	Segment	2025 No Build Alternative			2025 Build Alternative		
		V/C	Delay	LOS	V/C	Density	LOS
1	Frontage Road and Ashby Avenue	-			0.51	42.2	D
2	I-80 WB Ramps and Ashby Avenue	-			0.67	29.0	C
3	I-80 EB Ramps and Ashby Avenue	-			0.31	17.1	B
4	Shellmound Connectors and Ashby Avenue	-			0.35	12.4	B
5	Shellmound Connector WB and Shellmound Street	-			0.19	7.8	A
6	Shellmound Connector EB and Shellmound Street	-			0.51	12.0	B
7	7th Street and Ashby Avenue	0.93	61	E	0.92	58.4	E
8	Frontage Road and I-80 WB Off-ramp	0.95	36.8	E	-		
9	Frontage Road and I-80 WB On-ramp	1.01	37.5	E	-		
10	Shellmound Street and I-80 EB Off-ramp	0.01	12.9	B	-		

Source: Kittleson 2020
Note: Grey highlighted cells indicate intersections operating at below LOS D.

Table 2.1-8 2025 PM Peak Hour Intersection Operations

ID	Segment	2025 No Build Alternative			2025 Build Alternative		
		V/C	Delay	LOS	V/C	Density	LOS
1	Frontage Road and Ashby Avenue (Tight Diamond)	-			0.55	33.1	C
2	I-80 WB Ramps and Ashby Avenue	-			0.72	26.6	C
3	I-80 EB Ramps and Ashby Avenue	-			0.69	13.9	B
4	Shellmound Connectors and Ashby Avenue	-			0.49	17.7	B
5	Shellmound Connector WB and Shellmound Street	-			0.38	8.7	A
6	Shellmound Connector EB and Shellmound Street	-			0.01	13.8	B
7	7th Street and Ashby Avenue	1.14	124.9	F	0.99	73.9	E
8	Frontage Road and I-80 WB Off-ramp	1.44	118.9	F	-		
9	Frontage Road and I-80 WB On-ramp	1.65	168.3	F	-		
10	Shellmound Street and I-80 EB Off-ramp	0.02	18.7	C	-		

Source: Kittleson 2020
Note: Grey highlighted cells indicate intersections operating at below LOS D.

Table 2.1-9 2045 AM Peak Hour Intersection Operations

ID	Segment	2045 No Build Alternative			2045 Build Alternative		
		V/C	Delay	LOS	V/C	Density	LOS
1	Frontage Road and Ashby Avenue		-		0.71	41.3	D
2	I-80 WB Ramps and Ashby Avenue		-		0.93	42.7	D
3	I-80 EB Ramps and Ashby Avenue		-		0.23	28.4	C
4	Shellmound Connectors and Ashby Avenue		-		0.52	21.0	C
5	Shellmound Connector WB and Shellmound Street		-		0.38	8.7	A
6	Shellmound Connector EB and Shellmound Street		-		0.71	16.7	C
7	7th Street and Ashby Avenue	1.20	146.2	F	1.15	149.5	F
8	Frontage Road and I-80 WB Off-ramp	1.28	128.7	F	-		
9	Frontage Road and I-80 WB On-ramp	1.57	180.5	F	-		
10	Shellmound Street and I-80 EB Off-ramp	0.01	13.6	B	-		

Source: Kittleson 2020
Note: Grey highlighted cells indicate intersections operating at below LOS D.

Table 2.1-10 2045 PM Peak Hour Intersection Operations

ID	Segment	2045 No Build Alternative			2045 Build Alternative		
		V/C	Delay	LOS	V/C	Density	LOS
1	Frontage Road and Ashby Avenue (Tight Diamond)		-		0.75	35.9	D
2	I-80 WB Ramps and Ashby Avenue		-		1.04	44.2	D
3	I-80 EB Ramps and Ashby Avenue		-		0.91	21.8	C
4	Shellmound Connectors and Ashby Avenue		-		0.53	19.3	B
5	Shellmound North and Shellmound Street		-		0.43	9.3	A
6	Shellmound South and Shellmound Street		-		0.71	17.7	C
7	7th Street and Ashby Avenue	1.41	236.7	F	1.26	174.6	F
8	Frontage Road and I-80 WB Off-ramp	1.88	201.6	F	-		
9	Frontage Road and I-80 WB On-ramp	1.82	282.7	F	-		
10	Shellmound Street and I-80 EB Off-ramp	0.03	24.1	C	-		

Source: Kittleson 2020
Note: Grey highlighted cells indicate intersections operating at below LOS D.

Queue Analysis

Queueing at intersections in the study area would cause traffic backups that extend onto other nearby roadways if adequate storage is not provided. The TOAR evaluated the maximum (95th percentile probability) queues on individual intersection approaches. As discussed in detail in that report, the intersection within the Build Alternative would be timed to manage queues and prevent queue spillback between the two ramp terminal intersections. Therefore, queueing would be contained within the new vehicle storage areas included in the redesigned interchange, and queues on the off-ramps would not affect the freeway mainline or other surface streets in the project area.

Transit

Long term impacts of the proposed project on bus travel would generally be positive because of the reduction of delay and congestion at the study intersections. The proposed project is not anticipated to require the modification of existing bus stops or routes.

Pedestrian and Bicycle Access

The proposed project would provide a new connection between the east and west sides of I-80 via a separated BPOC structure stretching from 65th Street to the east to West Frontage Road to the west. This new structure would improve access to Point Emery and the San Francisco Bay Trail. This improvement would be a net benefit of the proposed project.

Temporary Construction Impacts

Under the No Build Alternative, there would be no construction impacts to circulation and access, private parking, traffic operations, transit system, and bicycle and pedestrian facilities. However, public parking (approximately 14 on-street spaces) would temporarily not be available during the closure of West Frontage Road during construction. Bicycle and pedestrian access via the San Francisco Bay Trail would be maintained during the closure of West Frontage Road and throughout the construction period. In addition, a temporary detour around the outfall construction area would be implemented to ensure the continual availability of the San Francisco Bay Trail Figure 2.1-5 (AMM TRA-5).

During construction of the proposed project, vehicular, bicycle and pedestrian circulation would be maintained using detours and temporary signs, as required (AMM TRA-1 through AMM TRA-4). Temporary lane and ramp closures would be required when low traffic volumes occur to construct specific items of work. Work would be conducted along the roadways, sidewalk, and pedestrian crossings. Incorporation of PF TRA-1,

requiring the preparation of a TMP, would reduce temporary impacts on traffic, transit users, bicycles, and pedestrians.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Project Features

PF-TRA-1: A TMP will be prepared to ensure efficient movement of local and regional traffic during construction.

Avoidance and Minimization

AMM TRA-1: The I-80 mainline closures would occur at night for the placement of the pre-cast girders for the proposed Ashby overcrossing, demolition of the remaining original ramp structures over I-80 and false work erection and removal for the bike and pedestrian overcrossing.

AMM TRA-2: During the construction of West Frontage Road, vehicular detours and closure would be anticipated. West Frontage Road would be closed to traffic from University Avenue to Powell Street. Once the construction of West Frontage Road is completed in Stage 3, temporary access ramps would be put in place and vehicular access would be restored.

AMM TRA-3: Mainline traffic would be transitioned temporarily onto the right shoulder to accommodate the median falsework support structure for BPOC. This temporary lane shift would be striped and signed accordingly. Nighttime work is anticipated for the following construction activities; k-rail installation and removal, installation of precast girders, existing ramp and abutment demolition, falsework erection and removal, temporary striping for the lane shifts during BPOC construction and permanent striping activities. Lane closure plans would be developed for nighttime closures at each construction stage.

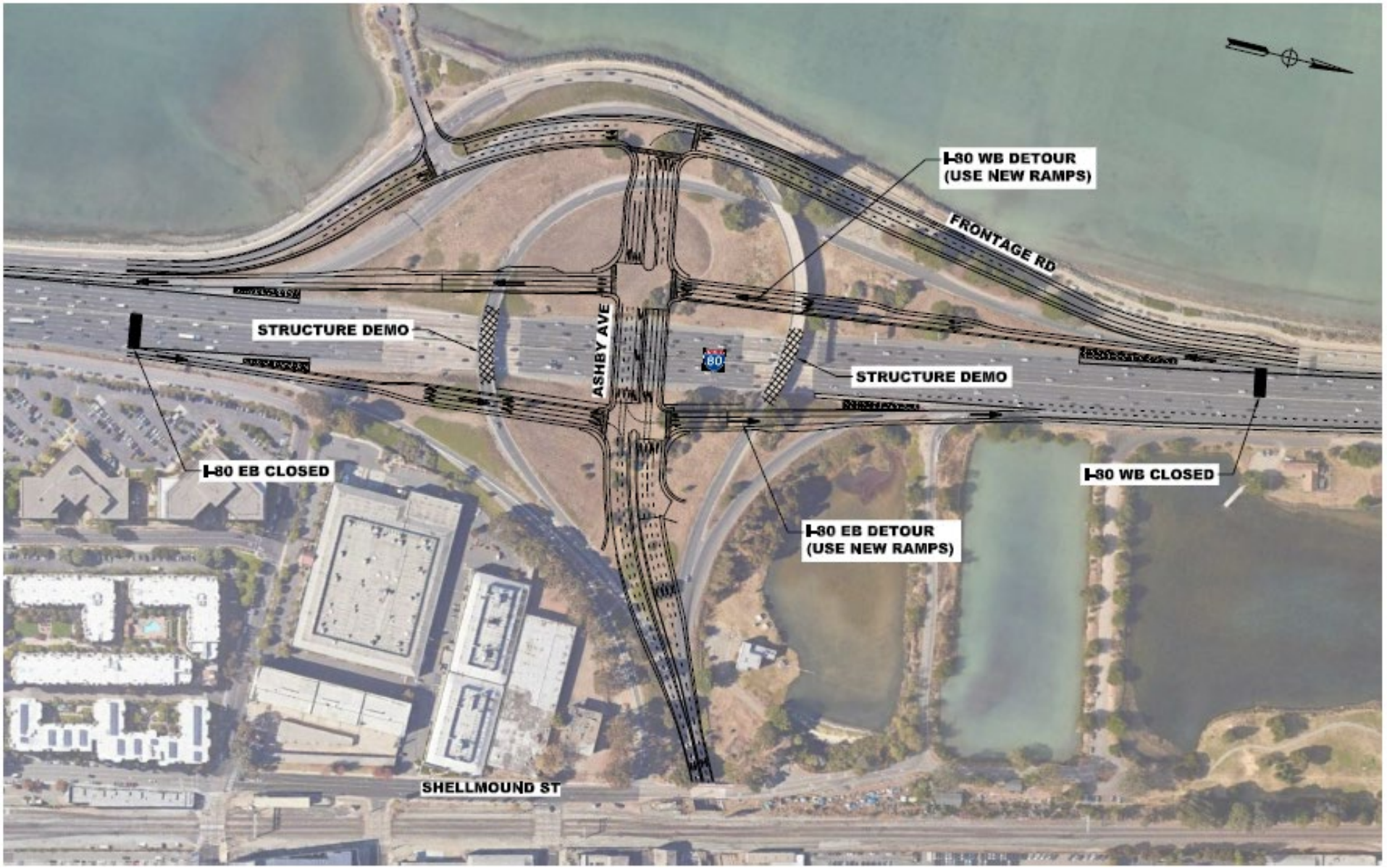
AMM TRA-4: The Potter Street eastbound I-80 On-Ramp would remain open until the construction of the new on-ramp and then it would be permanently closed and replaced by the new on-ramp. In the interval between the closure of the Potter Street on-ramp and the opening of the new eastbound on-ramp, detours would be established to direct traffic to use either University Avenue or Powell Street to access eastbound I-80.

AMM TRA-5:During construction of the new outfall area, a temporary detour around the construction area will be implemented. The West Frontage Road closure would not interfere with the use of the San Francisco Bay Trail. However, it would limit access to Point Emery and Barkley Beach via automobile and any waterborne vehicle launching at Point Emery and Barkley Beach during the temporary closure.

See Appendix C for the full text of AMMs TRA-1 through TRA-5.

Mitigation Measures

No mitigation would be required.



Detour Plan – I 80 Closed for Ramp Demo Figure **2.1-5**

Source: Circlepoint 2020; City of Emeryville, 2019

2.1.10 VISUAL/AESTHETICS

This section evaluates the proposed project's effect on the visual environment. Information in this section is primarily drawn from the Visual Impact Assessment (VIA) prepared for the proposed project. The visual study area (VSA) is shown on Figure 2.1-6.

REGULATORY SETTING

Federal

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* (emphasis added) and culturally pleasing surroundings (42 United States Code [USC] 4331[b][2]). To further emphasize this point, the 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.

State

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]).

California Streets and Highways Code Section 92.3 directs Caltrans to use drought resistant landscaping and recycled water when feasible and incorporate native wildflowers and native and climate-appropriate vegetation into the planting design when appropriate.

Visual Study Area

Figure **2.1-6**

Source: Google Earth, Circlepoint 2020.

Classified Landscaped Freeways

Within the proposed project limits, I-80 is a Classified Landscaped Freeway. The classification assists in the regulation and control of the placement of outdoor advertising displays. The criteria states that plantings within the state right-of-way must be continuous (no gaps greater than 200 feet), ornamental (not functional), at least 1,000 feet long, on at least one side of the freeway, and require reasonable maintenance.

AFFECTED ENVIRONMENT

This section presents information regarding identification of scenic resources, character, and quality of existing views within the visual study area (VSA) and selection of key viewpoints (KVPs). Scenic resources were evaluated at local, municipal, county, and state levels through review of general plans, policies, designations by the State, and on-site reviews. I-80 and SR 13 are not listed as Eligible or Officially Designated State Scenic Highways. However, the Alameda County General Plan, Scenic Route Element, states the importance of conserving, enhancing, and protecting scenic views observable from scenic routes and I-80 within the project area is an Alameda County Scenic Route.

The BCDC identifies the views of the San Francisco Bay as one of its most highly valued aspects and has designated I-80 through the project area as a scenic drive. Scenic resources visible within the project area have been identified in public documents. Emeryville's Visual Resources Element in the city's general plan (2019) identifies the San Francisco Bay to the west and the East Bay Hills to the east as two major natural elements. Berkeley's Urban Design and Visual Quality Element (2001) of its draft general plan identifies, "Views from Berkeley toward the San Francisco Bay, the skyline of San Francisco, the Bay Bridge, the Golden Gate Bridge, and the East Bay Hills have long been identified as being among Berkeley's greatest assets."

Visual Assessment Units

The VSA was divided into three visual assessment units to best characterize the area's unique characteristics.

Each visual assessment unit has unique land uses, users, and perspectives of existing visual resources and how the project features would affect them. The general character and quality of the visual environment was analyzed within each visual assessment unit. The three visual assessment units and the locations of KVPs within those units are shown in Figure 2.1-7 and described below.

Visual Assessment Unit 1 – West Side of Interchange

This Visual Assessment Unit includes the areas between the western edge of I-80 to the San Francisco Bay shoreline. The border to the east is the western edge of I-80, to the south it aligns with 64th Street, to the west is the shoreline, and to the north it aligns with Grayson Street. The unit was selected because of its cohesive character as open space, and a place where people come to enjoy views of San Francisco Bay, marine wildlife, and marine-related activities such as boating and sailboarding. Two KVPs were selected within this Visual Assessment Unit:

- KVP 1.1: (Figure 2.1-8) Vantage point on West Frontage Road at the entrance to the parking lot at Point Emery. View looking east from a public road, serving access to the San Francisco Bay shoreline and local communities, will illustrate the proposed Ashby Avenue Interchange with the addition of a BPOC.
- KVP 1.2: (Figure 2.1-10) Vantage point on San Francisco Bay Trail approximately 560 feet north of Point Emery. View looks east of the portal/tunnel under West Frontage Road. This alternative would provide pedestrian access from the BPOC to the shoreline without having to cross West Frontage Road.

Visual Assessment Unit 2 – I-80 Corridor

This Visual Assessment Unit includes the I-80 highway corridor with the eastern border at the eastern edge of highway shoulder, the south border aligning with 64th street, the west border at the west edge of highway shoulder, and the north border aligning approximately with Grayson Street. The common use of this land is vehicular transportation of motorists, goods, and services in transit from points of origin to destination. Motorists may be passing through the project limits, and they may be accessing the other visual assessment units by entering and exiting the I-80/Ashby Avenue interchange and adjacent interchanges at Powell Street in Emeryville and University Avenue in Berkeley. Four KVPs were selected within this Visual Assessment Unit.

- KVP 2.1: (Figure 2.1-12) Vantage point on eastbound I-80, east of Powell Street. View looks east of San Francisco Bay and the proposed BPOC.
- KVP 2.2: (Figure 2.1-14) Vantage point on eastbound I-80, approximately 419-feet west of 65th Street. View looks east at the proposed BPOC.
- KVP 2.3: (Figure 2.1-16) Vantage point on westbound I-80, east of the westbound I-80 elevated off-ramp to Ashby Avenue. View looking west of medium-rise commercial buildings and high-rise multi-family residential

complex on the east side of the highway. View would illustrate the east side of the proposed BPOC at I-80.

- KVP 2.4: (Figure 2.1-18) Vantage point on westbound I-80 to the west of W. Bolivar Drive. View looking west would illustrate the proposed Ashby Avenue vehicular bridge over I-80.

Visual Assessment Unit 3 – East Side of Interchange

This Visual Assessment Unit includes the areas within the environmental study limits that are to the east of I-80. It is bordered to the east by the Ashby Avenue ROW to Seventh Street, and the east edge of the (Union Pacific Railroad) UPRR ROW. To the south it is bordered by 65th Street. To the west, the border is the east edge of I-80. To the north it is bordered by Potter Street and West Bolivar Drive. This Visual Assessment Unit includes mixed-use land uses including recreation at Aquatic Park, the east half of the Ashby Avenue interchange, which is transportation, a school, multi-family housing, health care facilities, and commercial businesses. In contrast to Visual Assessment Units 1 and 2 that are singular in focus and land use, Visual Assessment Unit 3 is diverse and mixed-use. One common feature is that many views from the medium- to high-rise buildings in this Visual Assessment Unit are toward San Francisco Bay.

Three KVPs were selected within this Visual Assessment Unit:

- KVP 3.1: (Figure 2.1-20) Vantage point at the intersection of 65th Street and Christie Avenue. View looking west of a local street, the horizon, tall evergreen screening trees at the end of the street, small ornamental trees within private property, vehicles on the highway, and a screened view of the San Francisco Bay to the west. View looks at the southwest quadrant of the I-80/Ashby Avenue interchange, and would illustrate the BPOC.

- KVP 3.2: (Figure 2.1-22) Vantage point on the Bay Street bridge over Ashby Avenue. View looks west of Ashby Avenue, the east side of the interchange, Aquatic Park to the north, the KRE Radio building and tower, mature trees and shrubs adjacent to Ashby Avenue, the San Francisco Bay, and the horizon. View looking west would illustrate the proposed Ashby Avenue with retaining walls, barriers, and proposed trees and grass.

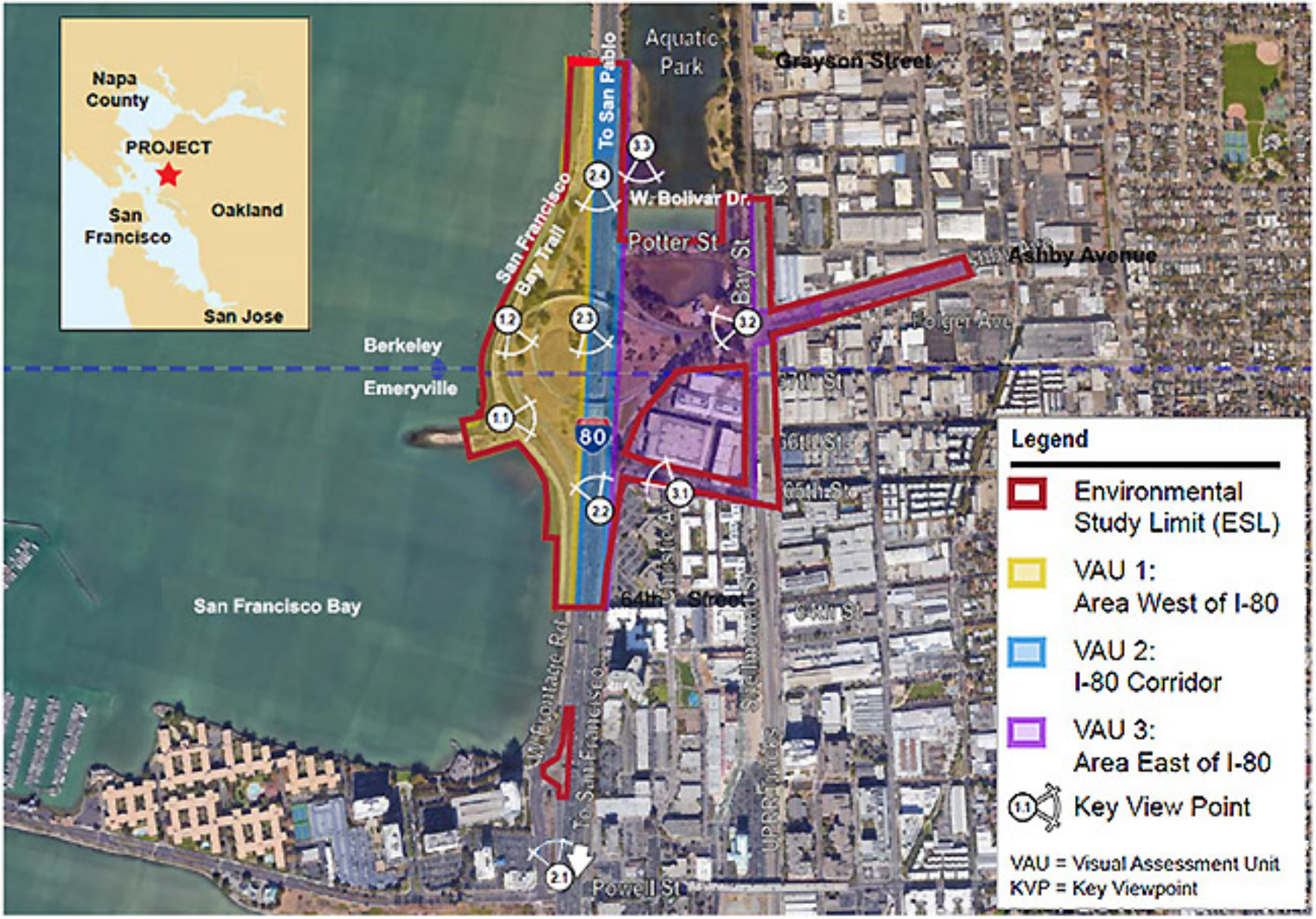
- KVP 3.3: (Figure 2.1-24) Vantage point at the boathouse at Aquatic Park. View looks west of the inland waters of the park, groves of trees adjacent to West Bolivar Drive, the high-rise multi-family housing complex in the distance, and views of I-80 including the concrete barrier, lights, and vehicles. View looking west would illustrate the proposed features of the Ashby Avenue interchange project.

Viewer Exposure and Sensitivity

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 can keep an object in view. The longer an object can be kept in view, the more exposure. High viewer exposure helps predict that viewers will have a response to a visual change. Viewer exposure and sensitivity for the primary viewer groups in the VSA are summarized below. 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 observing their surroundings, the more sensitivity viewers will have of changes to visual resources. Awareness relates to the focus of view—the focus is wide and the view general or the focus is narrow and the view specific. The more specific the awareness, the more sensitive a viewer is to change. Local values and attitudes also affect viewer sensitivity. If 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 will be more sensitive to visible changes. High viewer sensitivity helps predict that viewers will have a high concern for any visual change.

Community Residents

While most of the land surrounding the interchange consists of either park or commercial uses, there are multi-family residences on local streets such as 65th Street and Christie Avenue to the southeast of the project area in Emeryville, where residents would have long-duration exposure to views of project features. Residents are the viewer group considered to be the most sensitive to changes within their viewshed because they are exposed to views the longest from their residential and neighborhood vantage points.



Visual Assessment Units and Key Views Figure **2.1-7**

Source: Circlepoint, 2020

Recreation Areas

Bicyclists, pedestrians, and other users of Aquatic Park to the northeast of the project area and the San Francisco Bay Trail to the west of the project area would have moderate durations of exposure to views toward the project features. Their exposure levels would range from moderate-low to moderate-high depending on their distance from project features, intervening elements such as fences and vegetation and their levels of interest. Park users would have moderate to high levels of sensitivity to project features placed within their viewshed. Their sensitivity would depend upon their distance from the feature, intervening vegetation, topography, and structures, and how focused they are on their recreation activity.

Commercial Areas

Commercial business in both Berkeley and Emeryville are located on the east side of the existing interchange. An estimated total of several hundred viewers a day visit these sites and have short- to moderate-duration views of the project features. Commercial employees and patrons would likely have moderate to low levels of exposure to the project features. Employees and patrons would have moderate to low levels of sensitivity to project features depending on the location and type of business and the individual's purpose for being there. Business owners with properties facing I-80 and the San Francisco Bay would have moderate-high levels of sensitivity to project changes near their establishments. Employees and patrons are focused on their business and purpose for being in the commercial area.

Local Streets

In the cities of Berkeley and Emeryville, several hundred motorists, a few bicyclists and many persons using motorized scooters using the four local cross streets and three parallel streets at I-80 each day have short to moderate durations of exposure to views of the highway and project features at local streets (refer to the TOAR for data regarding travel in and near the project area). There is one Ashby Avenue overpass at Bay Street with pedestrian sidewalks west of Aquatic Park. Pedestrians would have moderate durations of exposure to views of Ashby Avenue and project features. Pedestrians and bicyclists on local streets would have moderate durations of exposure to any project feature placed within their viewshed depending upon traffic speeds and day of travel.

Motorists, bicyclists, and persons using motorized scooters using local streets at West Frontage Road would have moderate to high levels of sensitivity to project features added to West Frontage Road, the San Francisco Bay Trail, and to the west side of the interchange. Motorists, bicyclists, and persons on motorized scooters using SR 13 (Ashby Avenue) would have moderate-high levels of sensitivity to project features added to Ashby Avenue and the interchange. Pedestrians on local streets would have

moderate to moderate-high levels of sensitivity to project features depending on the changes made to the character and quality of the viewshed.

Motorist on I-80 and SR 13

Daily commuters may have an increased exposure to views from the road due to the amount of time spent on the highway each day. Those who experience congested traffic conditions would tend to focus views toward the highway itself. Drivers travelling at normal highway speeds usually focus attention on long-range, non-peripheral views. Durations of exposure to views from the highway would vary from moderate to moderate-high. Passengers are anticipated to have a high duration of exposure to views. Daily commuters have moderate-high awareness and sensitivity to views from the road due to the amount of time spent on the highway each day. Those who experience congested traffic conditions would tend to focus views toward the highway itself. Drivers traveling at normal highway speeds usually focus attention on long range non-peripheral views. Passengers are anticipated to have a higher level of awareness and sensitivity to a wide range of views.

ENVIRONMENTAL CONSEQUENCES

No Build Alternative

Under the No Build Alternative, none of the proposed project features described above would be constructed. If the proposed project were not constructed, no immediate changes would be made to I-80, Ashby Avenue, West Frontage Road, or the surrounding roads within the overall VSA. No construction activities would occur, and there would be no change to the operation of I-80 or local roadways. The No Build Alternative would have no effect related to aesthetics or the visual environment.

Build Alternative

Nine KVPs have been identified for the Build Alternative. The overall locations within the study area for the KVPs are shown in Figure 2.1-8. KVPs and their specific locations, along with descriptions for these, follow below. Note that all existing photos used as part of this assessment were taken in 2020.

Visual Assessment Unit 1: West Side of Interchange

Two viewpoints (KVP 1.1 and KVP 1.2) were selected within Visual Assessment Unit 1 to best represent views from the San Francisco Bay Trail and West Frontage Road, both located west of I-80.

KVP 1.1 – Near Point Emery Looking Northeast

Existing Visual Character/Quality: This viewpoint is located near Point Emery looking east towards the project area. Viewer groups experiencing the proposed project from this KVP would include bicyclists and pedestrians traveling on the San Francisco Bay Trail, or motorists travelling on West Frontage Road. As shown in Figure 2.1-8, West Frontage Road is in the immediate foreground from this vantage point, with westbound on- and off-ramps associated with I-80 visible to the right and left, respectively. Views of I-80 are partially obscured by existing embankments on the west side of I-80. Screened views are afforded of the ridge lines of the East Bay Hills beyond the embankments, vegetation, signage, and existing buildings to the southeast.

Figure 2.1-8: KVP 1.1(Existing Conditions)

Figure 2.1-9: KVP 1.1 (Simulation)

Proposed Project: Within this view, the new BPOC and associated ramp would be visible to the viewer, as shown in Figure 2.1-9.

Changes to Visual Character and Quality: The addition of the BPOC structure and its associated ramp would change the overall visual character and quality of the view. West Frontage Road would be shifted to the east approximately 25 feet in this location, and approximately 4 feet higher than the existing elevation of the road. A curved BPOC on columns would be added to the view. A pedestrian path to the right of the grass area would provide access from the BPOC to Point Emery. A vehicle connection shown to the right of the path would provide access from West Frontage Road to the Point Emery parking lot adjacent to the San Francisco Bay Trail. The lights and trees shown at the highest point of the interchange to the left is the location of the proposed signalized intersection at Ashby Avenue and the I-80 on- and off-ramps.

Vividness or memorability of the view would be increased to moderate-high with the addition of the sculptural forms of the BPOC in the view. Intactness would be increased to moderate. That both of these values would be increased is directly related to the removal of disjointed and textured man-built features that intrude on the view of the natural environment and are replaced by one large permeable sculptural feature in the

BPOC that organizes and simplifies the view. Scenic views of the East Bay Hills would be diminished but not totally blocked from view because of the permeability of the forms in the BPOC that would provide some views to the east of the hills

Resource Change: The overall resource change would be moderate.

Anticipated Viewer Response: Viewers including bicyclists and pedestrians travelling along the San Francisco Bay Trail or motorists on West Frontage Road are anticipated to have a moderate response level to the addition of the proposed project.

Resulting Visual Impact: The new BPOC would result in moderate levels of visual impact with the addition of the proposed project.

KVP 1.2 – From San Francisco Bay Trail North of Point Emery Looking East

Existing Visual Character/Quality: This viewpoint is located along the San Francisco Bay Trail north of Point Emery looking east towards the project area. Viewer groups at this KVP would include bicyclists and pedestrians traveling on the San Francisco Bay Trail. As shown in Figure 2.1-10, West Frontage Road and the embankment west of the I-80 westbound on-ramp are in the immediate foreground of this KVP. In the foreground is West Frontage Road. The intersection of West Frontage Road and the I-80 westbound on-ramp (with the line of vehicles) is to the right in the view. I-80 is beyond the ramp. The I-80/Ashby Avenue interchange mound with ice plant vegetation and mature trees is in the mid-range view. A row of mature trees is visible to the east of I-80, and the ridgelines of the East Bay Hills are visible in the distance. Commercial buildings are visible to the east of I-80.

Figure 2.1-10: KVP 1.2 (Existing Conditions)

Figure 2.1-11: KVP 1.2 (Simulation)

Proposed Project: Within this view, the realigned West Frontage Road, the bicycle/pedestrian undercrossing and additional pedestrian and bicycle paths and undercrossing would change the overall visual character and quality of the view, as shown in Figure 2.1-11.

Changes to Visual Character: West Frontage Road would be shifted to the east approximately 65 feet and elevated 10.5 feet in this location. Two options for crossing West Frontage Road are proposed. One would be an at-grade crossing, and the other would be the portal option illustrated in the simulated view above. A new BPOC would be added with the Build Alternative as shown to the right in the photo with the arched steel shapes. Terraced seating would be added to the slope facing the San Francisco Bay. The East Bay Hills would not be visible. Existing mature trees within the interchange would be removed.

Vividness or memorability of the proposed project would be moderate-high. Intactness would remain moderate. There would be more man-built structures encroaching on views of the natural features in the view. The level of unity would increase from moderate to high. The composition of the proposed features would create a harmonious balance between the natural and man-built elements in the view.

Resource Change: The overall resource change with the addition of the proposed project would be moderate-high.

Anticipated Viewer Response: Viewers along the San Francisco Bay Trail are anticipated to have a moderate response level.

Resulting Visual Impact: The new BPOC would result in moderate-high levels of visual impact.

Visual Assessment Unit 2 – I-80 Corridor

Four viewpoints (KVP 2.1 through KVP 2.4) were selected within Visual Assessment Unit 2 to capture views from east- and westbound I-80.

KVP 2.1: Eastbound I-80 South of Ashby Avenue Exit

Existing Visual Character/Quality: As shown in Figure 2.1-12, KVP 2.1 is at a vantage point on the shoulder of the eastbound lanes of I-80. The Ashby westbound off-ramp bridge over I-80 is visible in the distance beyond the truss sign bridge. Vehicles are on the 150-foot wide twelve-lane highway with shoulders. Highway structures are visible including signs, truss sign bridge, lights, posts, and barriers. Mature trees are visible to the east and west of the highway. The multi-family high-rise residential complex is to the right in the photo. The East Bay Hills are visible in the distance through the corridor.

The memorability (vividness) of the view is low. The level of intactness is low. Highway structures and views of vehicles encroach on views of the natural environment. There is not a harmonious balance between the natural and man-built environment. The level of unity is low. The overall level of quality in the existing condition is low.

Figure 2.1-12: KVP 2.1 (Existing Conditions)

Figure 2.1-13: KVP 2.1 (Simulation)

Proposed Project: As shown in Figure 2.1-13, the BPOC and interchange would change the overall visual character and quality of the view.

Changes to Visual Character and Quality: The BPOC structure would be added to the view. It would be similar in character and quality to the existing University Avenue BPOC, and to a similar structure that will be added to the I-80/Gilman Street interchange. A vehicular bridge at Ashby Avenue would be added to the east of the BPOC that would not have an arched superstructure but would include rounded forms that would be complementary with the BPOC. Existing mature trees in the Ashby Avenue interchange would be removed.

Vividness or memorability of the proposed project would be moderate-high. Intactness would remain low. There would be additional man-built structures encroaching on views of the natural environment in the view. The level of unity would increase from low to moderate. The form and line of the proposed BPOC features would draw focus toward those features and away from the highly textured and disjointed features within the highway environment. A more harmonious condition would be created with the BPOC in the view.

Anticipated Viewer Response: Eastbound motorists on I-80 would generally experience this KVP while traveling at high speeds, especially during off-peak hours. Because motorists are likely to keep their focus directed in front of them, views of the project area would be visible but would be experienced for a relatively short duration of time depending on speed of travel. Therefore, viewers are anticipated to have a moderate response to the addition of the proposed project.

Resource Change: The overall resource change would be moderate.

Resulting Visual Impact: Visual impacts would be moderate.

KVP 2.2 – Eastbound I-80 at Ashby Avenue Exist

Existing Visual Character/Quality: As shown in Figure 2.1-14, KVP 2.2 is a vantage point at the intersection of the eastbound I-80 shoulder and the eastbound I-80 to Ashby Avenue off-ramp. The Ashby westbound off-ramp bridge over I-80 is visible in the distance. Vehicles are on the approximately 80-foot-wide eastbound lanes with shoulders. Westbound vehicles are visible beyond a concrete median barrier with a glare shield attached to the top surface. Highway structures are visible including signs, and lights. Mature trees are visible to the east and west of the highway. Mount Tamalpais and the coastal mountains are visible to the west.

The memorability (vividness) of the view is moderate. The level of intactness is low. Highway structures and views of vehicles encroach on views of the natural environment. There is a moderate level of unity in the view. Distant views of the coastal mountains, the horizon, and the natural environment within the interchange are moderately in balance with views of the highway environment in the center of the view. The level of unity is moderate. The overall level of quality in the existing condition is moderate.

Figure 2.1-14: KVP 2.2(Existing Conditions)

Figure 2.1-15: KVP 2.2 (Simulation)

Proposed Project: Within this view, the BPOC and associated ramp would be visible, as shown in Figure 2.1-15. In the background the new Ashby Avenue vehicular bridge is shown.

Changes to Visual Character and Quality: The BPOC would be added to the view. It would be similar in character and quality to the existing University Avenue BPOC, and to a similar structure that will be added to the I-80/Gilman Street interchange. Existing mature trees in the Ashby Avenue interchange would be removed. There would be a new Ashby Avenue bridge added at the center of the interchange, illustrated to the east of the BPOC. On- and off-ramps would be added parallel to I-80 as illustrated to the right in the simulated view. Signalized intersections with signs and lights would be at the intersection of the ramps and Ashby Avenue. Views of Mount Tamalpais and the coastal mountains would be blocked or screened by the BPOC and ramp to the west. From westbound lanes of travel, views of the East Bay Hills would be similarly blocked by the BPOC and vehicular bridge structures. The duration of blockage of views of these two scenic mountain ranges would depend on the speed of traffic on I-80. At 65 miles per hour the duration of blockage would be approximately 39 seconds. The proposed project would add a new vehicular bridge at the Ashby Avenue overcrossing of I-80. For an analysis of the bridge, refer to the Build Alternative condition for KVP 2.4.

Vividness or memorability of the proposed project would be high. Intactness would remain low. There would be more man-built structures encroaching on views of the natural environment in the view with the arches, deck and ramps encroaching on views of the horizon. Ramps would encroach on views of the scenic coastal mountains and the East Bay Hills for brief periods of travel time. The level of unity would remain moderate.

Resource Change: Resource change would be moderate-high.

Anticipated Viewer Response: Viewer response to the proposed project would be moderate.

Resulting Visual Impact: The visual impacts would be moderate-high.

KVP 2.3 – Westbound I-80 at Ashby Avenue On-Ramp

Existing Visual Character/Quality: As shown in Figure 2.1-16, this KVP is located on westbound I-80 north of the Ashby Avenue on-ramp. Viewer groups at this KVP include westbound motorists between the existing overcrossings structures, with the southernmost overcrossing visible in the foreground.

KVP 2.3 is a vantage point on the shoulder of the westbound lanes of I-80. The I-80 westbound to Ashby Avenue off-ramp bridge is visible in the foreground. Vehicles are

on the approximately 70-foot wide five-lane westbound lanes with shoulder. Vehicles on I-80 eastbound lanes are visible beyond a concrete median barrier with glare shield attached to the top surface. Highway structures in the view include a concrete bridge, columns and permeable rail, concrete barrier, glare shield, signs, crash barriers and pavement. Medium-rise commercial buildings, and medium- and high-rise multi-family residential buildings are visible to the to the east of the highway beyond the bridge. Features visible in the natural environment include mature trees at the abutment to the east, a row of mature trees adjacent to the east edge of the highway beyond the bridge, and views of the horizon.

The memorability (vividness) of the view is low. The level of intactness is low. Highway structures and views of vehicles encroach on views of the natural environment. There is not a harmonious balance between the natural and man-built environments. The level of unity is low. The overall level of quality in the existing condition is low.

Figure 2.1-16: KVP 2.3 (Existing Conditions)

Figure 2.1-17: KVP 2.3 (Simulation)

Proposed Project: Within this view, the new BPOC and associated ramp would be visible, as shown in Figure 2.1-17.

Changes to Visual Character and Quality: The BPOC would be added to the view. It would be similar in character and quality to the existing University Avenue BPOC, and to a similar structure that will be added to the I-80/Gilman Street interchange. Existing mature trees in the Ashby Avenue interchange would be removed. On- and off-ramps would be added parallel to I-80. The BPOC would be permeable between the arches and the deck of the bridge affording views of the horizon and buildings of highway neighbors to the east.

Vividness or memorability of the proposed project would be high. Intactness would be increased from low in the existing condition to moderate in the proposed project in the view. The thin profile of the structure would encroach on the natural environment to a lesser degree. The level of unity would be high. The balance between the natural environment and man-built structures would be harmonious.

Resource Change: The overall resource change would be moderate-high.

Anticipated Viewer Response: The overall viewer response to the proposed project would be moderate.

Resulting Visual Impact: Visual impacts would be moderate-high.

KVP 2.4 – Westbound I-80 near Ashby Avenue Off-Ramp

Existing Visual Character/Quality: As shown in Figure 2.1-18, KVP 2.4 is at a vantage point in I-80 westbound travel lanes, located to the east of the Ashby Avenue to westbound I-80 on-ramp bridge visible in the distance. Vehicles are visible on I-80 westbound lanes, and on the eastbound lanes beyond a concrete median barrier with glare shield attached to the top surface. Highway structures in the view include a concrete bridge and columns, a truss sign bridge to the south of the on-ramp bridge, variable message and static highway signs, metal utility boxes, and pavement. The high-rise multi-family residential building is visible in the distance to the east. Features visible in the natural environment include groves of mature trees to the east and west within the interchange, and views of the horizon.

The memorability (vividness) of the view is moderate-low. The level of intactness is low. Highway structures and views of vehicles encroach on views of the natural environment. There is a moderate level of unity or balance between the natural and man-built environments. The level of unity is moderate. The overall level of quality in the existing condition is moderate-low.

Figure 2.1-18: KVP 2.4(Existing Conditions)

Figure 2.1-19: KVP 2.4(Simulation)

Proposed Project: Within this view, the proposed Ashby Avenue vehicular bridge is visible in the foreground and the upper part of the new BPOC structure would be in view, as shown in Figure 2.1-19.

Changes to Visual Character and Quality: The proposed Ashby Avenue vehicular bridge would be in the foreground from this KVP, and the BPOC beyond the vehicular bridge would be added to the view. The two structures would be complementary in design, each having curved forms and permeable railings. The vehicular bridge would not have arched superstructure elements like the BPOC but would have arched forms in the shaping of the horizontal bridge structure and railings. Retaining walls at the vehicular bridge would be added. One end of each wall would be in contact with the bridge abutment and would extend to the east and west to retain the earth slopes at the highest points of the ramps near the bridge and at the ramps. The BPOC would be similar in character and quality to the existing University Avenue BPOC, and to a similar structure that will be added to the I-80/Gilman Street interchange. On- and off-ramps for the Ashby Avenue vehicular bridge would be parallel to I-80. Other highway features that would be included with the proposed project would be signs, lights, and highway median barrier with glare shield. Existing mature trees in the Ashby Avenue interchange would be removed by the proposed project. Replacement planting would be replaced within the project area as part of a follow-on contract, as specified in PF VIS-2.

Vividness or memorability of the proposed project would be high. Intactness would remain low. There would be more man-built structures encroaching on views of the natural environment. The level of unity would increase from moderate to high. The proposed bridge design elements and the proposed BPOC features would draw focus toward those features and away from the disjointed and diverse man-built features within the highway environment. A high-level harmonious balance would be created between the natural environment and man-built structures with the bridge and BPOC in the view.

Resource Change: The resource change would be moderate-high.

Anticipated Viewer Response: Viewer response to the proposed project would be moderate.

Resulting Visual Impact: The visual impacts would be moderate-high.

Visual Assessment Unit 3: East Side of Interchange

Three viewpoints (KVP 3.1 through 3.3) were selected within Visual Assessment Unit 3 to assess views within an area comprising a mix of commercial, school, health care, multi-family residential, and park land uses.

KVP 3.1 – 65th Street and Christie Avenue

Existing Visual Character/Quality: As shown in Figure 2.1-20, KVP 3.1 is at a vantage point on 65th Street just east of Christie Avenue. Land uses in the area are mixed use commercial, health care, and multi-family residential. A public storage facility is to the right in the photo. Medium- and high-rise office buildings are to the left. Multi-family residential is to the east of the vantage point in a medium-rise building. The healthcare clinic and commercial buildings to the left have west-facing offices with views of the San Francisco Bay. The medium-rise residential building has few units with views to the west. Those views face the I-80 westbound Ashby Avenue off-ramp and the upper views of the coastal mountains and Mount Tamalpais. The medical clinic building blocks most of the residential views to the west. Manmade features in the view include road pavement, low-, medium-, and high-rise buildings, fences, streetlights, and vehicles. The natural environment includes views of mature evergreen trees within Caltrans' ROW that partially screen views of the San Francisco Bay and the horizon.

Views are memorable and with high levels of vividness in the view. Intactness is low. Man-built structures intrude on the natural environment. The man-built structures and natural environment are in a harmonious balance. The level of unity is high.

Figure 2.1-20: KVP 3.1 (Existing Conditions)

Figure 2.1-21: KVP 3.1 (Simulation)

Proposed Project: As shown in Figure 2.1-21, the existing manmade structures would remain in view. The proposed BPOC would be added to the view. The screening trees within the interchange would be removed.

Changes to Visual Character and Quality: Vividness or memorability of the proposed project would be high. Intactness would be moderate. The existing mature trees partially screen views to the San Francisco Bay and the horizon. The BPOC with its solid steel arches, bridge deck, approach ramps, and permeable panels of cables between the arches and the bridge duck would block or partially screen views to the west depending on the vantage point of the viewer. Some commercial and health care office views of the San Francisco Bay that are screened in the existing condition would be opened up to views of the interchange due to the removal of existing mature trees. The level of unity would be moderate. The proposed BPOC is large in scale compared to the smaller scale streetscape elements within the 65th street corridor. Existing mature trees would partially screen the BPOC. If there were no intervening trees and buildings blocking views of the full sculptural form, then the BPOC would be in a setting where the forms could be appreciated more fully by neighbors in vantage points in this area. There would be a more harmonious balance between the natural and man-built environments. As

proposed, there would be a moderately harmonious balance with the character of the street from this vantage point.

Resource Change: Resource change would be moderate-high.

Anticipated Viewer Response: Viewer response to the proposed project would be moderate.

Resulting Visual Impact: Visual impacts would be moderate-high.

KVP 3.2 – Ashby Avenue On-Ramp

Existing Visual Character/Quality: As shown in Figure 2.1-22, KVP 3.2 is at a vantage point on the Bay Street overcrossing looking west on Ashby Avenue. The approximately 48-foot wide, four-lane road with shoulders includes highway features such as pavement, a metal-beam guardrail in the median, and retaining walls with steel railings at the side of the road. Also visible are highway lights, signs, and vehicles. The KRE building and radio tower and utility lines are to the east (right) in the photo. Natural environment features include views of Mount Tamalpais and the horizon to the west, and mature trees and shrubs at the edges of the highway.

Views are memorable and with high levels of vividness in the view. Intactness is moderate. Manmade structures intrude on the natural environment. However, the many mature trees and shrubs in the view draw attention to the natural environment and off-set the awareness of man-built features in the view. There is a harmonious balance between the man-built structures and the natural environment. The level of unity is high.

Figure 2.1-22: KVP 3.2 (Existing Conditions)

Figure 2.1-23: KVP 3.2 (Simulation)

Proposed Project: As shown in Figure 2.1-23, the proposed project would add a new Ashby Avenue extension with four travel lanes, extending to the middle of the interchange at intersections connecting with east- and westbound on- and off-ramps to I-80. Ashby Avenue would extend beyond the interchange and connect with West Frontage Road.

Changes to Visual Character: With the proposed project there would be the same four lanes of travel. A concrete barrier would be in the median instead of a permeable metal-beam guardrail. Retaining walls would be at the sides of the road varying in height from approximately one foot to eight feet. A second retaining wall would be visible to the east at the edge of a new Bay Street connector to Ashby Avenue. The 453-foot-long wall would vary in height from 9 feet to 14 feet. To the west (left) beyond the grove of trees, there would be a connector between Ashby Avenue and Shellmound Street.

Views would be memorable with the proposed project. Although the vegetation and trees would be different in appearance, they would be visible and provide an abundance of natural diversity in the environment. Vividness would be high. Intactness would be moderate-low. The retaining wall at the west side of the Bay Street to Ashby Avenue connector would contrast with the diversity visible in the natural environment. The level of unity would be moderate. The Bay Street connector retaining wall would diminish the sense of balance in the view between the natural and man-built environments. The level of unity would be moderate. Replacement planting would be replaced within the project area as part of a follow-on contract, as specified in PF VIS-2.

Resource Change: Resource change would be moderate.

Anticipated Viewer Response: Viewer response to the proposed project would be moderate-high.

Resulting Visual Impact: Visual impacts would be moderate-high.

KVP 3.3 – Aquatic Park (West)

Existing Visual Character/Quality: As shown in Figure 2.1-24, KVP 3.3 is at a vantage point within Aquatic Park adjacent to the Kenneth A. Hayes Boat House. The park is located to the east of I-80. Man-built features in the view include vehicles on eastbound lanes of I-80, highway lights and the high-rise multi-family building to the east in the distance. Natural environment features in the view include a lagoon, grassy slopes, groves of mature trees and the horizon. Views are memorable and have a high level of vividness. Man-built features encroach on views of the natural environment but to a minimal degree. The level of intactness is moderate-high. The balance between the man-built features and natural environment is harmonious. The level of unity is high in the view.

Figure 2.1-24: KVP 3.3 (Existing Conditions)

Figure 2.1-25: KVP 3.3 (Simulation)

Proposed Project: The proposed project would remove some trees from the project area but would otherwise not cause any discernable visual resource changes from KVP 3.3, as illustrated in Figure 2.1-25.

Changes to Visual Character and Quality: With the proposed project, there would be no noticeable change in the from this KVP. The levels of vividness, intactness, and unity would remain the same.

Resource Change: Resource change would be low.

Anticipated Viewer Response: Viewer response to the proposed project would be low.

Resulting Visual Impact: Visual impacts would be low.

Summary of Visual Impacts

The proposed project would result in moderate to moderate-high levels of visual impacts from the perspective of motorists on I-80. Highway motorists on I-80 would be moderately exposed to the proposed project and the duration of exposure would be brief, limited to only the brief time it would take to drive past these features depending on traffic speeds. Motorists on Ashby Avenue would be traveling as slower speeds and would have slightly longer durations of exposure to project features. Viewer response to the proposed project would be moderate-high adjacent to Ashby Avenue and would result in moderate-high levels of visual impacts.

Motorists, bicyclists, and persons on motorized scooters on local streets would have somewhat longer durations of exposure to project features than motorists on the highways. Their exposure would be limited to the duration of time it would take to drive past these features. The proposed project would result in moderate levels of visual impacts. Users of the San Francisco Bay Trail would have moderate levels of exposure to the proposed project while walking and bicycling along the shoreline. Project features would result in moderate to moderate-high visual impacts. Multi-family residential neighbors numbering in the hundreds would have views of the project. The multi-family residences on 65th Street with views of San Francisco Bay, the coastal mountains and Mount Tamalpais would experience moderate-high levels of visual impact with the proposed project. Commercial and health clinic neighbors and patrons of these establishments numbering in the thousands would have moderate to moderate-high levels of exposure to the proposed project. Moderate-high levels of visual impacts would occur.

The overall resource change, viewer response and visual impacts with the Build Alternative project features would range from moderate to moderate-high. 0Table 2.1-11 summarizes the visual impacts for the Build Alternative and the No Build Alternative and compares the narrative ratings for visual resource change and viewer response for each Visual Assessment Unit.

Table 2.1-11 Visual Impact Summary

Visual Assessment Unit	Key Viewpoint	Resource Change	Viewer Response	Visual Impact
Visual Assessment Unit 1:	1.1: West Frontage Road facing east toward Ashby Avenue Interchange	**Moderate**	**Moderate**	**Moderate**

Visual Assessment Unit	Key Viewpoint	Resource Change	Viewer Response	Visual Impact
Shoreline	1.2: San Francisco Bay Trail facing east toward Ashby Avenue Interchange	**Moderate-High**	**Moderate**	**Moderate-High**
Visual Assessment Unit 2: I-80 Corridor	2.1: Eastbound I-80 facing east toward Ashby Avenue Interchange	**Moderate**	**Moderate**	**Moderate**
	2.2: Eastbound I-80 facing east toward Ashby Avenue Interchange	**Moderate-High**	**Moderate**	**Moderate-High**
	2.3: Westbound I-80 facing westbound I-80	**Moderate-High**	**Moderate**	**Moderate-High**
	2.4: Westbound I-80 facing Ashby Avenue Interchange	**Moderate-High**	**Moderate**	**Moderate-High**
Visual Assessment Unit 3: Neighbors East of I-80	3.1: 65th Street facing northeast quadrant of Ashby Avenue interchange	**Moderate-High**	**Moderate**	**Moderate-High**
	3.2: Bay Street Overcrossing facing east- and westbound Ashby Avenue	**Moderate**	**Moderate-High**	**Moderate-High**
	2.3 Aquatic Park facing Northeast quadrant of Ashby Avenue interchange	**Low**	**Low**	**Low**

Temporary Construction Impacts

Construction of the proposed project would occur over an 18- to 24-month period. Viewers would see materials, equipment, workers, construction operations, including trenching, excavations, dust, placement of temporary roadside barriers, construction signage, night lighting, contractor yards, new pavement, and new structures being constructed. Impacts of construction are unavoidable but are temporary. Motorists and pedestrians would be exposed to construction activities while passing through the construction zone. Residents of adjacent multi-family residences would be exposed to construction activities on a more continuous basis. Short-term impacts would include removal of some highway screening vegetation that would be replaced according to

Caltrans policy. Long-term impacts would occur where insufficient right-of-way and/or sight distance requirements would not allow for planting trees that were removed during construction.

Cumulative Impacts

Cumulative impacts are those resulting from past, present, and reasonably foreseeable future actions, combined with the potential visual impacts of this proposed project. Other projects currently planned or under construction within two miles of the project area include the I-80/Gilman Street Interchange Improvements Project, installation of median safety lighting, replacement of median concrete barriers, and new landscaping at the I-80/University Avenue interchange. These projects are anticipated to introduce additional pavement, lighting, signage, traffic signals, ramp metering systems, and retaining walls as well as remove mature trees and vegetation along I-80. However, standard Caltrans project features including replanting vegetation as well as aesthetic treatments for new project elements such as retaining walls would ensure that negative cumulative impacts within the corridor would not occur.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Project Features

PF VIS-1: Vegetation Removal Measures. The removal of groundcover, shrubs, and matures will be minimized to the maximum extent possible by utilizing open areas for contractor staging/storage areas.

PF VIS-2: Tree Surveys. Survey exact locations for trees and include in plan set.

PF VIS-3: Replacement Planting. Replacement plantings would occur near the areas of impact where feasible per Caltrans policy and in consultation with the Office of Landscape Architecture and the Resident Engineer.

PF VIS-4: Use of Drought-Tolerant Plants. Use drought-tolerant plants, including California native species, as part of the planting palette where regionally appropriate.

PF VIS-5: Caltrans Plant Setback and Spacing Requirements. Plantings within the state right of way will follow the 1997 Caltrans Plant Setback and Spacing Guide.

PF VIS-6: Light and Glare Minimization. As directed by Caltrans, appropriate light and glare screening measures will be used at the construction staging areas including the use of downward cast lighting.

PF VIS-7: Use of standard construction equipment and protocol. Caltrans will use standard construction equipment and protocols for the Build Alternative, such as placing unsightly materials and equipment so that they are not visible within the forefront of highway corridor and local streets where feasible.

For the full text of these project features, refer to Appendix C.

Avoidance and Minimization

Caltrans and FHWA mandate that a qualitative/aesthetic approach be taken to address visual quality loss in the study area. This approach fulfills the letter and the spirit of FHWA requirements because it addresses the actual cumulative loss of visual quality due to a project. This approach also results in avoidance, minimization, and/or mitigation measures that can lessen or compensate for a loss in visual quality. The inclusion of aesthetic features in the project design can help generate public acceptance of a project. This section describes additional avoidance, minimization, and/or mitigation measures to address specific visual impacts. These will be designed and implemented as part of the Build Alternative with the concurrence of the Caltrans District Landscape Architect.

The following measures to avoid or minimize visual impacts will be incorporated into the Build Alternative. See Appendix C for the full text of AMMs VIS-1 through VIS-3.

AMM VIS 1: In order to avoid the inadvertent creation of areas that appeal to illegal encampments (e.g., open areas under bridge structures and isolated vacant lots), the final design will include measures to discourage illegal encampments.

AMM VIS-2: To reduce the visual impact of new retaining walls and bridge structures, aesthetic treatments consisting of color, texture and/or patterning will be applied to such structures.

AMM VIS-3: Additional Construction Impact Measures.

- Any roadside vegetation and irrigation systems that are damaged or removed during project construction shall be replaced according to Caltrans policy and the requirements of the cities of Emeryville and Berkeley.
- When trenching for utilities, avoid trenching within drip lines of trees and screening shrubs. Directional drilling that would avoid damaging root systems of established plant material shall be used, when reasonable, as opposed to open trenching to install new conduit in places where work within the drip line would be required. Trees and screening shrubs shall be protected from damage during construction.
- Provide highway plantings where feasible. Caltrans safety setback requirements would apply for all plantings within Caltrans' ROW. Provide street trees, shrubs, and groundcover on local streets where feasible.

Mitigation Measures

No mitigation would be required.

2.1.11 CULTURAL RESOURCES AND TRIBAL CULTURAL RESOURCES

This section describes the proposed project's effects on cultural resources and tribal cultural resources. Information used to prepare this includes the Historic Property Survey Report (HPSR) (August 2020) and Supplemental HPSR (May 2021).

REGULATORY SETTING

The term "cultural resources" as used in this document, refers to the "built environment" (e.g., structures, bridges, railroads, water conveyance systems, etc.), places of traditional or cultural importance, and archaeological sites (both prehistoric and historic), regardless of significance. Under federal and state laws, cultural resources that meet certain criteria of significance are referred to by various terms including "historic properties," "historic sites," "historical resources," and "tribal cultural resources." Laws and regulations dealing with cultural resources include:

Federal

The National Historic Preservation Act (NHPA) of 1966, as amended, sets forth national policy and procedures for historic properties, defined as districts, sites, buildings, structures, and objects included in or eligible for listing in the NRHP. Section 106 of the NHPA requires federal agencies to take into account the effects of their undertakings on historic properties and to allow the Advisory Council on Historic Preservation (ACHP) the opportunity to comment on those undertakings, following regulations issued by the ACHP (36 Code of Federal Regulations [CFR] 800). On January 1, 2014, the First Amended Section 106 Programmatic Agreement (PA) among the FHWA, the ACHP, the California State Historic Preservation Officer (SHPO), and the Department went into effect for Department projects, both state and local, with FHWA involvement. The PA implements the ACHP's regulations, 36 CFR 800, streamlining the Section 106 process and delegating certain responsibilities to the Department. The FHWA's responsibilities under the PA have been assigned to the Department as part of the Surface Transportation Project Delivery Program (23 United States Code [USC] 327).

The Archaeological Resources Protection Act (ARPA) applies when a project may involve archaeological resources located on federal or tribal land. The ARPA requires that a permit be obtained before excavation of an archaeological resource on such land can take place.

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

State

CEQA requires the consideration of cultural resources that are historical resources and tribal cultural resources, as well as "unique" archaeological resources. California Public Resources Code (PRC) Section 5024.1 established the California Register of Historical Resources (CRHR) and outlined the necessary criteria for a cultural resource to be considered eligible for listing in the CRHR and, therefore, a historical resource. Historical resources are defined in PRC Section 5020.1(j).

In 2014, Assembly Bill 52 (AB 52) added the term "tribal cultural resources" to CEQA, and AB 52 is commonly referenced instead of CEQA when discussing the process to identify tribal cultural resources (as well as identifying measures to avoid, preserve, or mitigate effects to them). Defined in PRC Section 21074(a), a tribal cultural resource is a CRHR or local register eligible site, feature, place, cultural landscape, or object which has a cultural value to a California Native American tribe. Tribal cultural resources must also meet the definition of a historical resource. Unique archaeological resources are referenced in PRC Section 21083.2.

PRC Section 5024 requires state agencies to identify and protect state-owned historical resources that meet the NRHP listing criteria. It further requires Caltrans to inventory state-owned structures in its 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 NRHP or are registered or eligible for registration as California Historical Landmarks. Procedures for compliance with PRC Section 5024 are outlined in a Memorandum of Understanding (MOU) between the Department and SHPO, effective January 1, 2015. For most federal-aid projects on the State Highway System, compliance with the Section 106 PA will satisfy the requirements of PRC Section 5024.

AFFECTED ENVIRONMENT

The Area of Potential Effects (APE) was established in consultation with Caltrans staff and approved on July 6, 2021. The APE includes all areas where potential direct and indirect impacts to historic resources could occur as a result of project construction, operation, and maintenance for the Build Alternative. Consistent with Caltrans policies and general cultural resource practices, the APE for potential direct impacts was established as the horizontal and vertical project footprint. The vertical APE extends to a

maximum of 150 feet below existing ground surface to accommodate CIDH pile foundations.

Archaeological Resources

A Northwest Information Center (NWIC) record search was completed for the proposed project on March 8, 2018, and included a 0.5-mile radius surrounding the project area. The entire APE has been previously surveyed for archaeological resources and no previously recorded archaeological sites were identified within the APE or record search buffer.

Although no archaeological sites have been identified in the APE, unrecorded archaeological sites may be deeply buried with no surface manifestation. The APE contains both artificial fill and marine deposits along the San Francisco Bay that may have culturally sensitive landforms or archaeological deposits. Thus, soils that underlie the historic era fill at the project area also have the potential to contain buried archaeological remains. Given the maximum depths of construction proposed for the project, at 150 feet below the existing ground surface, it is possible that buried archaeological deposits could be present in the APE.

Tribal Cultural Resources

On August 22, 2019, Horizon contacted the Native American Heritage Commission (NAHC) by email to request a search of the Sacred Lands File. The Sacred Lands File contains information on known Native American traditional or cultural properties. The NAHC responded stating that no significant resources have previously been identified in the APE. A list of interested Native America Tribal representatives with traditional lands or cultural places within Alameda County was included in the NAHC response. In November 2019, certified letters were sent to all Native American contacts provided by the NAHC under Section 106 consultation, pursuant to the National Historic Preservation Act, and as required under CEQA, specifically Public Resources Code 21080.3.1 and Chapter 532 Statutes of 2014 (i.e., AB 52), describing the proposed project, providing a location map, and requesting any information and concerns the Tribes may have regarding the proposed project or study area. A list of Tribal representatives contacted in November 2019 is provided below.

- Amah Mutsun Tribal Band – Valentin Lopez, Representative
- Costanoan Rumsen Carmel Tribe, Tony Cerda, Chairperson
- Indian Canyon Mutsun Band of Coastanoan, Ann Marie Sayers, Chairperson
- Muwekma Ohlone Indian Tribe of the San Francisco Bay Area, Charlene Nijmeh, Chairperson

- North Valley Yokuts Tribe, Katherine Erolinda Perez, Chairperson
- The Confederated Villages of Lisjan, Corrina Gould, Chairperson
- Ohlone Indian Tribe, Andrew Galvin, Chairperson

One response was received via email from Chairperson Katherine Perez of the Northern Valley Yokuts Tribe. A field review of the project area was conducted on February 13, 2020, by Chairperson Perez and two other tribal representatives, along with Caltrans District 4 archaeology personnel, Kathryn Rose and Katie Jorgensen and members of the project design team. Chairperson Perez expressed concern for the potential of deeply buried cultural resources beneath the fill on which I-80 and the interchange have been constructed. Native American consultation is ongoing throughout the life of the project.

Architectural Resources

Based on the results of the NWIC records search, a review of historic and current maps, research in archival records, and field surveys, it has been determined that there are two historic resources within the historic APE, the KRE Radio Station and state-owned bridge #33-0060 which are both located in the APE. The KRE Radio Station has been recorded and evaluated numerous times, has been re-evaluated under the current study, and is eligible for inclusion in the NRHP and CRHR under Criterion 1/A. The second resource in the APE, state-owned Bridge #33-0060, was also recorded and evaluated and is not eligible.

Built environment resources 45 years or older were evaluated to accommodate the long duration of the planning and design process for transportation projects. The other properties investigated during the HRER study were determined not eligible for listing on the NRHP or CRHR and the HPSR study includes a proposed finding of No Historic Properties Affected. The State Office of Historic Preservation concurred with that finding in a letter dated November 3, 2020 (FHWA_2020_0914_001/CATRA_2020 0914_001). Therefore, the APE does not contain any buildings or structures that qualify as historical resources.

ENVIRONMENTAL CONSEQUENCES

No Build Alternative

The No Build Alternative would not change existing conditions; therefore, it would not affect any cultural resources.

Build Alternative

As discussed in Affected Environment, there are no known archaeological sites within the archaeological APE. Therefore, no known archaeological sites would be affected by the Build Alternative. Given the level of previous disturbance within the I-80 corridor, existing interchange ramps, and local roadways, and the lack of previously identified resources during the construction of the existing infrastructure, no additional archaeological resources identification efforts are considered necessary.

While no archaeological or Native American cultural resources have been recorded in the APE, there is the possibility that an unrecorded resource, such as cultural materials or human remains, could be unearthed during construction. This could result in damage to the resource and would be considered an adverse effect. Therefore, mitigation measures are proposed to protect resources in the event of unexpected discovery during construction. Effects would be minimized in part by halting work until the resource can be evaluated by a qualified archaeologist (PF CUL-1) and notifying the Most Likely Descendent of human remains (PF CUL-2). These project features would minimize potential effects to archaeological resources.

Two properties were evaluated for NRHP and CRHR eligibility. Bridge #33-0060 was evaluated and was determined to be not eligible for listing on the NRHP or CRHR as the result of this study. KRE Radio Station is eligible for NRHP and CRHR. However, Caltrans pursuant to Section 106 PA Stipulation IX.A and as applicable PRC 5024 MOU Stipulation IX.A.2, a finding of No Historic Properties Affect is appropriate. The boundaries of the historic property are limited to the KRE Radio Station building and does not include the transmitting tower which will have a guy wire relocated, or any other portions of the subject parcel.

Cumulative Impacts

The cumulative setting for cultural resources includes the areas within and surrounding the project area which have documented cultural resource sites and/or high sensitivities for unrecorded artifacts. Cumulative effects to cultural resources would occur if planned and foreseeable development results in the removal of a substantial number of historic structures or archaeological sites that, when taken in combination with the proposed project, and could degrade the physical historical record of the larger project region. The proposed project would not result in adverse effects to known cultural resources, and project features are in place if potentially unknown archaeological resources are discovered during construction. Therefore, the proposed project would not contribute to any potential cumulative effects to these resources.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Project Features

PF CUL-1: If cultural materials are discovered during construction, all earthmoving activity within and around the immediate discovery area will be diverted until a Caltrans qualified archaeologist is contacted to assess the nature and significance of the find.

PF CUL-2: If Caltrans Professionally Qualified Staff determines that cultural materials contain human remains, State Health and Safety Code Section 7050.5 states that further disturbances and activities shall stop in any area or nearby area suspected to overlie remains.

Refer to Appendix C for the full text of project features PF CUL-1 and PF CUL-2.

Avoidance and Minimization

Because PF-CUL-1 and CUL-2 would minimize potential effects, additional avoidance and minimization measures are not required (refer to Appendix C for the full text of all project features, and avoidance, minimization, and mitigation measures).

Mitigation Measures

No mitigation would be required.

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2.2 PHYSICAL ENVIRONMENT

2.2.1 HYDROLOGY AND FLOODPLAIN

This section evaluates effects associated with hydrology and floodplains that could occur from implementation of the proposed project. Sources of information used to prepare the analysis include:

- Location Hydraulic Study (October 2021)
- Preliminary Drainage Impact Study (October 2021)
- Water Quality Assessment Report (October 2021)
- Sea Level Rise Memorandum (October 2021)

REGULATORY SETTING

Federal

Executive Order 11988

Executive Order 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 proposed 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.” This is often referred to as the “100-year floodplain.” An encroachment is defined as “an action within the limits of the base floodplain.”

AFFECTED ENVIRONMENT

The Water Quality Assessment Report (October 2021) incorporates information from the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM) for Alameda County. The Location Hydraulic Study (October 2021) provides information on existing floodplains in the study area, existing watershed and floodplain management programs, and how the proposed project would affect floodplains and floodplain management. The hydrological study area encompasses both the project area and the regional watershed. The project area includes Interstate 80 ([I-80], an interstate highway), bridged crossings, on- and off-ramps, and state-owned right-of-way (ROW).

Watershed and Hydrology

The San Francisco Bay is the principal receiving water for streams and sediment from the East Bay hills. The existing I-80/Ashby interchange drains to the San Francisco Bay. The main waterways in and around the project area are the San Francisco Bay, and waters associated with Aquatic Park in Berkeley. Aquatic Park comprises three manmade lagoons: Main Lagoon, Model Yacht Basin, and Radio Tower Pond.

The project is within a watershed encompassing 3.8 square miles in the cities of Berkeley, Oakland, and Emeryville (see Figure 2.2-1). The watershed includes the 102-acre Aquatic Park located along the east shore of the San Francisco Bay between I-80 and west Berkeley. Eight culverts under I-80 connect the Aquatic Park lagoons with the Bay. These connections allow inflows from the San Francisco Bay to enter the Main Lagoon through the Potter storm drain system. In general, Aquatic Park receives inflows from the Strawberry Creek network in the north and Potter/Derby Creeks in the south, tidal inflows from the Bay, as well as surface water runoff and overland flows from adjacent roads. Tidal flows in Aquatic Park are partially controlled by tide gates.

The hydrology of the study area is dominated by the I-80 corridor, freeway interchanges, and infrastructure for conveying stormwater runoff under the freeway. The major focus of hydrology management in this area is to direct and convey stormwater in the most efficient way possible, to minimize the risk of flooding.

The project area storm drain network outfalls to the San Francisco Bay through a storm drain located between the Radio Tower Pond and Model Yacht Basin lagoons of the Aquatic Park near Potter Street, and a storm drain at the south end of the interchange near 65th Street (WRECO, 2020a). Storm drains are further discussed in the Preliminary Drainage Impact Study (October 2021).

Floodplains

FEMA FIRM maps were reviewed to determine whether the project site is within a 100-year flood zone. A majority of the project improvements would occur within an area identified on the FIRM as lying in Zone X. Zone X is defined as areas between the limits of the base flood and the 0.2-percent-annual-chance (or 500-year) flood. Adjacent areas include Radio Tower Pond, Aquatic Park, and the Model Yacht Basin. The area is primarily designated as a Special Flood Hazard Area (SFHA) Zone AE and has a Base Flood Elevation (BFE) of 10 feet North American Vertical Datum (NAVD) 88, with the exception of a western segment of Potter Street, which is designated as shaded Zone X. Areas designated as Zone AE are subject to inundation by a 100-year base flood, typically by stillwater flooding with minimal wave hazard effects. A portion of Point Emery located west of Point Emery Lane, is also designated as shaded Zone X. The area directly adjacent to the existing westbound lane of Ashby Avenue, between Bay Street and I-80 northbound on-ramp, encroaches upon Zone AE, with a BFE of 10 feet NAVD 88, and the new drainage outfall south of Point Emery would encroach upon Zone AE, with BFE 12 feet NAVD 88 associated with San Francisco Bay.

The northern portion of the project area is characterized as Zone VE, a coastal area subject to inundation by a 100-year base flood and hazards due to velocity wave action. The southern portion is characterized as Zone AE, an area that is subject to inundation by the 1-percent-annual-chance flood event. Flood zones are shown on Figure 2.2-2.

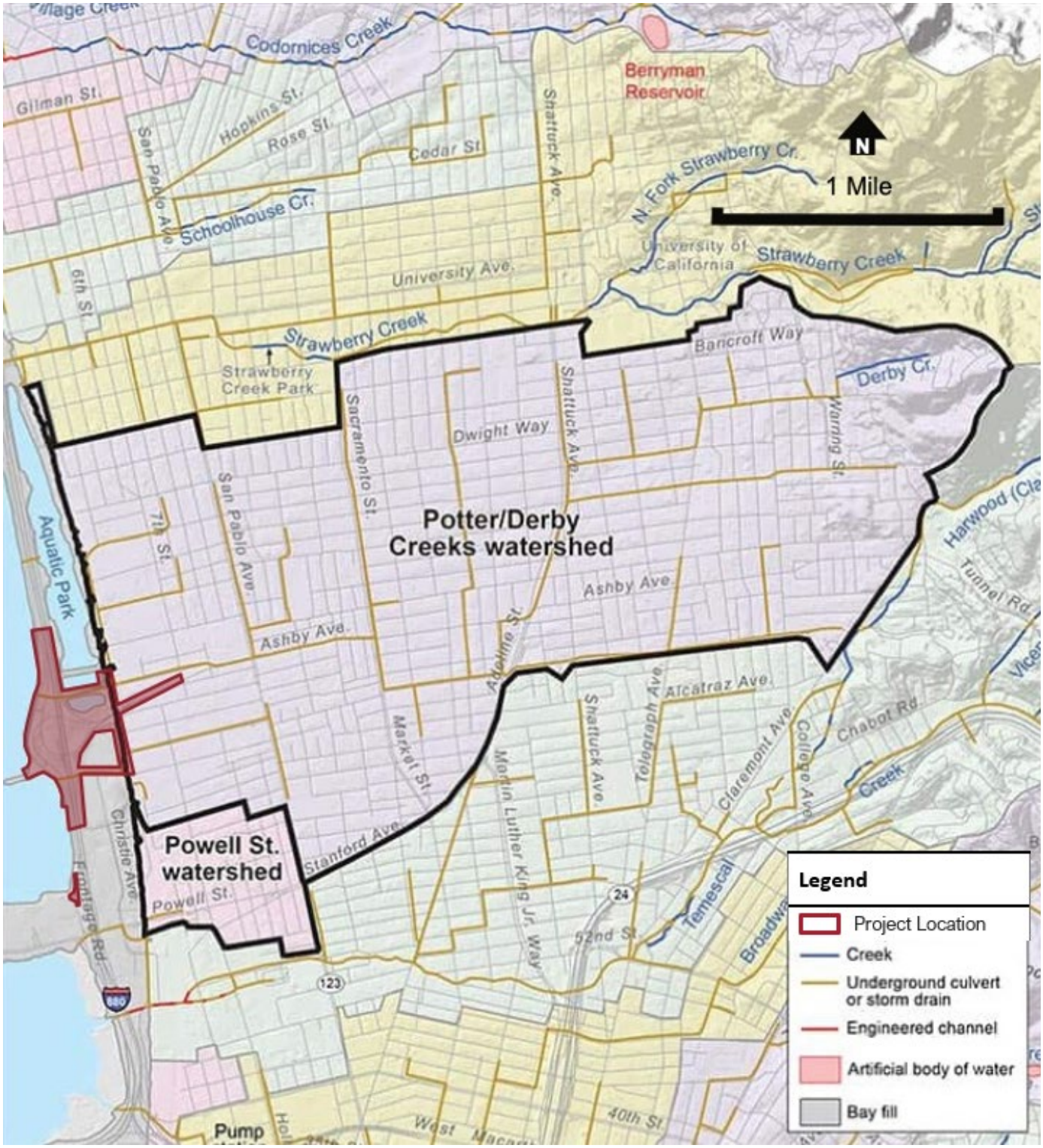
As discussed in the Sea Level Rise Memorandum (October 2021), the water levels of San Francisco Bay have the potential to increase in elevation (sea level rise). Sea level rise by the year 2070 has the potential to impact a significant portion of the project area. High tides and storm surges, in conjunction with sea level rise, is anticipated to cause backflows into the reinforced concrete pipe storm drain inlet near Point Emery and into the storm drainage system within the project area.

There are local low points within the project area that are particularly susceptible to sea level rise. The existing drainage inlets within the project limits, especially those along the Aquatic Park Lagoons, Point Emery, Potter Street, West Bolivar Drive, and Ashby Avenue at the Sag (north of railroad tracks). Caltrans is coordinating with the San Francisco Bay Conservation and Development Commission (BCDC) to develop feasible adaptive measures to reduce the risk of exposure to sea level rise. These measures are discussed below under Environmental Consequences.

No coordination with other local, state, or federal water resources and floodplain management agencies is anticipated because the proposed project is expected to have a minimal impact on existing floodplains, and there are no existing flood control channels within the project area.

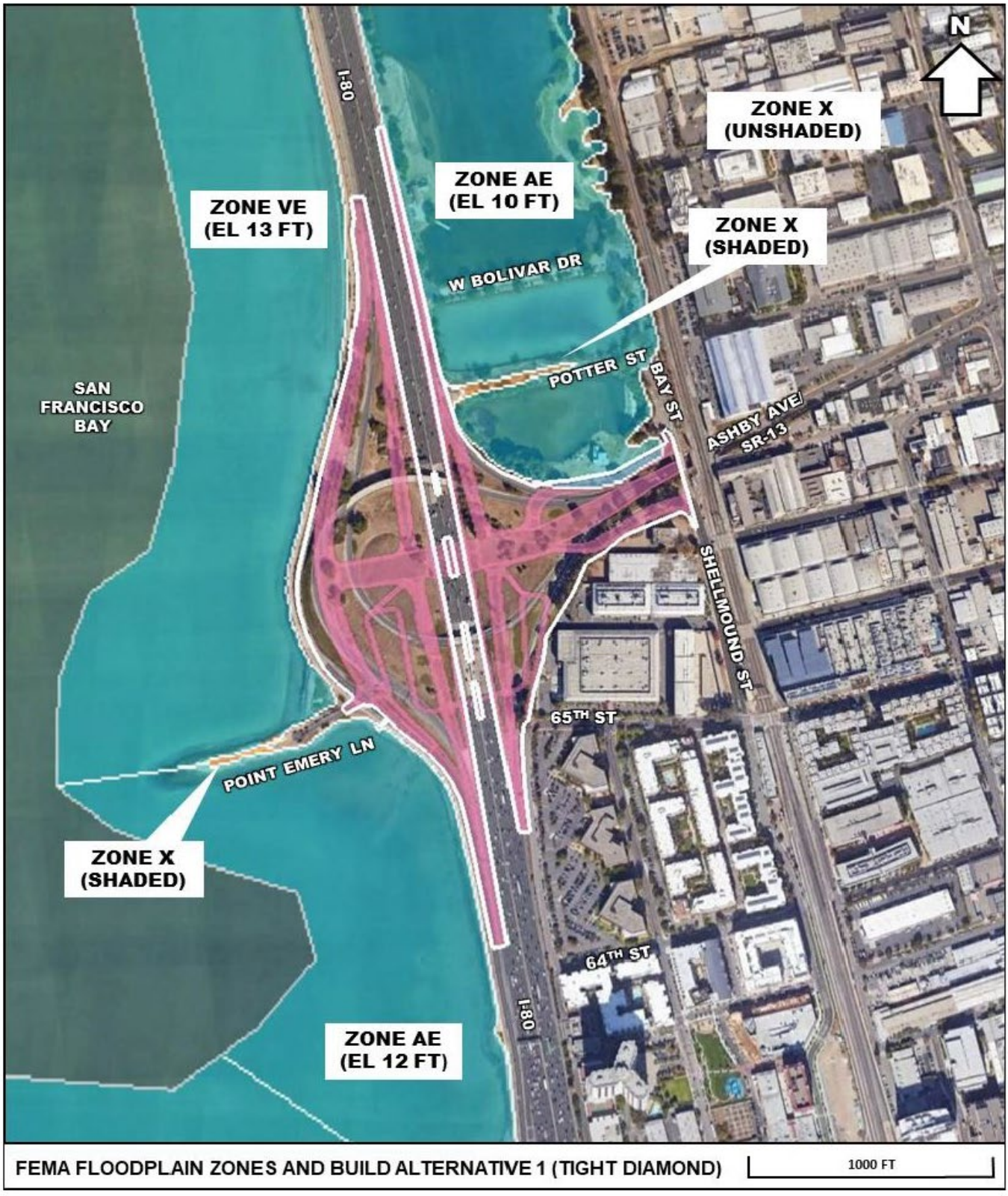
Floodplain Natural and Beneficial Values

Natural and beneficial floodplain values include, but are not limited to fish, wildlife, plants, open space, natural beauty, outdoor recreation, scientific study, agriculture, aquaculture, forestry, natural moderation of floods, water quality maintenance, and ground water recharge. Within the project area, portions of Aquatic Park Lagoons and Point Emery are within the environmental study limit (ESL). The Aquatic Park Lagoons and Point Emery provide open space uses and outdoor recreation activities. Existing beneficial floodplain values and potential project impacts to those values are documented in the Natural Environment Study (NES) (May 2021).



Watershed Map Figure **2.2-1**

Source: Circlepoint 2021



Flood Insurance Rate Map Figure **2.2-2**

Source: FEMA, 2021

ENVIRONMENTAL CONSEQUENCES

No Build Alternative

The No Build Alternative would preserve existing conditions in the project area. No changes to hydrology, impervious surfaces, or alterations within the floodplain would occur. Planned improvements for managing flood levels would still be carried out by the Alameda County Flood Control District (ACFCD) as planned, separate from the proposed project. The No Build Alternative would have no effect on hydrology or floodplains.

Build Alternative

Floodplain Encroachment

Most changes in impervious surface area would occur in unshaded Zone X, which is designed as an area with minimal flood hazard that is outside of the 500-year floodplain (in contrast, shaded Zone X represents areas of moderate flood hazard, usually depicted on FIRMs as the area between the limits of the 100 and the 500-year floodplains). Construction of the proposed Bay Street connector to Ashby Avenue would add approximately 0.28 acres of additional impervious surfaces within the Zone AE just north of Ashby Avenue, near the KRE Radio Station building (see Figure 2.2-2). This encroachment area is relatively small compared to that of the Aquatic Park, which includes approximately 33 land acres and 68 water acres. Additionally, because Radio Tower Pond is primarily tidally influenced and not connected to the Potter Street Storm Drain system or adjacent Model Yacht Basin, the increase in impervious area is expected to have minimal impacts to flooding in the area.

Construction of the new drainage outfall in the San Francisco Bay would slightly encroach upon Zone AE associated with San Francisco Bay. A total of 223 square feet (0.007 acres) of new impervious surface would be created as a part of the footprint of the new outfall. There are no anticipated changes in impervious surface within Zone VE associated with the San Francisco Bay. Radio Tower Pond is tidally influenced and is connected to the San Francisco Bay by a culvert, while flooding in the Zone VE coastal floodplain is caused by tidal influence and storm surges. Therefore, the proposed project would have a minimal or negligible effect on the Zone VE and AE coastal floodplains associated with San Francisco Bay.

Longitudinal Encroachment

As defined by FHWA, a longitudinal encroachment is an action within the limits of the base floodplain that is parallel to the direction of flow. The proposed project would only encroach into the embankments of Radio Tower Pond and would result in 0.012 acre of

permanent impacts to SFHA Zone AE in this area. In this location, flows are tidally influenced and connected to the San Francisco Bay by a partially collapsed culvert. However, because the encroachment is not parallel to the direction of flow, this action does not constitute a longitudinal encroachment into the floodplain.

Risk of Action

The potential risks associated with construction of the proposed project involve: 1) introduction of new impervious surfaces; 2) filling within FEMA delineated floodplains; and 3) changes in the 100-year flood water surface elevations.

Overall, the increase in impervious area would be relatively minor. The proposed project would add and/or replace more than one acre of impervious area; however, the encroachment on a FEMA designated floodplain would be minimal (0.012 acre). As such, the proposed project would not include any changes that would significantly affect the 100-year flood water surface elevations. Radio Tower Pond is tidally influenced and is connected to the San Francisco Bay by a culvert, while flooding in the FEMA designated coastal floodplain is caused by tidal influence and storm surges. Therefore, the proposed project will have a minimal or negligible effect on the floodplain.

Repair and routine maintenance of the partially collapsed culvert connection between Radio Tower Pond and the Bay would help regulate flows and minimize impacts on the FEMA designated floodplain. Construction of the proposed project would include existing culvert abandonment or removal coupled with installation of drainage improvements. Drainage improvements would include new drainage pipes and inlet systems and design of a new outfall south of Point Emery Lane. This would help minimize flooding risks associated with the proposed project. Therefore, the risk associated with the proposed project would be low.

Floodplain Development

Incompatible floodplain development is defined as development that would negatively affect the floodplain and/or put people or structures at risk. Examples of incompatible development can include commercial development or urban growth. The proposed project would improve an existing interchange and add a new BPOC. These improvements would be similar to existing infrastructure and would not introduce incompatible floodplain development.

Floodplain Natural and Beneficial Values

Natural and beneficial floodplain values include, but are not limited to, fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, aquaculture, forestry, natural moderation of floods, water quality maintenance, and

groundwater recharge. Coastal floodplains within the project area, particularly those to the west of the rock slope protection that lines the eastern shoreline of the San Francisco Bay, provides wildlife habitat for fish, waterfowl, and shorebirds. In addition, Aquatic Park is an estuarine habitat for various wildlife and plant species, including in the Model Yacht Basin and the Radio Tower Pond. Biological resources in Aquatic Park are generally limited by the steep side slopes, rocky shorelines, and rock terraces lining a portion of the banks near Model Yacht Basin.

The proposed project would permanently impact approximately 0.007 acre of open water within the San Francisco Bay for construction of the new outfall and 0.012 acre of palustrine emergent wetlands near Radio Tower Pond. The incorporation of standard Caltrans BMPs, such as Project Feature (PF) BIO-5 (construction worker education) and PF BIO-7 (limiting in-water work) would help to avoid impacts to beneficial uses of these resources. Additionally, avoidance and minimization measures such as avoidance and minimization measure (AMM) BIO-2 (minimization of ground disturbance near the San Francisco Bay and Radio Tower Pond); and AMM BIO-5 (no in-water work during the wet season) would further minimize any potential for impacts to beneficial uses. The proposed project would also promote outdoor recreation benefits of the San Francisco Bay by allowing more bicyclists and pedestrians to access the San Francisco Bay Trail via the proposed BPOC.

Sea Level Rise

As discussed in the Sea Level Rise Memorandum (October 2021), the existing sea level is projected to rise by approximately 3.5 feet by 2070, assuming a moderately-high risk scenario. Under this scenario, the majority of the project area would be susceptible to inundation, including the I-80 corridor, Point Emery, the San Francisco Bay Trail, and West Frontage Road. Inundation would be caused by backflow through the drainage system or from overland tidal inundation. The proposed project would not exacerbate the likelihood of sea level rise because it would not lower the existing elevation of the project area or otherwise make the area more susceptible to further inundation. Therefore, the potential for sea level rise to impact the project area would be the same for the No Build Alternative and Build Alternative.

Regional approaches to addressing sea level rise are occurring concurrently with the proposed project. Such adaptive measures include constructing a sea wall/flood wall, and installing a tidal flap gates at all out-fall structures along the I-80 corridor to reduce the risk of the exposure. Caltrans is evaluating the addition of a tidal flap gate or a duck bill valve at the proposed new outfall structure as a near-term measure to prevent backwater flow conditions for the proposed project. A decision on this measure will be made during final design.

Caltrans, in partnership with local and regional stakeholders, including BCDC and others, is developing local and regional responses to sea-level rise impacts. This effort is separate from but concurrent with the proposed project. Multi-agency collaboration will help Caltrans and partner agencies achieve a multi-benefit approach to protecting bayfront development, infrastructure, and assets, and distribute potential mitigation costs, as well as balancing environmental justice concerns to achieve equitable adaptative solutions. Caltrans cannot act alone in developing individual adaptation responses on a project-by-project basis, as sea level rise presents a regional problem demanding coordinated, consistent regional solutions. As such, Caltrans is working to do that through its participation in efforts such as BCDC's Bay Adapt Initiative and similar efforts with counties and local jurisdictions throughout the region. Any potential long-term adaptation strategies identified through these multi-agency partnerships would be implemented under future, separate projects.

Cumulative Effects

Under the Build Alternative, impacts to FEMA-delineated floodplains, natural and beneficial floodplains, and increases in impervious surface area would be negligible. Given this, the proposed project would not result in a cumulatively considerable contribution to a significant cumulative impact to hydrology and floodplains.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Project Features

There are no project features associated with hydrology and floodplain resources.

Avoidance and Minimization

Construction of the proposed project would result in a low potential for flood risk. As such, no avoidance, minimization, or mitigation measures are proposed related to flooding hazards.

The proposed project is required to prevent flooding from surface runoff from the design storm as defined by the Highway Design Manual (Caltrans 2020). To meet this requirement, the proposed drainage system would be designed to capture and convey stormwater runoff from the design storm in the project area. The drainage improvements, construction of a new outfall, in conjunction with stormwater BMPs application, would help minimize stormwater impacts due to surface runoff and/or sea level rise. The proposed project would not cause a significant or longitudinal encroachment. Therefore, alternatives to significant and longitudinal encroachments were not analyzed.

Mitigation Measures

No mitigation would be required.

2.2.2 WATER QUALITY AND STORM WATER RUNOFF

This section evaluates the project's potential effects on water quality and storm water runoff. Information in this section draws upon multiple sources, including:

- Water Quality Assessment Report (October 2021)
- Stormwater Data Report (October 2021)
- Stormwater Drainage Report (October 2021)

REGULATORY SETTING

Federal

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 complies with a National Pollutant Discharge Elimination System (NPDES) permit. A point source is any discrete conveyance such as a pipe or a man-made ditch. 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 (RWQCBs) 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 permitting program for the discharge of dredge or fill material into Waters of the U.S. This permit program is administered by the U.S. Army Corps of Engineers (USACE).

The goal of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters."

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

Ordinarily, projects that do not meet the criteria for a regional or nationwide permit may be permitted under one of the USACE's individual permits. There are two types of Individual permits: standard permits and letters of permission. For individual permits, the USACE decision to approve is based on compliance with U.S. Environmental Protection Agency's (U.S. EPA) Section 404 (b)(1) Guidelines (40 CFR Part 230), and whether the permit approval is in the public interest.

The Section 404(b)(1) Guidelines (Guidelines) were developed by 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. 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

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 within project area are included in the applicable RWQCB Basin Plan. In California, RWQCBs designate beneficial uses for all water body segments in their jurisdictions and then set criteria necessary to protect those 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 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 Caltrans ROW, 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. 2014-0006-EXEC (effective January 17, 2014), Order No. 2014-0077-DWQ (effective May 20, 2014) and Order No. 2015-0036-EXEC (conformed and 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 developed the Statewide Storm Water Management Plan (SWMP) to address storm water pollution controls related to highway planning, design, construction, and maintenance activities throughout California. The SWMP assigns responsibilities within 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. 2009-0009-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 activities where clearing, grading, and excavation result in soil disturbance of at least one acre must comply with the provisions of the Construction General Permit. Construction activities 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 Caltrans's SWMP and Standard Specifications, a Water Pollution Control Program (WPCP) is necessary for projects with DSA less than 1 acre.

Section 401 Permitting

Under Section 401 of the CWA, any project requiring a federal license or permit that may result in a discharge to a water of the U.S. must obtain a 401 Certification, which certifies that the project will comply 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 RWQCB, dependent on the project area, 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

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.

AFFECTED ENVIRONMENT

Information in this section is based on the *Water Quality Assessment Report* (October 2021). The analysis below provides data on surface water and groundwater resources within the study area, describes water quality impairments and beneficial uses, and identifies potential water quality impacts or benefits associated with the project. The study area for this topic is the Cerrito Creek-Frontal San Francisco Estuaries, Angel Island-San Francisco Estuaries, and Richardson Bay-San Francisco Bay watersheds, shown on Figure 2.2-2.

Regional Hydrology

The project area is entirely within an undefined hydrologic sub-area of the Berkeley Hydrologic Area and Bay Bridges Hydrologic unit (Figure 2.2-1). The project is associated with the Potter/Derby Creeks Watershed, which spans 3.8 square miles primarily within the City of Berkeley, as well as along the borders of Oakland on the east and southeast, and Emeryville on the southwest.

Groundwater Resources

The project area is within the East Bay Plain (EBP) Groundwater Basin. The EBP basin supplies approximately 4,700 existing wells. Backyard and commercial irrigation account for 91 percent of groundwater use, industrial processes 8.6 percent, and municipal drinking water 0.4 percent. Beneficial uses of the EBP are defined in the San Francisco Bay Basin Plan and include Municipal and Domestic Water Supply, Industrial/Process Water Supply, and Agricultural Water Supply. Agricultural use of groundwater in the EBP includes irrigation at two golf courses, three cemeteries, several high schools, colleges, parks, and plant nurseries. Groundwater use in the EBP subbasin is limited by several factors: the availability of high-quality imported surface water, high salinities in shallow groundwater approaching the San Francisco Bay margin, the potential for saltwater intrusion, and contamination of shallow aquifers.

Surface Water Resources

As stated in Section 2.2.1, Hydrology and Floodplains, the main waterways in and around the project area are the San Francisco Bay, and waters associated with Aquatic Park (Main Lagoon, Model Yacht Basin, and Radio Tower Pond). All surface channels within the project area are covered.

The existing I-80/Ashby interchange drains to the San Francisco Bay. Encompassing the western edge of the project area is the San Francisco Bay, which is listed as an impaired water body under Section 303(d) of the CWA. Pollutants that have been identified in the San Francisco Bay include trash, diazinon, dichlorodiphenyltrichloroethane (DDT), and chlordane. Diazinon is commonly found in chemicals used for landscaping and is released into water bodies as runoff from the irrigation of lawns and landscaped areas in developed neighborhoods. Caltrans does not use diazinon or DDT. Region 2 of the San Francisco Bay RWQCB has adopted TMDLs for diazinon and pesticide-related toxicity for all urban creeks that drain into San Francisco Bay. TMDLs have also been enacted for mercury and PCBs.

ENVIRONMENTAL CONSEQUENCES

No Build Alternative

The No Build Alternative would preserve the existing mix of impervious surface and pervious areas and would not include grading or modifications to existing drainage systems. Thus, the No Build Alternative would have no effect on water quality.

Build Alternative

Permanent Operational Impacts

The project would include permanent stormwater treatment facilities onsite, as well as one offsite stormwater treatment facility at the I-80/Powell Street Interchange. The stormwater treatment facilities would include permanent stormwater treatment best management practices (BMPs) consistent with the recommendations in the stormwater drainage report (SWDR) (October 2021). However, with the increase in impervious surfaces in the project area, the proposed project may result in a permanent increase in pollutant loading. This could potentially impact water quality in the San Francisco Bay. Further, impervious areas prevent runoff from naturally dispersing and infiltrating into the ground. This results in an increased concentration of water flow into stormwater conveyance channels. The increased velocity and volume of runoff in these channels could increase erosion and affect water quality.

Impervious area values for the Build Alternative are shown in Table 2.2-1. Impervious area grouped under the “added” category represents the net new impervious area for the Build Alternative. The “reworked” impervious area figures refer to existing roadway and highway surfaces that would be removed and replaced, such as ramp reconfigurations. The total for the Build Alternative represents the net total additional acreage of impervious surface after project completion.

Table 2.2-1 Existing and Proposed Impervious Surface Area

	Build Alternative
Total New Impervious Surface (acres)	13.37
Replaced Impervious surface (acres)	7.39
Net New Impervious Area of the Proposed Project (acres)	5.98

Source: WRECO 2020

Under the Build Alternative, net new impervious surface would be 5.98 acres. Because the Build Alternative would create more than 1 acre of new impervious surface, design pollution prevention measures and post-construction treatment BMPs would be required. These measures would be applied through AMM WQ-2 and AMM WQ-3, detailed in Appendix C, Avoidance, Minimization, and Mitigation Measures.

The SWDR identified treatment BMPs that have been studied and verified to remove general pollutants. BMPs such as biofiltration devices designed for bioretention has been identified as the most feasible treatment option for the project. The SWDR identified five conceptual locations for treatment BMPs at the project site. As described in the SWDR, the total area of suitable onsite locations for treatment BMPs is insufficient to meet the treatment requirements for the project. One offsite treatment BMP is proposed at the I-80/Powell Street interchange in Emeryville. The offsite stormwater facility would be constructed within an existing unutilized area between the I-80 mainline and a ramp at the Powell Street interchange.

With the incorporation of AMM WQ-3, Treatment BMPs, secondary effects due to erosion and downstream impacts to water quality would be minimized. AMM WQ-5, Maintenance BMPs, would ensure that minimal pollutants are discharged to surface waters via Caltrans' storm water drainage systems. See Appendix C for specific details about AMMs.

Oil, Grease, and Chemical Pollutants

The increased impervious surface area for the Build Alternative would generate minor increases in stormwater peak flow rates and runoff volumes. The amount of dissolved contaminants, automotive oil, and grease contained in stormwater runoff would also increase. However, increases in loading rates are proportional to the percent increase in impervious area within the watershed. Therefore, increases in stormwater runoff volumes and contaminants would slightly increase. PF WQ-12 and PF WQ-13 would minimize adverse effects to water quality from oil, grease, and other chemical pollutants.

Trash and Litter

In addition to the proposed biofiltration/bioretention devices, trash capture devices are included in the project. Travelers on I-80 and local roadways produce trash and litter, which is often swept up in stormwater flows and conveyed into surface waters. The presence of trash and litter can result in oxygen depletion in surface waters. Certain forms of trash, particularly plastic, are harmful to aquatic life and accumulate in the food chain, ultimately affecting human health. The 303(d) list of impaired waterbodies lists central San Francisco Bay as impaired for trash. Ongoing trash removal in these water bodies and throughout Alameda County is a substantial aspect of Caltrans' operations and maintenance activities.

As part of the proposed project, a separation device (i.e., a filter that separates sediment, debris, and trash from stormwater runoff) would be installed underground along the southwest quadrant of the interchange to separate trash, mercury, and PCBs within the project limits; and five full trash capture trash nets (that are affixed to pipe outlets) are proposed. As described in the SWDR, during the design phase, gross solid removal devices (GSRDs) would also be considered for centralized trash capture. Separation devices and trash inserts would be used within local ROWs.

Both avoidance and minimization measures and project features have been identified to reduce pollutants in receiving waters. Caltrans would employ trash and litter control activities through implementation of operations and maintenance BMPs, described under AMM WQ-5 (see Appendix C for full text). These BMPs are included as a standard preventative measure to ensure that increases in trash and litter would not negatively affect receiving waters. Additionally, the project would include the implementation of a SWPPP to address construction period impacts and implementation of stormwater treatment measures and trash capture devised (PF WQ-3; refer to Section 1.5.1 for further information regarding project features). With the incorporation of these project features and avoidance and minimization measures, the project would not violate water quality standards or affect the beneficial uses of a water body.

Temporary Construction Impacts

Effects to Receiving Waters

Construction of the Build Alternative would involve ground disturbing activities such as excavation, trenching, grading, demolition, and vegetation removal. The estimated area of disturbed soil for the Build Alternative is 34.15 acres. Construction activities could result in runoff that contains sediment and other pollutants. Sources of sediment include uncovered or improperly covered stockpiles, unstable slopes, bare soil, construction staging areas, and construction equipment not properly maintained or cleaned. Polluted

runoff could degrade water quality if not properly controlled. Therefore, PF WQ-1 through PF WQ-6, would be incorporated into the proposed project to protect receiving waters from sediments or other pollutants entering waters. Additionally, AMM WQ-1, AMM WQ-3, and AMM WQ-4 would be implemented to prevent pollution during construction of the proposed project.

Effects to Groundwater

Based on the geotechnical study conducted for the proposed project, groundwater is expected to be encountered at elevation ranges between 4 feet below sea level and 9 feet below ground surface. This means new subgrade construction would likely require dewatering. Construction activities that contact the groundwater table or require dewatering could create loose soils and introduce pollutants to the groundwater. PF WQ-1, Temporary Construction BMPs, and PF WQ-6, and compliance with Caltrans Standard Specifications and Field Guide to Construction Site Dewatering, would be required to protect any groundwater from sediments or other pollutants.

Cumulative Effects

The Build Alternative would result in 5.98 acres of net new impervious surfaces within the 3.8-square-mile (approximately 2432 acres) watershed. With implementation of the measures outlined in this section, the Build Alternative would not have an adverse effect on water quality. Several BMPs would be implemented to mitigate peak flow rates, minimize site erosion, and minimize downstream sedimentation. Post-construction treatment BMPs would be implemented to maximize stormwater infiltration rates (pervious surfaces), increase the time that stormwater is detained on-site, and filter and remove sediment. With fulfillment of AMM WQ-2 and AMM WQ-3, the proposed project would not violate any water quality standards, deplete groundwater supplies, alter drainage patterns, or create runoff that exceeds the capacity of existing stormwater infrastructure. Therefore, the proposed project would not result in a cumulatively considerable contribution to a significant cumulative water quality impact.

The proposed project has the potential to degrade water quality in the Cerrito Creek-Frontal San Francisco Bay estuaries, Angel Island-San Francisco Bay estuaries, and Richardson Bay-San Francisco Bay watersheds, which could lead to cumulative impacts over time if appropriate AMMs are not applied. However, the proposed project would address permanent impacts by incorporating stormwater treatment facilities. The proposed project's temporary impacts would be addressed with construction BMPs. These factors indicate that the incremental contribution of the proposed project to the cumulative stormwater and water quality impact would not be considerable.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Project Features

PF WQ-1: Temporary construction site BMPs will be implemented during construction to prevent any construction materials or debris from entering storm drains or drainage ditches within the project vicinity.

PF WQ-2: Compliance with Caltrans MS4 permit, municipal regional permit (MRP), construction general permit (CGP), and other regulatory agency requirements.

PF WQ-3: The CGP, Caltrans, and local standards require the project's contractor to implement a Stormwater Pollution Prevention Program (SWPPP) to comply with the conditions of the CGP.

PF WQ-4: Prior to any soil disturbance, a Notice of Intent will be filed with the State Water Resources Control Board's (SWRCB) Storm Water Multiple Application and Report Tracking System.

PF WQ-5: Temporary impacts to water quality during construction will be avoided or minimized by implementing temporary construction site BMPs.

PF WQ-6: Dewatering activities and the clean water diversion will comply with Caltrans Standard Specifications and Field Guide to Construction Site Dewatering.

PF WQ-7: Compliance with California Office of Emergency Services Hazardous Materials Incident Contingency Plan.

PF WQ-8: Drainage features, such as energy dissipation devices (e.g., flared end sections and tee dissipaters), will be considered at drainage outfalls to reduce the velocity and dissipate flows as they discharge from the culvert.

PF WQ-9: Rock slope protection will be placed at culvert outfalls and within drainage ditches and swales where velocities may result in drilling or scouring.

PF WQ-10: Permanent erosion control measures will be applied to all exposed areas once grading or soil disturbance work is completed as a permanent measure to achieve final slope stabilization.

PF WQ-11: Treatment of sediment laden flows.

PF WQ-12: Nonstandard treatment measures.

See Appendix C for the full text of these project features.

Avoidance and Minimization

Short term effects to water quality would be avoided or minimized using construction site BMPs, while long term effects due to operation and maintenance of the proposed project would be avoided or minimized through the use of design pollution prevention BMPs, treatment BMPs and maintenance BMPs. See Appendix C for the full text of AMMs WQ-1 through WQ-4.

AMM WQ-1: Temporary Construction BMPs. a SWPPP would be developed, which includes guidance for design staff to incorporate special provisions into construction contracts to include measures to protect sensitive areas and to prevent and minimize storm water and non-storm water discharges.

AMM WQ-2: Design Pollution Prevention BMPs. Design Pollution Prevention BMPs would be employed to minimize hydromodification impacts.

AMM WQ-3: Treatment BMPs. Post-construction treatment BMPs would ensure the proposed project does not increase stormwater volumes in the existing stormwater conveyance channels.

AMM WQ-4: Minimize Impacts to Aquatic Resources. Work within the San Francisco Bay will be limited to the smallest area possible to complete the proposed construction activities. Prior to conducting work within San Francisco Bay, Caltrans will implement a cofferdam spanning planned in-water work areas to avoid water quality impacts and potential impacts to aquatic habitat for wildlife.

AMM WQ-5: Operations and Maintenance BMPs. Maintenance BMPs are preventative measures to ensure that minimal pollutants are discharged to surface waters via Caltrans' storm water drainage systems. Maintenance BMPs are preventative measures to ensure that minimal pollutants are discharged to surface waters via Caltrans' storm water drainage systems. Maintenance activities involve the use of a variety of products.

See Appendix C for the full text of AMM WQ-1 through AMM WQ-5

Mitigation Measures

Mitigation Measure BIO-1: Mitigation will be required for the unavoidable impacts to aquatic resources (i.e., new outfall). Mitigation would occur at a minimum one-to-one ratio for permanent impacts (impact area to compensation area) to assure a no net loss of waters of the U.S., and the final mitigation ratio will ultimately be determined through Caltrans' coordination with the USACE during the Section 404 permitting process.

See Appendix C for the full text of this mitigation measure.

2.2.3 GEOLOGY/SOILS/SEISMIC/TOPOGRAPHY

This section describes effects on geology and soils that would result from completion of the proposed project, along with seismic risks. Sources of information used to prepare the analysis include:

- Preliminary Geotechnical Report (March 2021)

REGULATORY SETTING

Federal

Historic Sites Act of 1935

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. Structures are designed using the Department's Seismic Design Criteria (SDC). The SDC provides the minimum seismic requirements for highway bridges designed in California. A bridge's category and classification would determine its seismic performance level and which methods are used for estimating the seismic demands and structural capabilities. For more information, please see the Department's Division of Engineering Services, Office of Earthquake Engineering, SDC.

Local Regulations

Both the City of Emeryville and the City of Berkeley respective general plans provide comprehensive planning guidelines for development within the respective cities. The City of Emeryville requires a geotechnical investigation for areas of proposed development to demonstrate that all proposed projects conform to the City's guidelines.

AFFECTED ENVIRONMENT

Information in this section is based on the *Preliminary Geotechnical Report* approved in March 2021. The geologic study area encompasses all areas that fall within the physical footprint of the project area and areas that may either be directly or indirectly affected by project-related construction activities. The geologic study area includes various geologic features such as topography, hydrogeology, subsurface soils, geologic hazards, and seismic hazards.

Topography and Hydrogeology

The project area is situated on the east San Francisco Bay plain within the complex and seismically active California Coast Ranges Geomorphic Province. The regional topography of the project area encompasses the San Francisco Bay side of the Diablo Range – which forms the eastern watershed boundary – intervening alluvial fan and lowland zones, and the San Francisco Bay. The project area topography is varied due to the presence of I-80 and associated interchange components. The study area has an elevation of approximately 15 feet above mean sea level.

The average total annual precipitation is around 22.9-26.7 inches in the study area. Most of the rainfall is recorded in February with the average total monthly precipitation of 6 inches. Groundwater elevation ranges between 4 and 9 feet below ground surface. Groundwater levels vary with the passage of time due to seasonal groundwater fluctuation, surface and subsurface flows into nearby water courses, runoff, and other environmental factors.

Geology and Subsurface Conditions

The geologic study area is predominately underlain by marine and nonmarine sedimentary rocks, which are alluvial gravel, sand, and clay soils of the Pleistocene-Holocene era. No natural landmarks or other examples of major geologic features such as scenic rock outcroppings occur in the study area. Because no effects to natural landmarks or landforms would occur, as these resources are not located within the geologic study area, these are not discussed further.

Geologic Hazards

The project area is situated within the Coast Ranges geomorphic province. The Coast Ranges is characterized by a series of northwest trending mountain ridges and valleys, running generally parallel to the San Andreas Fault. The mountain ranges and valleys have been formed by tectonic forces that compressed ancient sedimentary deposits over the course of millions of years. Geologic hazards include soil erosion, subsidence, expansive soils, and corrosive soils. These hazards and their relationship to the proposed project are explained below.

Embankment Stability

Project improvements would occur mostly in areas previously disturbed and that consist of impervious asphalt. Embankments are primarily composed of fill. Subsoils consist of loose to medium dense granular fill, medium to very stiff lean clay, dense sand, and stiff to very stiff lean clay (old Bay clay). Steep slopes constructed on these soils could potentially result in destabilized slopes.

Subsidence

Subsidence is the settlement of low-density organic and saturated mineral soils after water drains out of those soils. According to the U.S. Geological Survey (USGS), the study area is not susceptible to subsidence. Therefore, subsidence is not discussed further.

Expansive Soils

Expansive soils are fine-grained soils that can undergo a significant increase in volume when their water content increases, as well as a significant decrease in volume when the soils dry out. Changes in the water content of highly expansive soils can result in severe stress on structures constructed in these soils. Based on the as-built boring data, expansive clays were not encountered near the surface.

Mineral Resources

According to the Mineral Land Classification Map provided by the Department of Conservation, the project area is within an MRZ-1 zone. This indicates there are no significant mineral deposits present or that there is little likelihood for the presence of mineral deposits. Therefore, mineral resources are not discussed further.

Seismic Hazards

Surface Fault Rupture

During an earthquake, surface rupture occurs when the ground surface is broken because of fault movement. Surface rupture mostly occurs along active faults. The project area is not within the Alquist-Priolo Special Study Zone and no known or mapped active faults pass through the project area. Therefore, the potential for ground surface rupture due to faulting is extremely low to non-existent and is not discussed further.

Seismic Ground Shaking

Regional context is an important consideration for seismicity because the potential seismic forces affecting the study area are regional in nature. Seismic events off-site within the San Francisco Bay Area may be felt at the project area. Measured by the Caltrans Acceleration Response System (ARS), peak ground accelerations (PGA) of 0.71 acceleration of gravity (g) were estimated for the project area. There is a high possibility for the project area to experience strong seismic ground shaking.

Liquefaction

Liquefaction is a phenomenon in which saturated soils are subject to a loss of shear strength and stiffness as a response to seismic shaking. Shear strength can be defined as an earth material's resistance to deformation. Clay soils are generally not susceptible to liquefaction. Low-density soils that are generally sandy and/or silty are commonly susceptible to liquefaction.

The project area is in a relatively high seismicity area and adopted a PGA of 0.71 g for the liquefaction analyses. Based on the boring data and the analysis results, liquefaction potential exists and should be expected for design.

When liquefaction occurs, the engineering consequences could be the temporary loss of strength in structures (due to the development of excess pore pressure) and post-liquefaction settlements of structures (after the dissipation of the excess pore pressure), which would affect the foundation capacity. Permanent ground deformation of the approach embankments, and lateral spreading of the new embankment may be anticipated. Liquefaction is a critical design consideration for the proposed improvement.

Landslides

Landslides occur when the shear stress placed on a soil or rock slope exceeds its shear strength. Generally, steep slopes are prone to landslides and relatively gentle slopes are not. Loading or saturation can increase the weight of soil or rock, adding to the shear stress. The shear strength of a slope can be reduced by erosion or by grading at the toe of a slide mass. The project area is relatively flat and there are no significant slopes in the vicinity. Therefore, the risk of landslide is low to very low.

Coastal Zone

The proposed project is situated within the coastal zone. The entire western portion of the proposed project as well as Radio Tower Pond are located within the Bay Conservation and Development Commission (BCDC)'s jurisdiction. BCDC was created prior to the California Coastal Act and retains oversight and planning responsibilities for development and conservation of coastal resources in the San Francisco Bay Area. The regulatory authority for BCDC is the McAteer-Petris Act and the Suisun Marsh Protection Act.

Volcanic Hazards

The closest volcano to the study area is Clear Lake Volcanic Field, located nearly 110 miles away from the project area. As such, this feature is too distant to create a hazard at the proposed project.

Tsunamis

Tsunamis are large sea waves caused by earthquakes in the ocean, landslides, or volcanic eruptions. There is a potential for tsunamis to occur within the study area because the proposed project is adjacent to the San Francisco Bay.

ENVIRONMENTAL CONSEQUENCES

No Build Alternative

Under the No Build Alternative, none of the project features described under the Build Alternative would be constructed. No change to the existing interchange structures would occur. Therefore, the No Build Alternative would not result in adverse effects related to geologic, seismic, topographic, or soils-related risks.

Build Alternative

Permanent Operational Impacts

The project area is in a seismically active region. Without proper engineering, the Build Alternative could pose safety risks to roadway users because of soil erosion, expansive soils, liquefaction, and seismic shaking. If corrosive soils are identified at locations where new subsurface facilities are proposed (e.g., bridge foundations, culverts, etc.) specially coated rebar, or alternative pipe culverts would be specified in the contract documents.

As previously discussed, there is a low probability of expansive soils within the project area. Implementation of PF-GEO-2 would minimize adverse effects related to expansive soils, if found during the PS&E phase, by requiring the treatment of expansive soils with lime or other additives to reduce the soil's expansion potential.

Liquefaction has the potential to exist from loose granular fill, which could contribute to lateral spreading in the project area. Based on the information provided by the designer, the proposed retaining walls are "fill walls" with a maximum design wall height up to 24 to 26 feet. The liquefaction potential and the slope stability of the proposed embankment will be analyzed during the PS&E phase when additional site-specific data become available.

Seismic shaking could result in damage to or collapse of bridges; rupturing of underground pipelines; and cracking and distortion of pavement, walls, and foundations. Proposed bridge structures and new and modified on- and off-ramps could increase the risk of structural damage if not properly designed. The Build Alternative would be designed and constructed in accordance with applicable Caltrans SDC to minimize seismic risks.

Temporary Construction Impacts

Construction activities, such as grading and excavation, could potentially affect the stability of existing soils and increase the overall potential for soil erosion. Highway and roadway projects that increase natural slopes can increase the rate of soil erosion. During construction, erosion could cause sedimentation problems in storm drains, remove topsoil, create deeply incised gullies on slopes, and undermine engineered fills beneath foundations or roadways.

As described above, the soil types present in the project area generally have a low susceptibility to erosion. Therefore, erosion control BMPs such as temporary silt fences, temporary environmentally sensitive area fencing, fiber rolls, temporary soil stabilizer, stockpile covers, and drainage inlet protection would be sufficient to reduce the risk associated with construction-period erosion (PF WQ-10). Further, natural areas would be revegetated after construction to minimize soil erosion, and ongoing maintenance of new or modified slopes should be completed to ensure slopes remain stable (AMM WQ-2).

The proposed project is in a seismically active region. Given this, construction workers could be exposed to seismic hazards. PF-GEO-1 would ensure worker safety by requiring employers to adhere to Occupational Health and Safety Administration (OSHA) and Caltrans' hazard-specific standards (Code of Safe Practices), as well as standard design and construction guidelines.

Cumulative Effects

Cumulative impacts arise due to the linking of impacts from past, present, and foreseeable future projects in the region. Other projects in the study area include residential, commercial, and infrastructure development projects in Emeryville, Berkeley, and within Alameda County. Because geologic impacts are site-specific and highly dependent upon the structural characteristics of individual projects, cumulative geologic hazard and soils impacts are generally confined to the project area and immediate vicinity. With implementation of project features and AMMs, the proposed project would not have an adverse effect related to geology, soils, seismicity, or topography. There is no additive effect of the geological/seismic hazards associated with other approved or foreseeable development and the project, and there would be no cumulative impacts.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Project Features

PF-GEO-1: Pursuant to Section 5(a) (1) of OSHA, employers must provide their employees with a workplace free from recognized hazards likely to cause death or serious physical harm.

PF-GEO-2: As part of design phase, expansive soils shall be addressed through treatment or removal as designated on construction plans, to reduce the potential for structural damage.

PF-GEO-3: As part of the final design phase, Caltrans requires preparation of structure foundation reports and geotechnical design reports that incorporate the results of subsurface field work and laboratory testing.

Avoidance and Minimization

All new or modified structures would be constructed in compliance with Caltrans seismic design standards and construction guidelines, and no additional avoidance, minimization, or mitigation measures are required.

Mitigation Measures

No mitigation would be required.

2.2.4 PALEONTOLOGY

This section evaluates the proposed project's effects of paleontological resources. Sources of information used to prepare the analysis in this section include:

- Paleontological Evaluation Report (October 2021)
- City of Emeryville General Plan
- City of Berkeley General Plan

REGULATORY SETTING

Federal

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

The National Environmental Policy Act of 1969 (NEPA)

The National Environmental Policy Act of 1969, [NEPA] as amended (Public Law [Pub. L.] 91-190, 42 United States Code [USC] 4321-4347, January 1, 1970, as amended by Pub. L. 94-52, July 3, 1975, Pub. L. 94-83, August 9, 1975, and Pub. L. 97-258 § 4(b), Sept. 13, 1982) recognizes the continuing responsibility of the Federal Government to "preserve important historic, cultural, and natural aspects of our national heritage." (Sec. 101 [42 USC § 4321]) (#382). With the passage of the Paleontological Resources Preservation Act (PRPA) (2009), paleontological resources are considered to be a significant resource and it is therefore now standard practice to include paleontological resources in NEPA studies in all instances where there is a possible impact.

Other Applicable Federal Codes

23 USC Section 1.9(a) requires that the use of Federal-aid funds must be in conformity with all federal and state laws.

23 USC Section 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 Sections 431-433 above and state law.

State

State of California Public Resource Code

The PRC Chapter 1.7, Sections 5097 and 30244, include state level requirements for the assessment and management of paleontological resources. These statutes require reasonable mitigation of adverse impacts to paleontological resources resulting from development on state lands. The statutes also define the excavation, destruction, or removal of paleontological “sites” or “features” from public lands without the express permission of the jurisdictional agency as a misdemeanor. As used in Section 5097, “state lands” refers to lands owned by, or under the jurisdiction of, the state or any state agency. “Public lands” is defined as lands owned by, or under the jurisdiction of, the state, or any city, county, district, authority, or public corporation, or any agency thereof.

AFFECTED ENVIRONMENT

Information in this section is based on the Paleontological Evaluation Report approved in August 2020. The paleontological study area encompasses all areas of the project area that would be affected by ground disturbing activities of the Build Alternative. This section discusses the study area’s sensitivity for paleontological resources (i.e., vertebrate, invertebrate, and plant fossils). The types, distribution, and age of sediments in the study area determine the probability of encountering significant fossils during project construction. General excavation would be up to 10 feet. However, cast-in-

drilled-hole (CIDH) pile foundations are proposed in several locations and would require drilled excavations depths of approximately 80 feet.

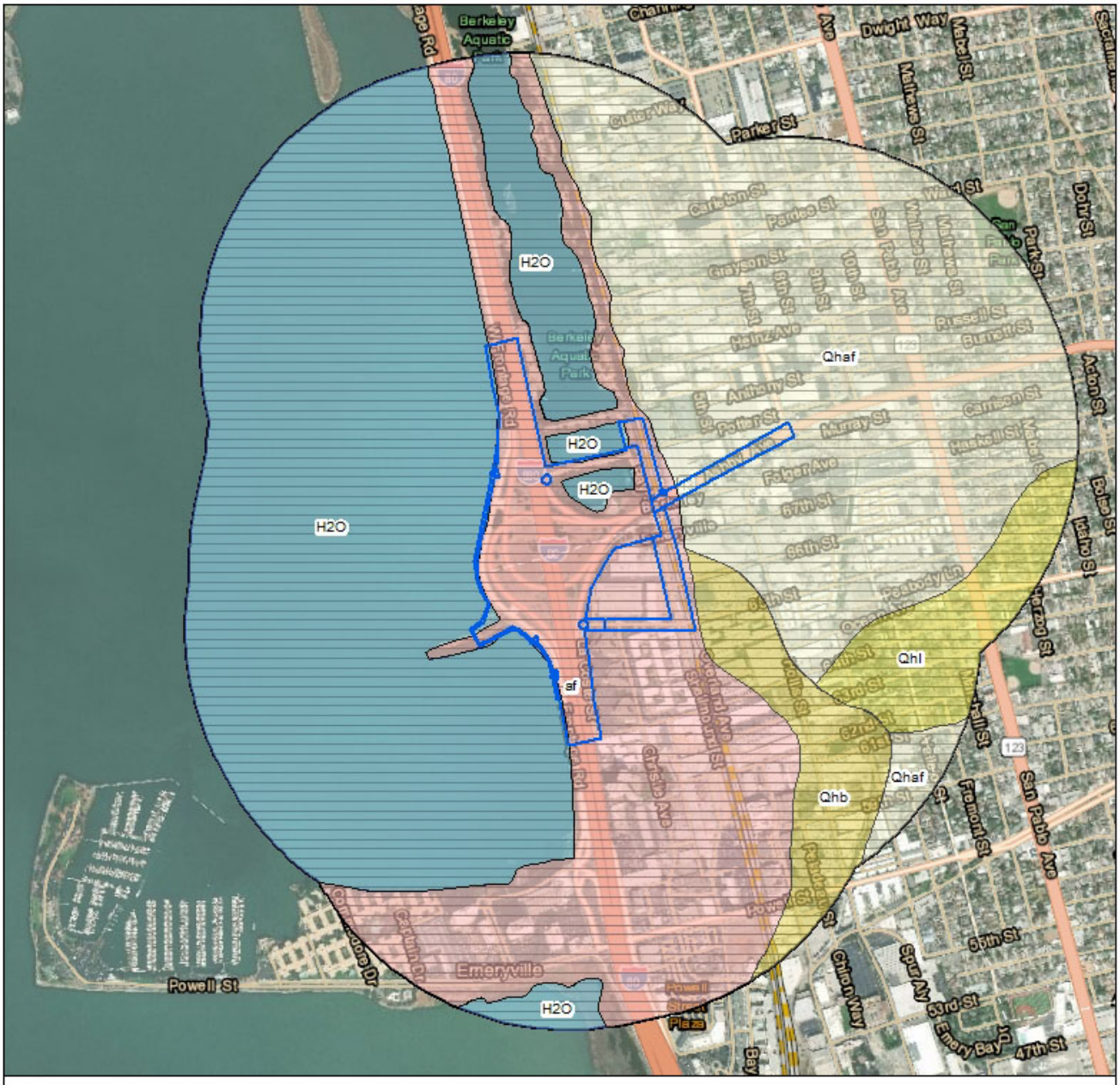
The paleontological study area is primarily comprised of low paleontological sensitivity Historic-age fill (af). A lesser amount of low paleontological sensitivity Holocene-age alluvial fan and fluvial deposits (Qhaf) and Holocene-age basin deposits (Qhb) and natural levee deposits (Qhl) are present within a half mile of the project area (see Figure 2.2-3). Pleistocene-aged alluvial deposits have not been mapped in the project area; however, it is possible that unrecorded Pleistocene-aged alluvial deposits could be discovered during deep excavation activities.

Table 2.2-2 presents a summary of the geological units within the study area, and their respective paleontological sensitivities.

Table 2.2-2 Paleontological Sensitivities for Geological Units within Project Area

Map Symbol	Age	Formation	Physical Characteristics	Typical Occurrence of Paleontological Resources
af	Historic	Historic Age Artificial Fill	Previously disturbed sediment that has been transported by humans.	Lay is 10.5 feet thick where mapped at the surface of the existing interchange
Qhaf, Qhb and Qhl	Holocene	Holocene Alluvial deposits	Alluvial gravel, sand, and clay of valley areas and sand of major stream channels.	Mapped within half-mile radius of project area

Source: Paleontological Evaluation Report



Geology Map Figure **2.2-3**

Source: Paleo Solutions, 2020

ENVIRONMENTAL CONSEQUENCES

No Build Alternative

Under the No Build Alternative, the new interchange or BPOC would not be constructed. No change to the existing interchange structures would occur, and there would be no excavation or other ground-disturbing activity. The No Build Alternative would not result in adverse effects to paleontological resources.

Build Alternative

Under the Build Alternative, earthmoving and ground disturbing activities could adversely affect buried paleontological resources. Pleistocene-aged alluvial deposits have not been mapped in the project area, however during deep excavation activities, unrecorded Pleistocene-aged alluvial deposits could be discovered. Since the depth of Pleistocene soils is not known, it is conservatively assumed that construction activities could encounter this soil type. If present, subsurface paleontological resources could be unintentionally destroyed through breakage and/or crushing as the result of excavation and foundation/pile work.

AMM PAL-1 would be implemented to avoid damage to or destruction of paleontological resources. This measure requires preparation of a detailed Paleontological Mitigation Plan prior to construction, along with construction monitoring.

Excavations for roadway widening are anticipated to be shallow (approximately 3 feet deep) and would occur entirely within Holocene-aged alluvial sediments that are unlikely to contain paleontological resources.

Ground disturbing activities would only occur during the construction period, and there would be no impact to paleontological resources during operation of the project.

Cumulative Effects

The cumulative setting for paleontological resources includes the areas within and surrounding the project area which have documented paleontological resource sites or a high sensitivity for unrecorded fossils. Cumulative effects on paleontological resources would occur if planned and foreseeable projects, when taken in combination with the proposed project, would result in the removal of a substantial number of paleontological resources resulting in overall damage to the physical historical record of the larger region.

As described above, with Measure PAL-1, the Build Alternative would not result in an adverse effect to paleontological resources. Paleontological resources – both known and unknown – are protected by several federal, state, and local regulations. If

paleontological resources are encountered, a qualified paleontologist shall evaluate the fossils and take steps necessary to photo-document or recover the fossils. This level of preventative measure is also included in Caltrans' standard specifications. Application of existing regulations and NEPA and/or CEQA evaluation on a project-by-project basis would avoid cumulative effects to paleontological resources in the region. Therefore, no cumulative effect would occur.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Project Features

There are no project features associated with paleontological resources.

Avoidance and Minimization

AMM PAL-1: Paleontological Mitigation Plan (PMP). A PMP shall be drafted and would include provisions for periodic spot checks to check for the presence of unanticipated paleontological resources during deeper excavations.

See Appendix C for full text of AMM PAL-1.

Mitigation Measures

No mitigation measures would be required.

2.2.5 HAZARDOUS WASTE/MATERIALS

This section evaluates effects associated with hazards and hazardous materials that could occur with fulfillment of the proposed project. Sources of information used to prepare the analysis in this section include:

- Phase I Initial Site Assessment (October 2021)

REGULATORY SETTING

Federal

Hazardous materials, including hazardous substances and wastes, are regulated by many state and federal laws. Statutes govern the generation, treatment, storage and disposal of hazardous materials, substances, and waste, and also the investigation and mitigation of waste releases, air and water quality, human health, and land use.

The primary federal laws regulating hazardous wastes/materials are the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980, and the Resource Conservation and Recovery Act (RCRA) of 1976. The purpose of CERCLA, often referred to as “Superfund,” is to identify and cleanup 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
- Atomic Energy Act
- Toxic Substances Control Act (TSCA)
- Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)

In addition to the acts listed above, Executive Order 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.

State

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 addressed specific handling, storage, transportation, disposal, treatment, reduction, cleanup, and emergency planning of hazardous waste. The Porter-Cologne Water Quality Control Act also restricts the disposal of wastes and requires cleanup of wastes that are below hazardous waste concentrations but could impact ground and surface water quality. California regulations that address waste management and prevention and cleanup of containment 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 environment. Proper management and disposal of hazardous material is vital if it is found, disturbed, or generated during project construction.

In California, the U.S. EPA has granted the California Environmental Protection Agency (CAL/EPA) most enforcement authority over federal hazardous materials regulations in the state. The mission of CAL/EPA is to restore, protect, and enhance the environment to ensure public health, environmental quality, and economic vitality. Under the authority of CAL/EPA, the Department of Toxic Substances Control (DTSC) and the San Francisco Bay RWQCB is responsible for overseeing the cleanup of contaminated soil and groundwater sites in the state, including the San Francisco Bay Area. RWQCB regulations applicable to hazardous materials are contained in Title 27 of the California Code of Regulations (CCR). Additional state regulations applicable to hazardous materials are contained in CCR Title 22. CCR Title 26 is a compilation of those sections or titles of the CCR that are applicable to hazardous materials.

AFFECTED ENVIRONMENT

Information for this section is based on the Phase I Initial Site Assessment (ISA) prepared for the proposed project (October 2021). The hazardous materials study area includes the project area and the area within one mile of the project area. The ISA includes a review of the physical setting, site history, and environmental records. Site reconnaissance was completed as a part of the ISA in September and October 2019. Hazardous materials storage areas were identified in advance of the site reconnaissance based on the review of environmental records. Evidence of potentially undocumented hazardous materials releases or future threats of hazardous materials releases was not observed within or adjacent to the study limits. However, it should be

noted that conditions that may represent a hazard within the study limits may not be visible from public roadways.

Environmental records reviewed in the ISA were derived from the U.S. EPA *Enforcement and Compliance History Online* database, *GeoTracker* database, and the DTSC *EnviroStor* database.

Summary of Hazardous Release Sites

The review of environmental records identified 141 hazardous materials release sites within one mile of the project area. There were no documented hazardous material releases within the project area. Hazardous materials released near the project area could potentially migrate to the project area either over the ground surface, through groundwater, or in soils.

Common types of hazardous releases are diesel fuel, gasoline, and oil spills, as well as pesticide use and aerially deposited lead (ADL) from historic gasoline use. Leaking underground storage tanks (LUST) are one of the most common types.

Based on these screening criteria, 27 of the 141 release sites were identified as having potential to contaminate the project area. The other 114 release sites are not expected to affect environmental conditions at the project area due to their distance, the type of contamination, the status of the site as closed (remediated), or a combination of these factors. The 27 sites of potential concern are described in detail in the Phase I ISA and shown in Figure 2.2-4.

Legend

- Study Limits
- Underground Petroleum Pipeline
- Railroad Corridor
- Active Release Site
- Closed Release Site

Notes:
ADL = aerially-deposited lead.
Information about release site records (e.g., Site IDs, address, status) summarized in Appendix C.

Hazardous Materials Release Sites Figure **2.2-4**

Source: Baseline 2021

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Historic Land Uses in the Study Area

The project area has previously been used for activities with the potential to contaminate soils and groundwater, including slaughterhouses, lumber yards, tanning, and industrial uses including plastic and steel manufacturing, as well as machine shops. Potentially contaminating uses began in 1911 and began to wane in 1982 with the conversion of some industrial areas to residential uses.

Common contaminants of concern in soil and/or groundwater associated with fill materials and past industrial land uses include heavy metals (e.g., lead and arsenic), petroleum hydrocarbons, volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), and asbestos.

Aerially Deposited Lead

Based on a review of historical aerial photographs, the I-80 corridor within the study limits was constructed in the late 1930s, which was before leaded gasoline was phased out. Project construction activities that disturb exposed shallow soils along the highway corridor could encounter ADL contamination.

In addition, between 1994 and 1996, soils contaminated with ADL from other Caltrans projects were used as fill materials to create an embankment between the I-80 westbound off-ramp and the highway. In accordance with guidance from DTSC, up to about 15 vertical feet of ADL-contaminated soil was placed as fill over an area of approximately 2 acres and covered with about 2 feet of clean fill materials. Project construction activities that disturb the soil embankment between the I-80 westbound off-ramp and the highway could encounter ADL contamination.

Contamination from Railroad Corridors

A railroad corridor that has historically supported adjacent industrial land uses crosses the study limits east of and parallel to Shellmound Street and Bay Street. The most reported soil contamination along railroad corridors are metals and petroleum products from railroad operations. Other sources of contaminants associated with historical railroad operations may include coal ash from engines and polynuclear aromatic hydrocarbons (PAHs) from diesel exhaust. The risk of soil contamination is generally greater along railroad corridors that are adjacent to industrial land use areas, because historical loading practices, leaks during material transfers or storage, and repair activities may have contaminated the soil. Project improvements that encroach on the railroad corridor (if any) could potentially encounter undocumented soil contamination from past railroad operations.

Petroleum Contamination from Utility Pipelines

Underground petroleum pipelines owned and operated by Kinder Morgan cross the study limits east of and parallel to Shellmound Street and Bay Street (PHMSA, 2019). Petroleum pipelines have been subject to pipeline safety and maintenance regulations since 1979, including the Federal Hazardous Liquid Pipeline Safety Act (Title 49, C FR, Part 195.412) and state regulations (California Government Code Section 51010-51019.1). These regulations require that petroleum pipelines be designed with equipment, such as low-pressure alarms and safety shut-down devices, to minimize spill volume in the event of a leak.

Project improvements near the petroleum pipelines could potentially encounter undocumented soil contamination from the pipelines. Furthermore, groundwater within the project study limits could potentially be contaminated by undocumented releases of petroleum from the pipelines.

Naturally-Occurring Asbestos in Bedrock

Geologic mapping from the USGS does not show any areas of rock likely to contain naturally-occurring asbestos (ultramafic rock) within the study limits. Therefore, project construction is not expected to encounter asbestos in bedrock.

Contaminated Bay Sediments

The proposed project includes construction of a drainage outfall in the southwest portion of the interchange that would require excavation into the San Francisco Bay sediments. Elevated concentrations of PCBs, organochlorine pesticides (OCPs), PAHs, and mercury are common in Bay sediments due to discharges from historical mining and industrial activities, runoff from the Central Valley, and dredging and erosion of previously contaminated sediments. Project construction activities for the proposed drainage outfall could encounter contaminated Bay sediments.

Hazardous Building Materials

The disturbance of hazardous building materials, such as asbestos and lead paint, during construction of the proposed project could pose a health risk to construction workers and the public if not handled and disposed of properly. As described below, existing bridge, wall, and roadway structures located within the study limits may contain hazardous building materials. Hazardous Building Materials are further discussed in the Environmental Consequences section below.

ENVIRONMENTAL CONSEQUENCES

No Build Alternative

Under the No Build Alternative, existing I-80/Ashby Avenue connector ramps would not be demolished and the Build Alternative would not be constructed. The existing transportation facilities within the project area would remain unchanged except for planned and programmed improvements. The existing transportation facilities within the project area would remain unchanged except for planned and programmed improvements. Therefore, the No Build Alternative would not result in increased risks associated with hazardous materials or hazardous waste. The No Build Alternative would have no effect related to this topic.

Build Alternative

As a transportation infrastructure project, hazardous wastes or materials would not be needed or used during operation of the Build Alternative. The Build Alternative would not place roadway users near hazardous facilities or hazardous material sites, or otherwise change the existing overall location of transportation facilities within the study area. Therefore, only construction-related effects are discussed below.

Hazardous Material Release Sites

As previously discussed, in Affected Environment, 27 of the 141 release sites were closely evaluated to determine whether migrated contaminants could be encountered at the project area. Based on the characteristics of each release, all are considered a potential risk for on-site contamination. Based on the type of hazardous materials release, all 27 sites could contain residual contaminated groundwater. If contaminated groundwater is encountered during construction, it could pose a risk to construction workers. Further, the exposure of contaminated groundwater to the surface creates the potential for further contamination.

Risks associated with encountering contaminated groundwater during construction would be avoided or minimized through implementation of AMM HAZ-1 and AMM HAZ-2. These measures would ensure that additional on-site groundwater testing is completed prior to construction, would provide project-specific worker safety measures, and would require detention of contaminated groundwater on-site during construction to avoid further spread of contaminants.

Aerially Deposited Lead

Based on a review of historical aerial photographs of the study area, I-80 was constructed in the late 1930s before the phase-out of leaded gasoline. Therefore, ADL may be present in roadside soils at the project area. Ground disturbing construction

activities could expose construction workers to ADL. This represents a potential health risk. AMM HAZ-1 and AMM HAZ-3 would avoid this potentially adverse effect. AMM HAZ-1 would require testing and evaluation of ADL and a determination on whether ADL-contaminated soils could be reused on site. AMM HAZ-3 requires the preparation of a site safety plan. The plan would address site-specific risks including ADL and ensure risks to construction workers and the public are minimized.

Contaminated Soil in Fill Materials

Fill materials used for embankments within the study limits come from a variety of sources and contain contaminants. Common contaminants in fill materials include asbestos, heavy metals, pesticides, and petroleum hydrocarbons. Therefore, construction of the Build Alternative could potentially encounter contaminated soils in fill embankments. This represents a potential health risk to construction workers. AMM HAZ-3 would avoid this potentially adverse effect by requiring the preparation of a Site Safety Plan. The plan would address site-specific risks and ensure risks to construction workers and the public are minimized.

Hazardous Building Materials

Lead-Based Paint and Asbestos-Containing Materials

Building materials such as thermal system insulation, surfacing materials, and asphalt and vinyl flooring materials installed prior to 1981 may contain asbestos. Lead compounds may also be present in interior or exterior paints regardless of construction date. Lead and asbestos are state-recognized carcinogens, and lead is a reproductive toxicant. Bridges and wall structures could contain asbestos materials and may have surfaces coated with lead-based paint. Demolition or modification of these structures could release lead particles and asbestos fibers (if present) into the environment. This presents a potential health risk to construction workers. AMM HAZ-4 would avoid this potentially adverse effect by requiring preconstruction survey of all structures that would be removed or modified under the Build Alternative. Any hazardous building materials identified would be removed prior to construction.

Yellow Traffic Striping and Pavement Markers

Caltrans has historically used paints containing high levels of lead chromate for yellow traffic striping and pavement markings along roadways. Yellow traffic paints and yellow thermoplastic materials applied to roadways prior to 1997 and 2007, respectively, may contain lead concentrations above hazardous waste thresholds. Modification of the roadways with yellow traffic striping and pavement markings during construction could release lead chromate particles (if present) into the environment. This would pose a potential health risk to construction workers. AMM HAZ-5 would avoid this potentially

adverse effect by requiring testing of yellow thermoplastics and paint prior to construction. Yellow markings would be treated as hazardous and removed in accordance with Caltrans Standard Special Provision 14 001 to ensure workers are not exposed to toxic substances.

Asphalt and Portland-Cement Concrete

Grindings of asphalt concrete and Portland cement concrete have a relatively high pH and may contain metals and petroleum hydrocarbons that can impact stormwater runoff and threaten surface water bodies. Generation of asphalt concrete and Portland-cement concrete grindings during construction of the Build Alternative pose a risk of releasing metals and petroleum hydrocarbons into the environment. AMM HAZ-6 would avoid this potentially adverse effect by ensuring grindings are reused and transported in accordance with RWQCCB guidelines to avoid contamination of stormwater or other surface waters.

Cumulative Impacts

Cumulative impacts arise due to the linking of impacts from past, present, and foreseeable future projects in the region. Effects from hazardous waste and materials related to future development in areas surrounding the project area are site specific and relate to the type and location of construction proposed, as well as the environmental concerns associated with known hazardous material release sites within the project area. With incorporation of PF HW-1 and AMM HAZ-1 through AMM HAZ-6, there would be no additive effect of the hazardous or waste materials associated with other approved or foreseeable development and the proposed project, and therefore no cumulative effect.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Project Features

PF HW-1: Caltrans specification SSP 14-11.12 (2015B) will be included in the contract specifications and implemented during construction to contain any debris produced during removal of yellow thermoplastic and yellow paint.

Avoidance and Minimization

AMM-HAZ-1: During the final design phase, a Preliminary Site Investigation (PSI) of the project area shall be performed to investigate hazardous materials concerns related to soil, groundwater, and construction materials identified in the Phase I ISA.

AMM-HAZ-2: At a minimum, groundwater from dewatering of excavations, if any, would be stored in Baker tank(s) during construction activities and the water would be characterized prior to disposal or recycling.

AMM-HAZ-3: In accordance with Caltrans' standards, a site safety plan shall be prepared and implemented prior to initiation of any construction/development activities to reduce health and safety hazards to workers and the public.

AMM-HAZ-4: Hazardous building materials surveys shall be conducted by a qualified professional.

AMM-HAZ-5: Yellow stripe and pavement markings shall be treated as a hazardous waste; a lead compliance plan shall be implemented, and residues shall be tested for hazardous-waste classification prior to off-site disposal.

AMM-HAZ-6: Asphalt-concrete and Portland-cement concrete grindings shall be reused in accordance with San Francisco Bay RWQCB guidelines for Caltrans' projects or transported offsite for recycling or disposal.

See Appendix C for full text of AMM HAZ-1 through AMM HAZ-6.

Mitigation Measures

No mitigation would be required.

2.2.6 AIR QUALITY

This section discusses temporary and long-term effects to air quality that could result from the project. Information in this section is primarily drawn from the Air Quality Report (AQR) (August 2020) prepared for the proposed project.

REGULATORY SETTING

Federal and State

The Federal Clean Air Act (FCAA), as amended, is the primary federal law that governs air quality while the California Clean Air Act (CCAA) is its companion state law. These laws, and related regulations by the U.S. EPA and the California Air Resources Board (ARB), set standards for the concentration of pollutants in the air. At the federal level, these standards are called National Ambient Air Quality Standards (NAAQS). NAAQS and state ambient air quality standards have been established for six transportation-related criteria pollutants that have been linked to potential health concerns: carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter —which is broken down for regulatory purposes into particles of 10 micrometers or smaller (PM_{10}) and particles of 2.5 micrometers and smaller ($PM_{2.5}$)—and sulfur dioxide (SO_2). In addition, national and state standards exist for lead (PB), and state standards exist for visibility reducing particles, sulfates, hydrogen sulfide (H_2S), and vinyl chloride. The NAAQS and state standards are set at levels that protect public health with a margin of safety and are subject to periodic review and revision. Both state and federal regulatory schemes also cover toxic air contaminants (air toxics); some criteria pollutants are also air toxics or may include certain air toxics in their general definition.

Federal air quality standards and regulations provide the basic scheme for project-level air quality analysis under NEPA. In addition to this environmental analysis, a parallel "Conformity" requirement under the FCAA also applies.

Conformity

The conformity requirement is based on FCAA Section 176(c), which prohibits the U.S. Department of Transportation and other federal agencies from funding, authorizing, or approving plans, programs, or projects that do not conform to State Implementation Plan (SIP) for attaining the NAAQS. "Transportation Conformity" applies to highway and transit projects and takes place on two levels: the regional (or planning and programming) level and the project level. The proposed project must conform at both levels to be approved.

Conformity requirements apply only in nonattainment and "maintenance" (former nonattainment) areas for the NAAQS, and only for the specific NAAQS that are or were

violated. U.S. EPA regulations at 40 CFR 93 govern the conformity process. Conformity requirements do not apply in unclassifiable/attainment areas for NAAQS and do not apply at all for state standards regardless of the status of the area.

Regional conformity is concerned with how well the regional transportation system supports plans for attaining the NAAQS for carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM_{10}, NO_x and $PM_{2.5}$), and in some areas (although not in California), sulfur dioxide (SO_2). California has nonattainment or maintenance areas for all of these transportation-related "criteria pollutants" except SO_2, and also has a nonattainment area for lead (Pb); however, lead is not currently required by the FCAA to be covered in transportation conformity analysis.

Regional conformity is based on emission analysis of Regional Transportation Plans (RTPs) and Federal Transportation Improvement Programs (FTIPs) that include all transportation projects planned for a region over a period of at least 20 years (for the RTP) and 4 years (for the FTIP). RTP and FTIP conformity uses travel demand and emission models to determine whether the implementation of those projects would conform to emission budgets or other tests at various analysis years showing that requirements of the FCAA and the SIP are met.

If a conformity analysis is successful, the Metropolitan Planning Organization (MPO), FHWA, and Federal Transit Administration (FTA) make the determinations that the RTP and FTIP are in conformity with the SIP for achieving the goals of the FCAA. Otherwise, the projects in the RTP and/or FTIP must be modified until conformity is attained. If the design concept and scope and the "open-to-traffic" schedule of a proposed transportation project are the same as described in the RTP and FTIP, then the proposed project meets regional conformity requirements for purposes of project-level analysis.

Project-level conformity is achieved by demonstrating that the project comes from a conforming RTP and TIP; the project has a design concept and scope that has not changed significantly from those in the RTP and TIP; project analyses have used the latest planning assumptions and EPA-approved emissions models; and in PM areas, the project complies with any control measures in the SIP. Furthermore, additional analyses (known as hot-spot analyses) may be required for projects located in carbon monoxide (CO) and PM nonattainment or maintenance areas to examine localized air quality impacts.

Local Regulations

San Francisco Bay Area Air Basin

The San Francisco Bay Area Air Basin (SFBAAB) encompasses approximately 5,600 square miles and includes all of Alameda, Contra Costa, Marin, Napa, San Francisco, Santa Clara, and San Mateo counties, and portions of Solano and Sonoma counties. The San Francisco Bay Area Air Quality Management District (BAAQMD) and the CARB have joint responsibility for developing and enforcing regulations needed to achieve and maintain NAAQS and California Ambient Air Quality Standards (CAAQS) in the SFBAAB.

Bay Area Air Quality Management District

BAAQMD has a range of responsibilities for monitoring, maintaining, and improving air quality. BAAQMD prepares and administers attainment and maintenance plans for ambient air quality, creates and enforces rules and regulations, issues permits for stationary sources of air pollution, inspects stationary sources, monitors ambient air quality and meteorological conditions, awards grants to reduce motor vehicle emissions, and conducts public education campaigns.

BAAQMD developed the 2017 Bay Area Clean Air Plan (2017 CAP) in cooperation with the Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments (ABAG). MTC and ABAG estimate future population and transportation trends which are used to develop and evaluate CAP strategies. The overall goal of these strategies is to bring the SFBAAB into compliance with NAAQS and CAAQS. The 2017 CAP addresses four categories of pollutants: ground-level ozone and its key precursors, reactive organic gasses (ROG) and NO_x; particulate matter, primarily $PM_{2.5}$; key air toxics such as diesel particulate matter and benzene; and key greenhouse gasses (GHGs).

Senate Bill 656

In 2003, the California Legislature enacted Senate Bill 656 (SB 656) to reduce public exposure to PM_{10} and $PM_{2.5}$. To comply with SB 656, BAAQMD reviewed the list of 103 potential particulate matter control measures prepared by CARB and developed a Particulate Matter Implementation Schedule. This schedule which was adopted by BAAQMD on November 16, 2005. To fulfill federal air quality planning requirements, BAAQMD adopted a $PM_{2.5}$ emissions inventory for the year 2010 on November 7, 2012. BAAQMD transmitted the inventory to the CARB for inclusion in the SIP. In addition, to complement this SIP submittal, BAAQMD prepared a detailed informational report entitled Understanding Particulate Matter: Protecting Public Health in the San Francisco Bay Area as well as a concise summary of the particulate matter report. The particulate

matter report will help to guide the BAAQMD's on-going efforts to analyze and reduce particulate matter in the SFBAAB in order to better protect public health.

AFFECTED ENVIRONMENT

Information in this section is based on the AQR (August 2020). The project area is in the southwestern Alameda County climatological subregion of the SFBAAB, which is overseen by BAAQMD. The air quality study area for long-term effects includes the entirety of the Southwestern Alameda County subregion. The regional air quality study area includes the freeway mainline segments for the I-80 interchange.

Climate and Topography

Air basins have physical characteristics that determine the ability of natural processes to dilute or transport air pollutants. Climatic and topographic factors such as wind, atmospheric stability, terrain that influences air movement, and sunshine all play a role in concentration of air pollutants within an air basin.

The climate within the air quality study area is affected by proximity to the Pacific Ocean and the San Francisco Bay, which has a moderating influence. The San Francisco Bay Area has a Mediterranean climate characterized by wet winters and dry summers. During the summer, a high-pressure cell over the northeastern Pacific Ocean results in stable meteorological conditions and a steady northwesterly wind flow that keep storms from affecting the California coast. Southwestern Alameda County is indirectly affected by marine air flow. Marine air entering through the Golden Gate is blocked by the East Bay hills, forcing the air to diverge into northerly and southerly paths. The southern flow is directed down the San Francisco Bay, parallel to the hills, where it eventually passes over southwestern Alameda County. During the summer months, average temperatures range from the mid-50s to mid-70s (Fahrenheit). During the winter months, average temperatures range from the low 40s to low 60s (Fahrenheit).

Pollution potential is relatively high in southwestern Alameda County during the summer and fall. When high pressure dominates, low mixing depths and Bay and ocean wind patterns can concentrate and carry pollutants from other cities to this area, adding to the locally-generated pollutant mix. The polluted air is then pushed up against the East Bay hills. In the wintertime, the air pollution potential in southwestern Alameda County is moderate. Air pollution sources include light and heavy industry and motor vehicles.

Air Pollutants

The primary air pollutants of concern from motor vehicles are ground-level ozone formed through reactions of nitrogen oxide (NOx), reactive organic gases (ROG), particulate matter $(PM)_{10}$, and $PM_{2.5}$. In addition to criteria air pollutants, local Mobile

Source Air Toxics (MSAT) emissions are a concern for nearby receptors, and GHG emissions are a regional concern for climate change. These primary air pollutants of concern are discussed further below.

Ozone

Motor vehicles do not emit ozone directly into the environment, but tailpipe emissions undergo complex chemical reactions in the presence of sunlight, which result in the formation of ozone. The primary chemicals involved in these reactions are NO_x and ROG, often referred to as ozone precursors. Ozone precursors may come from sources other than motor vehicles, but the largest manmade source in the SFBAAB is motor vehicle exhaust. Ozone exposure causes eye irritation and damage to lung tissue in humans. Ozone also harms vegetation, reduces crop yields, and accelerates deterioration of paints, finishes, rubber products, plastics, and fabrics.

Carbon Monoxide

CO is an odorless, colorless gas usually formed as the result of the incomplete combustion of fuels. The single largest source of CO is motor vehicles. CO disperses with distance from the source under normal meteorological conditions. However, under certain extreme meteorological conditions, CO concentrations near congested roadways or intersections may reach unhealthy levels that adversely affect local sensitive receptors. Typically, high CO concentrations are associated with roadways or intersections operating at unacceptable levels of service (LOS) or with extremely high traffic volumes. Exposure to high concentrations of CO reduces the oxygen-carrying capacity of the blood and can cause headaches, nausea, dizziness, and fatigue; impair central nervous system function; and induce chest pain in persons with serious heart disease. Very high levels of CO can be fatal.

Nitrogen Dioxide

NO_2 is a byproduct of fossil fuel combustion. Automobiles and industrial operations are the main sources of NO_2. Aside from its contribution to ozone formation, NO_2 also contributes to other pollution problems including a high concentration of fine particulate matter, poor visibility, and acid deposition. NO_2 may be visible as a coloring component on high pollution days, especially in conjunction with high ozone levels. NO_2 decreases lung function and may reduce resistance to infection.

Sulfur Dioxide

SO_2 is a colorless, irritating gas formed primarily from incomplete combustion of fossil fuels containing sulfur. Industrial facilities also contribute to SO_2 levels in the region.

SO_2 irritates the respiratory tract, can injure lung tissue when combined with fine particulate matter, and reduces visibility and the level of sunlight.

Particulate Matter

PM_{10} and $PM_{2.5}$ consist of extremely small, suspended particles or droplets that are 10 microns and 2.5 microns or smaller in diameter, respectively. Some sources of particulate matter, like pollen, forest fires, and windblown dust, are naturally occurring. In populated areas, most particulate matter is caused by road dust, combustion products, abrasion of tires and brakes, and construction activities. Secondary particulate matter can also be formed in the atmosphere through condensation and chemical reactions of inorganic gases and ROG.

Particulate matter exposure can affect breathing, aggravate existing respiratory and cardiovascular disease, alter the body's defense systems against foreign materials, and damage lung tissue, contributing to cancer and premature death. Individuals with chronic obstructive pulmonary or cardiovascular disease, asthmatics, the elderly, and children are most sensitive to the effects of particulate matter.

Lead

Lead is a metal found naturally in the natural environment as well as in manufactured products. The major sources of lead emissions have historically been mobile and industrial sources. Twenty years ago, mobile sources were the main contributor to ambient lead concentrations in the air. In the early 1970s, the U.S. EPA established national regulations to gradually reduce the lead content in gasoline. In 1975, unleaded gasoline was introduced for motor vehicles equipped with catalytic converters. The U.S. EPA banned the use of leaded gasoline in highway vehicles in 1995. As a result of the EPA's regulatory efforts to remove lead from gasoline, emissions of lead from the transportation sector and levels of lead in the air decreased dramatically. Metal processing is currently the primary source of lead emissions, with the highest levels of lead in the air generally found near lead smelters. Other stationary sources are waste incinerators, utilities, and lead-acid battery manufactures.

Mobile Source Air Toxics

MSATs include a diverse group of air pollutants that can adversely affect human health. Unlike criteria air pollutants, which generally affect regional air quality, MSAT emissions are evaluated based on estimations of localized concentrations and risk assessments. The adverse health effects a person may experience following exposure to any chemical depend on several factors, including the amount, duration, chemical form, and any simultaneous exposure to other chemicals.

The EPA's Integrated Risk Information System (IRIS) includes 93 hazardous air pollutants emitted from mobile sources. Based on the EPA's 2011 national-scale Air Toxics Assessment, nine of these compounds are considered significant national and regional-scale cancer risk drivers or contributors and/or non-cancer hazard contributors. These are acetaldehyde, acrolein, benzene, 1,3-butadiene, diesel particulate matter, ethylbenzene, formaldehyde, naphthalene, and polycyclic organic matter. While the FHWA considers these nine compounds the priority MSATs, the list is subject to change and may be adjusted in consideration of future EPA rules.

The I-80 corridor, Ashby Avenue, 65th Street, San Pablo Avenue, and Stanford Avenue are the primary sources of MSATs within the project area with traffic volumes that currently exceed 10,000 annual average daily traffic (AADT). The existing and forecasted traffic conditions in the project area are summarized in the AQR.

Sensitive Receptors

Some groups of people are more affected by air pollution than others. These groups are known as sensitive receptors. The state has identified the following groups of people who are most likely to be affected by air pollution: children under 16, the elderly over 65, people conducting athletic activities, and people with cardiovascular and chronic respiratory diseases. Locations that may contain a high concentration of these sensitive population groups include residential areas, hospitals, daycare facilities, elder care facilities, outdoor athletic fields, and elementary schools.

No schools, hospitals, or convalescent homes are located within 500 feet of the project area. The surrounding area to the north is mostly occupied by Berkeley Aquatic Park. High-density residential buildings are adjacent to the southern edge of the project area in Emeryville.

The BAAQMD's Community Air Risk Evaluation (CARE) program identifies areas with high concentrations of air pollution and populations most vulnerable to air pollution's health impacts. According to the BAAQMD's CARE program, the proposed project is within a 24-hour $PM_{2.5}$ exceedance area and a 2013 cumulative impact area. In response to AB 617, CARB established the Community Air Protection Program (CAPP) to reduce exposure in communities most impacted by air pollution. According to the CARB's CAPP, the proposed project is not in a community that is disproportionately impacted by emissions from existing transportation and stationary sources, and is not subject to community action plan to reduce local air pollution.

Regional Air Quality Attainment Status

The proposed project is included in the regional air quality conformity analysis for the current RTP, Plan Bay Area 2050 (MTC and ABAG 2017, RTP ID 17-01-0037). MTC

found that regionally significant projects in the San Francisco Bay Area will conform to the purpose of the SIP and not cause new air quality violations, worsen existing violations, or delay timely attainment of the relevant NAAQS as provided in Section 176(c) of the FCAA. The proposed project is also included in the MTC's financially constrained 2019 TIP (MTC 2016, TIP ID ALA170002). MTC adopted the 2019 TIP on September 26, 2018. The TIP gives priority to eligible Transportation Control Measures (TCMs) identified in the SIP and provides sufficient funds to provide for their implementation. FHWA and FTA approved MTC's conformity determination for Plan Bay Area 2040 and the 2019 TIP on December 17, 2018.

Table 2.2-3 State and Federal Attainment Status in the San Francisco Bay Area Air Basin

Pollutant	State Attainment Status	Federal Attainment Status
Ozone (O_3)	Nonattainment	Nonattainment (Marginal)
Respirable Particulate Matter (PM_{10})	Nonattainment	Unclassifiable/Attainment
Fine Particulate Matter ($PM_{2.5}$)	Nonattainment	Nonattainment (Moderate)
Carbon Monoxide (CO)	Attainment	Attainment (Maintenance)
Nitrogen Dioxide (NO_2)	Attainment	Unclassifiable/Attainment
Sulfur Dioxide (SO_2)	Attainment	Unclassifiable/Attainment
Lead (Pb)	Attainment	Unclassifiable/Attainment
Visibility-Reducing Particles	Unclassified	NA
Sulfates	Attainment	NA
Hydrogen Sulfide	Unclassified	NA
Vinyl Chloride	No Information Available	NA

Source: Baseline Environmental Consulting, 2020
Notes: NA = not applicable

ENVIRONMENTAL CONSEQUENCES

Build Alternative

The Build Alternative is discussed holistically for operational air quality analysis. Conversely, construction-period emissions would vary based on the differences in ramps and other structures. Therefore, where appropriate, construction-period emissions have been calculated for the Build Alternative.

The proposed project is listed in the Plan Bay Area 2050 financially constrained Regional Transportation Plan (RTP) (ID 17-01-0037) which was found to conform by MTC, and FHWA and FTA made a regional conformity determination finding on December 17, 2018. The proposed project is also included in MTC's financially constrained 2019 Regional Transportation Improvement Program (TIP) (ID ALA170002). The MTC 2019 Regional Transportation Improvement Program was determined to conform by FHWA and FTA on December 17, 2018. The design concept and scope of the proposed project is consistent with the project description in the 2019 RTP and RTIP, and the "open to traffic assumptions of the MTC's regional emissions analysis.

Permanent Operational Impacts

Project Level-Conformity

The proposed project is in a federal nonattainment area for ozone and $PM_{2.5}$ and, therefore, a project-level conformity analysis of operational emissions is required to address these pollutants under 40 CFR 93. As of June 1, 2018, the transportation conformity requirements under FCAA Section 176(c) for CO maintenance areas in SFBAAB no longer apply for CO NAAQS.

Ozone Emissions Analysis

The SFBAAB is currently designated as a federal nonattainment area for ozone. Because ozone impacts are regional in nature, projects that are included in an RTP and TIP have already undergone regional conformity analysis and do not require further analysis for a project-level conformity determination. As described above, this proposed project is included in a conforming RTP and TIP, and therefore emissions of ozone precursors from project-related traffic are not anticipated to cause or contribute to, or worsen, any violations of the federal air quality standards for ozone.

In addition, BAAQMD adopted the 2017 CAP to achieve compliance with federal and state ozone standards. The Build Alternative would not interfere with the control measures described in the 2017 CAP. Furthermore, the Build Alternative would provide transportation benefits that reduce pollutant emissions, including ozone precursors, by improving traffic operations and efficiency and by providing bicycle and pedestrian amenities to promote active transportation.

$PM_{2.5}$ Emissions Analysis

A quantitative particulate matter hot-spot analysis is required for transportation projects in a federal nonattainment or maintenance area for $PM_{2.5}$ if the proposed project is determined to be a Project of Air Quality Concern (POAQC) as defined in Title 40 CFR Part 93. The SFBAAB is currently designated as a federal nonattainment area for $PM_{2.5}$;

therefore, a $PM_{2.5}$ hot-spot analysis is required if the project is determined to be a POAQC.

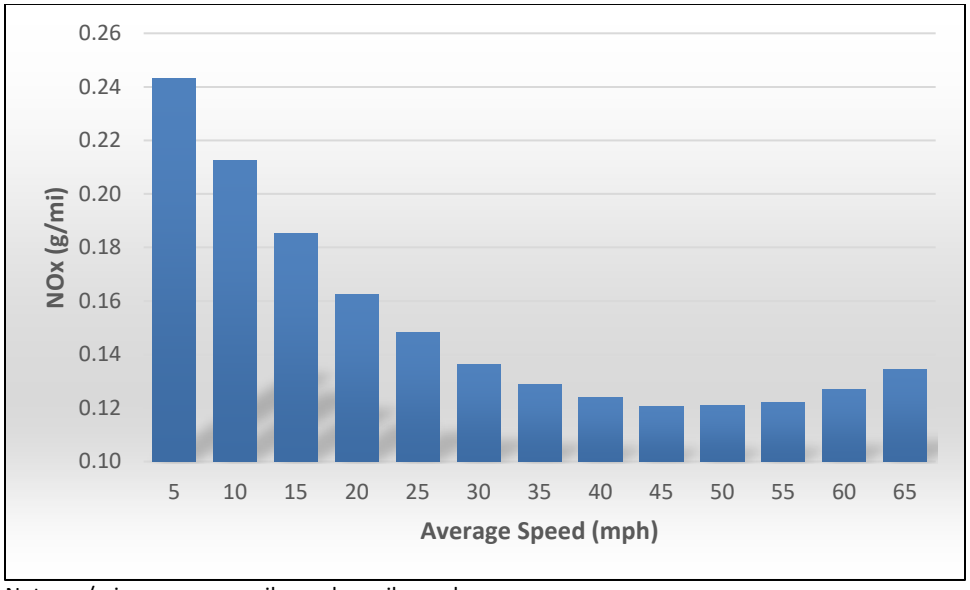
On July 30, 2020, The San Francisco Bay Area Air Quality Conformity Task Force determined that the proposed project is not a POAQC, and a detailed $PM_{2.5}$ hot-spot analysis is not required for a project-level conformity determination. Therefore, the proposed project would not be expected to cause or contribute to, or worsen, any violations of the federal air quality standards for $PM_{2.5}$. The Project Assessment Form for $PM_{2.5}$ Interagency Consultation and the Air Quality Conformity Task Force determination are included in the AQR.

Operational Criteria Air Pollutant Emissions

Operation of the Build Alternative would generate criteria air pollutant emissions and precursors that could potentially affect regional air quality. Operational emission calculations provided in this section consider long-term changes in emissions that would result from the Build Alternative. According to BAAQMD, the primary criteria air pollutant emissions of concern during project operation would be ROG, NO_x, PM_{10}, and $PM_{2.5}$ from the exhaust of on-road vehicles. Criteria air pollutant emissions from operation of the Build Alternative were estimated for the existing conditions (2018), and the No-Build and Build Alternative during the opening year (2025), horizon year (2040), and design year (2045).

The proposed project includes improvement of traffic operations in a populated area with nearby sensitive receptors. Traffic volumes along the I-80 mainline of the project exceed about 236,000 under existing conditions (2018). According to FHWA guidance, the proposed project has a high potential for MSAT effects because it is in proximity to populated areas and exceeds the FHWA's AADT threshold. Therefore, FHWA guidance recommends a quantitative analysis to forecast and compare local-specific emission trends of the priority MSAT for each alternative.

Figure 2.2-2 NO_x Emissions Based on Vehicle Speed



Notes: g/mi = grams per mile; mph = mile per hour
Emission factors based on gasoline light-duty trucks for 2018.
Source: EMFAC 2017.

As discussed in Section 2.1.9, Traffic and Transportation/Pedestrian and Bicycle Facilities, the Build Alternative would improve local traffic circulation and reduce regional VMT. Therefore, daily emissions of criteria air pollutants would generally decrease for the Build Alternative compared to the No Build Alternative. As shown in Table 2.2-4, the estimated daily ROG, NOx, and exhaust PM_{10} and $PM_{2.5}$ emissions for the Build Alternative during the opening year (2025), horizon year (2040), and design year (2045) scenarios would be equal to or lower than the emissions for the No Build Alternative, which is primarily attributed to the reduction in regional VMT under the Build Alternative. Emissions for both the Build and No Build Alternatives would also be lower in the opening year (2025), horizon year (2040), and design year (2045) compared to the existing year (2018), because federal and state vehicle emissions standards are expected to reduce pollutant emissions over time. Therefore, the Build Alternative would not result in an increase in criteria air pollutant emissions compared to the existing year conditions or the future No Build Alternative. Therefore, emissions of criteria pollutants from project-related traffic are not anticipated to cause, contribute to, or worsen, any air quality violations.

Table 2.2-4 Operational Ozone Precursors Emissions (Pounds per Day)

Pollutant	2018 Existing	2025 No Build	2025 Build Alternative	2040 No Build	2040 Build Alternative	2045 No Build	2045 Build Alternative
ROG	539	434	434	378	377	365	365
NO_x	1,335	866	865	1,051	1,049	1,089	1,087
PM_{10} Exhaust	21	11	11	8	8	7	7
$PM_{2.5}$ Exhaust	20	10	10	7	7	7	7

Source: Baseline Environmental Consulting, 2020
Notes: Emissions would be the same for each build scenario. Traffic data for the design year (2045) was used to conservatively estimate emissions during the horizon year (2040).

Mobile Source Air Toxics Analysis

The AQR evaluated potential in accordance with FHWA's (2016) Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents (40 CFR 1502.22).

The proposed project would include improvements to traffic operations in a populated area with nearby sensitive receptors. Traffic volumes along the I-80 mainline of the project exceed 236,000 vehicles per day under existing 2018 conditions. According to FHWA guidance, the proposed project has a high potential for MSAT effects because it is near populated areas and exceeds the FHWA's AADT threshold.

As shown in Table 2.2-5, the estimated daily MSAT emissions for the Build Alternative during the opening year (2025), horizon year (2040), and design year (2045) scenarios would be approximately equal to or lower than the emissions for the No Build Alternative, which is primarily attributed to the reduction in regional VMT under the Build Alternative. Emissions for both the Build and No Build Alternatives would also be lower in the opening year (2025), horizon year (2040), and design year (2045) compared to the existing year (2018), because federal and state vehicle emissions standards are expected to reduce pollutant emissions over time. The modeling results show that the Build Alternative would not result in an increase in MSAT emissions compared to the existing year conditions or the future No Build Alternative.

Table 2.2-5 Operational MSAT Emissions (grams per day)

Pollutant	2018 Existing	2025 No Build	2025 Build Alternative	2040 No Build	2040 Build Alternative	2045 No Build	2045 Build Alternative
1,3-Butadiene	699	482	482	507	497	515	514
Acetaldehyde	1,946	648	647	804	789	827	825
Acrolein	151	109	109	113	113	115	114
Benzene	4,690	3,451	3,444	3,296	3,289	3,270	3,263
Diesel Particulate Matter	5,872	826	824	723	723	730	729
Ethylbenzene	3,612	6,068	3,062	2,696	2,691	2,612	2,607
Formaldehyde	4,996	2,061	2,057	2,375	2,370	2,428	2,423
Naphthalene	289	247	247	223	223	216	216
Polycyclic Organic Matter	142	77	77	72	72	72	72

Source: Baseline Environmental Consulting, 2020
Notes: Emissions would be the same for each build scenario. Traffic data for the design year (2045) was used to conservatively estimate emissions during the horizon year (2040).

Temporary Construction Impacts

Emissions for Project-Level Conformity

For conformity purposes, 40 CFR 93.123(c)(5) states:

> "CO, PM_{10}, and $PM_{2.5}$ hot-spot analyses are not required to consider construction-related activities which cause temporary increases in emissions. Each site which is affected by construction-related activities shall be considered separately, using established 'Guideline' methods. Temporary increases are defined as those which occur only during the construction phase and last five years or less at any individual site."

Because construction of the Build Alternative is expected to last less than five years, temporary emissions of CO, PM_{10}, and $PM_{2.5}$ are not expected to cause or contribute to, or worsen, any federal air quality violations and an evaluation of these emissions is not required for a project-level conformity determination.

Criteria Air Pollutant Emissions

Project construction activities would generate emissions of criteria air pollutants and precursors that could potentially affect regional air quality. According to BAAQMD, the primary pollutant emissions of concern during project construction would be ROG, NO_x, PM_{10}, and $PM_{2.5}$ from the exhaust of off-road construction equipment and on-road construction vehicles (worker vehicles, vendor trucks, and haul trucks). Construction emissions for the Build Alternative was quantified using the Sacramento Metropolitan Air Quality Management District's Roadway Construction Emissions Model (RCEM Version 9.0). The Build Alternative would involve standard construction techniques and require large-scale construction equipment and labor-intensive activities. Construction is anticipated to begin in Fall 2023 and would take approximately 30 months.

The estimated average daily emissions from construction of the Build Alternative are summarized in Table 2.2-6 and detailed model outputs are included in the AQR.

Table 2.2-6 Construction Criteria Air Pollutant Emissions (Average Pounds per Day)

Emissions Scenario	ROG	NO_x	Exhaust PM_{10}	Exhaust $PM_{2.5}$	Fugitive Dust PM_{10}	Fugitive Dust $PM_{2.5}$
Build Alternative	4.8	47	2.0	1.8	82	17
BAAQMD Recommended Thresholds[1]	**54**	**54**	**82**	**54**	**BMP**	**BMP**

Source: Baseline Environmental Consulting 2020
1BAAQMD's thresholds have not been adopted by Caltrans and are only shown for informational purposes.
BMP = best management practices; NA= not available
Fugitive dust emissions include a 50 percent reduction from the use of watering trucks. However, additional reductions from implementation of dust-control measures listed under Section 5 cannot be readily quantified.

Refer to the AQR for details regarding specific methodology used to generate construction period criteria pollutants. Air pollutants of primary concern, including ozone and particulate matter, are discussed further below.

Ozone

As shown in in Table 2.2-6, average daily emissions for each Build Alternative would be below BAAQMD's recommended thresholds for ROG and NO_x. Since the average daily emissions of ozone precursors from equipment and vehicle exhaust would be below the recommended thresholds, construction would not be expected to cause or contribute to, or worsen, any state air quality violations.

Particulate Matter

As shown in Table 2.2-6, average daily emissions for the Build Alternative would be below BAAQMD's recommended thresholds for Exhaust PM_{10} and $PM_{2.5}$. Since the average daily emissions of criteria pollutants from equipment and vehicle exhaust would be below the recommended thresholds, construction would not be expected to cause or contribute to, or worsen, any state air quality violations.

Neither Caltrans nor BAAQMD have a quantitative threshold for fugitive dust emissions; however, BAAQMD considers implementation of BMPs to control fugitive dust, PM_{10}, and $PM_{2.5}$ during construction sufficient to avoid an adverse effect. Caltrans' Special Provisions and Standard Specifications would include the requirement to minimize or eliminate dust through the application of water or dust palliatives, as described in below under Avoidance, Minimization, and/or Mitigation Measures.

Climate Change

Climate change is discussed in Section 3, California Environmental Quality Act Evaluation. Neither the U.S. EPA nor the FHWA has issued explicit guidance or methods to conduct project-level greenhouse gas analysis. FHWA emphasizes concepts of resilience and sustainability in highway planning, project development, design, operations, and maintenance. Because there have been requirements set forth in California legislation and executive orders on climate change, the issue is addressed in the CEQA chapter of this document. The CEQA analysis may be used to inform the NEPA determination for the proposed project.

The four strategies set forth by FHWA to lessen climate change do correlate with efforts that the state has undertaken and is undertaking to deal with transportation and climate change. These strategies include improved transportation system efficiency, cleaner fuels, cleaner vehicles, and reduction in the growth of vehicle hours travelled.

Cumulative Effects

The cumulative setting for air quality includes the SFBAAB and the jurisdictional boundaries of BAAQMD. Improved freeway operations and projected future development in the region would result in an increase in vehicle miles traveled within the SFBAAB and related increases in vehicle emissions. Therefore, air quality effects associated with transportation and other development projects in the SFBAAB would result in cumulative effects to air quality for permanent operational pollutant emissions.

As previously discussed, transportation plans that have been found to conform with the SIP are not considered to cause or contribute to violations of ambient air quality standards. Furthermore, a project included in a conforming plan would not result in a cumulatively considerable net increase of any criteria pollutant for which the project area is in non-attainment under an applicable federal or state ambient air quality standard. Conforming transportation plans are subject to a threshold of no net increase in emissions. Because the proposed project is included in Plan Bay Area and 2015 TIP, which conform to the SIP, the proposed project would not result in a cumulatively considerable net increase of any criteria pollutant.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Project Features

PF AQ-1: Water or dust palliative shall be applied to the site and equipment as often as necessary to control fugitive dust emissions.

PF AQ-2: Measures to reduce PM_{10}, $PM_{2.5}$, and diesel particulate matter from construction shall be incorporated to the extent feasible to ensure that short-term health impacts to nearby sensitive receptors are avoided.

See Appendix C for the full text of these project features.

Avoidance and Minimization

With application of the aforementioned project features, no avoidance or minimization measures would be required.

Mitigation Measures

No mitigation measures would be required.

2.2.7 NOISE AND VIBRATION

This section evaluates noise and vibration associated with the proposed project. Information is this section is primarily drawn from the Noise Study Report (NSR) (December 2020) prepared for the proposed project.

REGULATORY SETTING

NEPA and CEQA provide a broad basis for analyzing and abating highway traffic noise effects. The intent of these laws is to promote the general welfare and to foster a healthy environment. The requirements for noise analysis and consideration of noise abatement and/or mitigation, however, differ between NEPA and CEQA.

Federal

National Environmental Policy Act and 23 CFR 772

For highway transportation projects with FHWA involvement (and the Department, as assigned), the Federal-Aid Highway Act of 1970 and its implementing regulations (23 CFR 772) govern the analysis and abatement of traffic noise impacts. The regulations require that potential noise impacts in areas of frequent human use be identified during the planning and design of a highway project. The regulations include noise abatement criteria (NAC) that are used to determine when a noise impact would occur. The NAC differ depending on the type of land use under analysis. For example, the NAC for residences (67 dBA) is lower than the NAC for commercial areas (72 dBA). The following table, Table 2.2-7, lists the NAC for use in the NEPA/23 CFR 772 analysis.

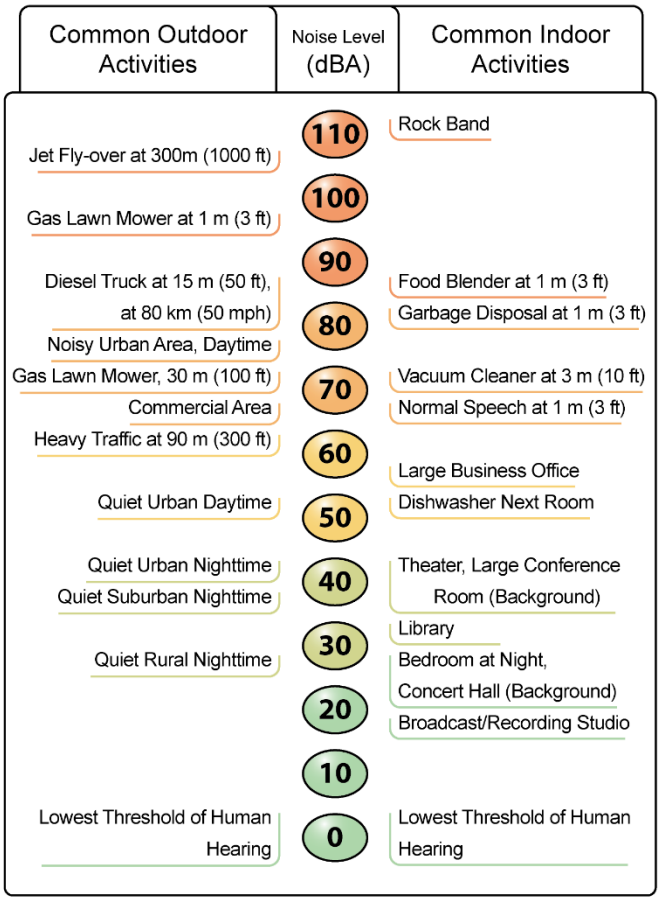
Table 2.2-7 Noise Abatement Criteria

Activity Category	NAC, Hourly A-Weighted Noise Level, dBA L_{eq}(h)	Description of Activities
A	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B[1]	67 Exterior	Residential.
C[1]	67 (Exterior)	Active sporting areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52 (Interior)	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios
E	72 (Exterior)	Hotels, motels, offices, restaurants/bars, and other developed lands, properties, or activities not included in A–D or F.
F	No NAC—reporting only	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical, etc.), and warehousing.
G	No NAC—reporting only	Undeveloped lands that are not permitted.

Source: Caltrans 2011. Traffic Noise Analysis Protocol (TNAP) - For New Highway Construction, Reconstruction, and Retrofit Barrier Projects.

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

Figure 2.2-6 lists the noise levels of common activities to enable readers to compare the actual and predicted highway noise levels discussed in this section with common activities.



Source: Caltrans 2020

Figure 2.2-3 Noise Levels of Common Activities

According to the Department's Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects, May 2011, a noise impact occurs when the predicted future noise level with the project substantially exceeds the existing noise level (defined as a 12 dBA or more) or when the future noise level with the project approaches or exceeds the NAC. A noise level is considered to approach the NAC if it is within 1 dBA of the NAC.

If it is determined that the proposed project would have noise impacts, then potential abatement measures must be considered. Noise abatement measures that are determined to be reasonable and feasible at the time of final design are incorporated into the project plans and specifications. This document discusses noise abatement measures that would likely be incorporated in the proposed project.

The Department's Traffic Noise Analysis Protocol sets forth the criteria for determining when an abatement measure is reasonable and feasible. Feasibility of noise abatement is basically an engineering concern. Noise abatement must be predicted to reduce noise by at least 5 dB at an impacted receptor to be considered feasible from an acoustical perspective. It must also be possible to design and construct the noise abatement measure for it to be considered feasible. Factors that affect the design and constructability of noise abatement include, but are not limited to, safety, barrier height, topography, drainage, access requirements for driveways, presence of local cross streets, underground utilities, other noise sources in the area, and maintenance of the abatement measure. The overall reasonableness of noise abatement is determined by the following three factors: 1) the noise reduction design goal of 7 dB at one or more impacted receptors; 2) the cost of noise abatement; and 3) the viewpoints of benefited receptors (including property owners and residents of the benefited receptors).

State

California Environmental Quality Act

CEQA requires a strictly baseline versus build analysis to assess whether a proposed project would have a noise impact. If a proposed project is determined to have a significant noise impact under CEQA, then CEQA dictates that mitigation measures must be incorporated into the project unless those measures are not feasible. The rest of this section will focus on the NEPA/23 C FR Part 772 (23 CFR 772) noise analysis; please see Chapter 3 of this document for further information on noise analysis under CEQA.

AFFECTED ENVIRONMENT

Information in this section is based on the NSR (December 2020) prepared for the proposed project. The noise study area includes residential, commercial, and industrial land uses within 1,000 feet of the project area. Please refer to the NSR for a detailed description of the principals of acoustics, including sound measurement, the mathematics of sound, and human response.

A logarithmic scale is used to describe sound in terms of decibels (dB). However, the decibel scale alone does not adequately characterize how humans perceive noise. The dominant frequencies of a sound have a substantial effect on the human response to that sound. Although the intensity (energy per unit area) of the sound is a purely physical quantity, the loudness or human response is determined by the characteristics of the human ear.

Human hearing is limited in the range of audible frequencies as well as in the way it perceives sound. In general, people are most sensitive to the frequency range of 1,000–

8,000 Hz and perceive sounds within that range better than sounds of the same amplitude in higher or lower frequencies. To approximate the response of the human ear, sound levels of individual frequency bands are weighted, depending on the human sensitivity to those frequencies. Then, an "A-weighted" sound level (expressed in units of dBA) can be computed based on this information. Table 2.2-8 describes typical A-weighted noise levels for various noise sources.

Table 2.2-8 Typical A-Weighted Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	— 110 —	Rock band
Jet fly-over at 1000 feet		
	— 100 —	
Gas lawn mower at 3 feet		
	— 90 —	
Diesel truck at 50 feet at 50 mph		Food blender at 3 feet
	— 80 —	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawn mower, 100 feet	**— 70 —**	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	**— 60 —**	
		Large business office
Quiet urban daytime	**— 50 —**	Dishwasher next room
Quiet urban nighttime	**— 40 —**	Theater, large conference room (background)
Quiet suburban nighttime		
	— 30 —	Library
Quiet rural nighttime		Bedroom at night, concert hall (background)
	— 20 —	
		Broadcast/recording studio
	— 10 —	

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
Lowest threshold of human hearing	**— 0 —**	Lowest threshold of human hearing

Source: TeNS 2013.

Existing Land Uses

A field investigation was conducted to identify land uses that could be subject to traffic and construction noise effects from the proposed project. The following land uses were identified in the study area:

- Activity Category B: Multi-family residences
- Active Category C: Recreational areas, parks, and trails
- Active Category D: Radio studios and schools
- Activity Category F: Industrial uses
- Activity Category G: Undeveloped lands that are not permitted for development

Within the noise study area, most of the receptors fall into Category B (residential), and Category C (recreational). The location of individual sensitive receptors is mapped in the NSR. A maximum peak-hour noise level criteria of 67 dBA L_{eq} applies at the exterior use area of residences. Primary consideration for noise abatement is given to exterior areas where frequent human use occurs that would benefit from a lowered noise level. In general, an area of frequent human use is an area where people are exposed to traffic noise for an extended time on a regular basis.

Although all developed land uses are evaluated in this section, noise abatement is only considered for areas of frequent human use that would benefit from a lowered noise level. Accordingly, this section focuses on locations with defined outdoor activity areas, such as residential backyards and common use areas at multi-family residences.

Legend

Planned Development

Receptor Locations

Receptors and Noise Analysis Area

Figure **2.2-7**

Source: Wilson Ihrig, 2020

Existing Noise Environment

The existing noise environment varies by location, depending on site characteristics such as proximity to other roadways or noise sources, the relative elevation of roadways and receptors, and intervening structures or topography.

The study areas are shown in Figure 2.2-7. The existing noise environment at the area was evaluated by collecting based on short- and long-term noise measurements. Noise measurement locations are mapped in the NSR, which also includes site photographs of noise measurement locations. Land uses adjacent to the interchange include light industrial and commercial. Currently, there are no existing noise barriers (sound walls) in the study area.

The noise sensitive areas around the project area are shown in Figure 2.2-7. South of the interchange, land uses are industrial and commercial, with some high-density housing present. North of the interchange, noise-sensitive land uses consist of KRE Radio Transmitter, Aquatic Park, and Point Emery alongside of commercial properties.

Short-term measurements were conducted at seven locations (ST-1 through ST-7), as shown in Figure 2.2-7. Short-term digital recordings were made simultaneously with traffic counts on Wednesday September 18, 2019. The results of the short-term noise surveys are summarized in Table 2.2-9, which shows the typical peak hour (L_{eq}) noise level at each of the seven short-term locations. Weekday noise level patterns tend to increase during morning commute hours, remain somewhat elevated throughout the day, taper off at night, and are lowest in the early morning hours. Long-term measurements were conducted at one location from Wednesday, September 18, 2019 to Tuesday, September 24, 2019 (LT-1, LT-2, LT-3).

ENVIRONMENTAL CONSEQUENCES

This section discusses the predicted traffic noise levels under existing and design-year conditions (with and without the proposed project), identifies traffic noise impacts, and considers noise abatement. The CFR (23 CFR 772) “Procedures for Abatement of Highway Traffic Noise” provides procedures for preparing operational and construction noise studies and evaluating noise abatement options. Under 23 CFR 772, projects are categorized as Type I or Type II projects.

FHWA defines a Type I project as a proposed federal or federal-aid highway project for the construction of a highway on a new location, the physical alteration of an existing highway where there is either a substantial horizontal or substantial vertical alteration, or other specifically listed activities in 23 CFR 772.7. Type I projects include the addition of an interchange, ramp, auxiliary lane, or truck-climbing lane to an existing highway, or the widening of an existing ramp by a full lane for its entire length. As the project would

modify the existing I-80/Ashby Avenue interchange configuration it is considered a Type I project. FHWA noise regulations require noise analysis for all Type I projects.

Predicted design-year traffic noise levels with the project (Build Alternative) are compared to modeled existing conditions and to design-year no-project conditions (No Build Alternative). In this and the following sections “existing conditions” refers to modeled results. The comparison to existing conditions is included in the analysis to identify traffic noise impacts as defined under 23 CFR 772. The comparison to no-project conditions indicates the direct effect of the proposed project.

Noise projections have been made for the outdoor areas of homes closest to the proposed project. The results of the projections are provided below in Table 2.2-12. A “receiver” is a modeled location that can represent one or more dwelling units; a “receptor” corresponds to one specific dwelling unit. The number of receptors that correspond to each modeled receiver is also provided.

Permanent Operational Impact

No Build Alternative

The No Build Alternative (2045 with no project) assumes the current road geometry would remain unchanged. In 2045, increases in traffic are expected to increase overall noise levels for the No Build Alternative by 0 to 5 dBA over existing conditions. The predicted noise levels for the No Build Alternative are show in Table 2.2-10.

Build Alternative

Modeling of the future condition with the Build Alternative (2045 with proposed project) predicts increases in noise levels in a range of 0 to 9 dBA over the existing condition. Table 2.2-10 provides a detailed overview of projected noise increases under each Build Alternative. As shown in Table 2.2-12, each Build Alternative would have the same or similar effect on operational noise levels. A noise impact would occur at these receiver locations shown in Figure 2.2-7. Noise abatement is considered under Preliminary Noise Abatement Measures below.

Preliminary Noise Abatement Measures

As documented in the Noise Abatement Decision Report (NADR) (February 2021), an analysis was conducted to determine if sound walls would be both feasible and reasonable. For a full discussion of the methodology behind this analysis, refer to the NADR. Table 2.2-11 summarizes the barriers considered and conclusions for each barrier. Barriers that were considered are also shown in Figure 2.2-7. However, as documented in the NADR, the cost of these sounds walls was determined not to be reasonable. Therefore, none of the sound walls are recommended for the proposed project. These measures may change based on input received from the public. The final decision on noise abatement will be made upon completion of the project design.

Table 2.2-9 Short-term and Long-term Noise Measurements

Location	Site Description[b]	Land Use	Meas. Dates[c] and Start Time	Duration (minutes)	Meas. L_{eq}[d]	Observed Vehicle Mix[e]				
						Road /Direction	Autos	Medium and Heavy Trucks	Bus	Motorcycles
ST-1	KRE	D	9/19	15	61.4	I-80 North	5574	1167	8	6
			10:45 AM			I-80 South	1422	240	0	13
ST-2	Aquatic Park	C	9/19	15	66.4	I-80 North	5574	1167	8	6
			10:45 AM			I-80 South	1422	240	0	13
ST-3	San Francisco Bay Trail	C	9/19	15	68.1	I-80 North	5574	1167	8	6
			10:45 AM			I-80 South	1422	240	0	13
ST-4	Point Emery	C	9/19	15	54.0	I-80 North	7630	182	7	5
			10:00 AM			I-80 South	1901	254	2	1
ST-5	SAE/Expressions College	D	9/19	15	59.5	I-80 North	7630	182	7	5
			10:00 AM			I-80 South	1901	254	2	1
ST-6	Bridgewater Apartments	B	9/19	15	59.3	I-80 North	7630	182	7	5
			10:00 AM			I-80 South	1901	254	2	1
ST-7	Avenue 64 Apartments	B	9/19	15	72.6	I-80 North	7630	182	7	5
			10:00 AM			I-80 South	1901	254	2	1
LT-1	Avenue 64 Apartments	B	9/18-9/24	6 days	Peak Hour Levels 75 – 77 (7 AM – 11 AM)					
LT-2	Bridgewater Apartments	B	9/18-9/24	6 days	Peak Hour Levels 66 – 72 (8 AM – 10 AM)					
LT-3	Youth Musical Theater	C	9/18-9/24	6 days	Peak Hour Levels 68 – 71 (7 AM – 9 AM)					

Source: Noise Study Report, Wison Ihrig, December 2020.
a Sub-area segments are shown in Figure 2.2-7.
b Short-term sound level meter on tripod set to 5 feet. Long-term monitor attached to pole at 10 feet in height. Photos provided in Appendix L.
c In some cases, two measurements were conducted on different days with different sound level results and different traffic mixes; the results providing the best fit to the traffic model are listed here, and, where applicable, the other measurement date and sound level result are listed in the Noise Study Report.
d Fifteen-minute measured L_{eq} sound level
e The specific directional volumes extrapolated to a full hour are listed in the Noise Study Report.

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Table 2.2-10 Modeled Results for 2045 Design Year – Comparison of Existing to Year 2045

Study Area		Noise Abatement Criteria	Worst Hourly Noise Level (Leq dBA)		
Receiver ID (Number of Represented Receptors)	**Location**		**2018 (Existing)**	**2045 No Build**	**2045 Build**
R-1 (4)	Avenue 64 Apartments	67, exterior	73	78	78
R-2 (100)	Bridgewater Apartments	67, exterior	58	63	63
ST-5 (1)	SAE/Expression College	52, interior	36	39	39
ST-1 (1)	KRE Radio Transmitter	52, interior	41	43	42
R-3 (1)	Youth Musical Theater Company	67, exterior	63	66	67
ST-2 (1)	Kenneth A. Boathouse	67, exterior	68	72	77
R-4 (2)	Aquatic Park Path/Playground	67, exterior	63	67	68
ST-4 (1)	Point Emery	67, exterior	59	62	64
R-5 (1)	San Francisco Bay Trail	67, exterior	72	75	70
R-6 (1)	NADY Residential Project - Proposed	N/A	N/A	N/A	62
R-7 (1)	Vista Park Project – Proposed	N/A	N/A	N/A	67

Source: Wilson Ihrig 2020
Table Notes: The results are shown in whole integers, which sometimes results in discrepancies due to rounding.

Sound Walls Under Consideration Figure **2.2-8**

Source: Wilson Ihrig, 2020

Table 2.2-11 Summary of Barriers Considered and Recommendations

Barrier	Length	Corresponding Noise Receptors	Existing/New	Estimated Cost	Recommendation
Barrier 1	700 feet	R-1	New	$707,520	The design is feasible, but the cost is not reasonable. Therefore, this sound wall is not recommended.
Barrier 2	1700 feet	ST-2, R-3, R-4	New	$1,828,800	The design is feasible, but the cost is not reasonable. Therefore, this sound wall is not recommended.
Barrier 3	1800 feet	R-5	New	$2,382,624	The design is feasible, but the cost is not reasonable. Therefore, this sound wall is not recommended.

Source: Wilson Ihrig 2020

Temporary Construction Impacts

Construction Phases

Construction phases would include concrete pavement construction, excavation, and grading; construction of bridge structures, miscellaneous concrete work; relocation of utilities; paving; and installation of overhead signs and lighting.

Construction noise would primarily result from the operation of heavy construction equipment and arrival and departure of heavy-duty trucks. The highest maximum instantaneous noise levels would result from paving and demolition equipment. Overhead signs would be supported on cast-in-drilled-hole piles in the median of I-80. Some areas of the project area would require only re-striping, and some areas would include new concrete median barriers. Construction noise for all receptors would be short-term and intermittent.

Equipment Noise

Table 2.2-12 summarizes typical noise levels produced by construction equipment commonly used on roadway construction projects. Construction equipment is expected to generate noise levels ranging from 70 to 90 dBA at 50 feet, and noise produced by construction equipment would be reduced over distance at a rate of about 6 dBA per doubling of distance, as outlined in FHWA's 2006 *Roadway Construction Noise Model User's Guide* and Caltrans' 2013 *Technical Supplement to the Caltrans Traffic Noise Analysis Protocol*.

Table 2.2-12 Construction Equipment Noise

Equipment	Maximum Noise Level (dBA at 50 feet)
Scrapers, bulldozer, graders, cranes	85
Excavators	85
Heavy Trucks, tractors	84
Compactors, wheeled loader	80
Scarifier	85
Pneumatic Tools	85
Concrete Pumps	82
Pavers	85
Hoe Ram	90
Street Sweeper	80
Auger Drill Rig (CIPH)	85

Source: Wilson Ihrig 2020

Daytime Construction

Predicted roadway construction noise levels are listed in Table 2.2-14 and are based on typical equipment and activity levels for roadway construction projects. See the NSR for the list of equipment used for each activity and reference noise levels and activity usage factors from the FHWA Roadway Construction Noise Model (FHWA 2006) and Caltrans Technical Noise Supplement (TeNS 2013). To obtain the values shown in Table 2.2-14, the reference noise levels were adjusted to a 100-foot distance assuming basic geometric spreading for a point source (e.g., 6 dBA per doubling distance). The hourly average noise level was estimated by summing together the three loudest pieces of equipment. Table 2.2-13 discusses the estimated daytime construction noise levels.

Table 2.2-13 Estimated Daytime Construction Noise Levels at Closest Receptors

Receptor	Location	Existing Typical Hourly L_{eq} [a]	Construction Noise Source	Distance to construction (highway)	Construction Sound Level (9 AM-6 PM) $L_{eq(h)}$	Construction Sound Level L_{max} at Receptor
R-2	Bridgewater Apartments	63 (ST-6)	Grading/Excavation	475 feet (NO off-ramp)	66	65
			Paving	475 feet (NB off-ramp)	65	70
			Demolition	750 feet (existing ramp)	63	66
			Bridge Work	1000 feet (bridge)	61	64
ST-5	SAE/ Expression College	60 (ST-5)	Grading/Excavation	200 feet (NB off-ramp)	74	73
			Paving	200 feet (NB off-ramp)	72	78
			Demolition	350 feet (existing ramp)	70	73
			Bridge Work	400 feet (bridge)	68	72
			Retaining Walls	200 feet (NB off-ramp)	68	73

Receptor	Location	Existing Typical Hourly L_{eq} [a]	Construction Noise Source	Distance to construction (highway)	Construction Sound Level (9 AM-6 PM) $L_{eq(h)}$	Construction Sound Level L_{max} at Receptor
ST-1	KRE Radio Transmitter	61 (ST-1)	Grading/Excavation	15 feet (NB on-ramp)	96	95
			Paving	15 feet (NB on-ramp)	95	100
			Demolition	500 feet (existing ramp)	67	70
			Bridge Work	500 feet (bridge)	67	70
			Retaining Walls	15 feet (NB on-ramp)	90	95
ST-2	Kenneth A. Boathouse	66 (ST – 2_	Grading/Excavation	300 feet (I-80)	70	69
			Paving	300 feet (I-80)	69	74
			Demolition	1075 feet (existing ramp)	60	63
			Bridge Work	1300 feet (bridge)	58	62
			Restriping	75 feet (I-80)	74	81
ST - 4	Point Emery	54 (ST - 4)	Grading/Excavation	100 feet (Frontage Road)	80	79

Receptor	Location	Existing Typical Hourly L_{eq} [a]	Construction Noise Source	Distance to construction (highway)	Construction Sound Level (9 AM-6 PM) $L_{eq(h)}$	Construction Sound Level L_{max} at Receptor
			Paving	100 feet (Frontage Road)	78	84
			Demolition	450 feet (existing ramp)	68	71
			Bridge Work	550 feet (bridge)	66	69
			Retaining Walls	150 feet (Frontage Road)	70	75
R-5	San Francisco Bay Trail	68 (ST – 3)	Grading/Excavation	30 feet (Frontage Road)	90	89
			Paving	30 feet (Frontage Road)	89	94
			Demolition	200 feet (existing ramp)	75	78
			Bridge Work	550 feet (structure)	66	69
			Retaining Walls	30 feet (Frontage Road)	84	89

Source: Wilson Ihrig 2020
[a] Measured peak hour values during traffic counts reported previously in Table 2.2-9; [b] R-15 located behind 16-foot highway barrier Modeled Results for 2045 Design Year – Comparison of Existing to Year 2045

Table 2.2-14 provides the estimated daytime construction sound levels at the nearest receptors. Many of the activities associated with daytime construction would exceed existing noise levels at the existing project area. Therefore, Caltrans BMPs would be applied during construction, and are detailed under Avoidance, Minimization, and/or Mitigation Measures.

Table 2.2-14 Typical Construction Noise at 100 Feet Distance by Phase

Construction Phase	Maximum Noise Level (L_{max}, dBA)	Hourly Average Noise Level ($L_{eq[h]}$, dBA)
Grubbing/Land Clearing	79	78
Grading/Excavation	79	80
Drainage/Utilities/Subgrade	84	81
Paving	84	78
Demolition	84	81
Bridge Work	84	81
Retaining Walls	79	74
Restriping	79	72

Source: Wilson Ihrig 2020

Nighttime Construction

Demolition, placement of the precast girder, and construction of new foundations are anticipated to require nighttime work. Concrete saws can generate maximum noise levels of 90 dB and an hourly L_{eq} of 83 dB at 50 feet. The nighttime activity would be close to noise-sensitive land uses which include multi-family homes with exterior areas, recreational areas such as Aquatic Park, and the San Francisco Bay Trail. This is in violation of Caltrans Standard Specification, Section 14-08.02. The proposed project would require an exception from this requirement for this activity. Noise levels produced by saws would be reduced to ambient 63 dB at 475 feet. Auger drilling for installation of cast-in-drilled-hole piles can generate maximum noise levels of 85 dBA and an hourly L_{eq} of 78 dBA at 50 feet. Noise levels produced by CIDH pile installation would be reduced with distance to ambient 63 dBA at 275 feet. Therefore, Caltrans BMPs would

be applied during construction, and are detailed under Avoidance, Minimization, and/or Mitigation Measures.

Cumulative Effects

The cumulative setting for noise is equivalent to the noise study area evaluated above. For cumulative impacts, operational (permanent) impacts are considered. Noise-sensitive land uses in the study area include multi-family residences, and the SAE Expression College. Most of the areas adjacent to the study area are built-out, and there are no projects planned or programmed in the immediate vicinity of the project area except for the NADY Residential Project. The NADY Residential Project site is included in the noise evaluation as receptor R-6 and no noise impacts from the proposed project are shown to occur on the NADY Residential Project. Therefore, the proposed project would not make a substantial contribution to a cumulative noise impact.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Project Features

The following standard project features would also be implemented to minimize or reduce the potential for noise impacts from project construction:

PF NOI-1: Caltrans Standard Noise Control BMPs such as limiting paving and demolition activities to between 7:00 a.m. and 7:00 p.m.

PF NOI-2: Inspection of equipment by the contractor will ensure that all equipment onsite is working properly, in good condition, and effectively muffled. All equipment will have sound-control devices no less effective than those provided on the original equipment.

PF NOI-3: Construction activities shall be minimized in the study area during evening, nighttime, weekend, and holiday periods.

PF NOI-4: Restrict the hours of vibration-intensive equipment or activities such as vibratory rollers so that impacts to study area users are minimal (e.g., restrict the hours to weekdays during daytime hours).

PF NOI-5: The Resident Engineer will be responsible to collect and respond to any complaints related to construction noise.

PF NOI-6: Truck loading, unloading, and hauling operations will be minimized so that noise and vibration are kept to a minimum through the study area to the greatest possible extent.

Avoidance and Minimization

With application of the aforementioned project features, no avoidance, minimization, or mitigation measures are required for noise abatement.

Mitigation

There are no mitigation measures associated with noise.

2.2.8 ENERGY

This section evaluates energy usage associated with the proposed project. Sources of information used to prepare the analysis in this section include:

- 2020 Traffic Operations Analysis Report (December 2020)
- Energy Conservation Report (October 2021)
- City of Emeryville General Plan
- City of Berkeley General Plan

REGULATORY SETTING

NEPA 42 USC Part 4332 requires the identification of all potentially significant impacts to the environment, including energy impacts.

CEQA Guidelines section 15126.2(b) and the Energy Conservation Report require an analysis of a project's energy use to determine if the proposed project may result in significant environmental effects due to wasteful, inefficient, or unnecessary use of energy, or wasteful use of energy resources.

AFFECTED ENVIRONMENT

Traffic Conditions

Existing traffic conditions along I-80 were evaluated using vehicles miles traveled (VMT) calculations. VMT was estimated in the Traffic Operational Analysis Report (Caltrans 2020) for I-80 for the opening year condition (2025), and the horizon year condition (2045). Traffic operations were evaluated using the procedures outlined in the *Traffic Operation Methodology Memorandum* (Caltrans 2018). The Build Alternative and design variations were evaluated for the opening and horizon years in the AM and PM peak hours.

As noted in the Traffic Operational Analysis Report, and Section Traffic and Transportation/Pedestrian and Bicycle Facilities, local streets in the project area are

also affected by traffic congestion and travel delays. Currently, local streets are congested during morning and evening peak commute hours. Motorists traveling between I-80, and local streets are subjected to long queue lines, and stop-and-go traffic patterns. Inefficient travel conditions contribute to increased energy consumption as vehicles use extra fuel when moving at slow speeds, or while in stop-and-go traffic conditions.

Transportation Safety Management Elements

In the project area, there are limited transportation safety management (TSM) elements. The elements include transit, ridesharing programs, and existing bicycle/pedestrian infrastructure. These elements help decrease energy consumption.

There are existing gaps in the bicycle and pedestrian facilities within the project area. There are no existing or planned bicycle facilities on Ashby Avenue within the immediate vicinity of the I-80/Ashby Avenue interchange. Bicyclists wishing to access the San Francisco Bay Trail would either need to divert to the University Avenue or Powell Street interchanges or travel through the Ashby connectors which are not designated for bicycle travel, causing deficiencies. Both Shellmound Street and Frontage Road have Class 2 and Class 1 Bicycle lanes, respectively. However, during peak travel times, the bike lanes have high levels of traffic stress, and the possibility of the bicycle lane blocked due to long traffic queues.

Pavement Conditions

Poor pavement-vehicle interaction could account for one percent of the overall fuel consumption on California highways (Caltrans and the MIT Concrete Sustainability Hub 2016). Based on a field evaluation and a desktop review of the roadways in the project area, most roadways, ramps, and surface streets appear to be in good condition with limited deterioration (cracking, patching, and/or potholing). Currently, cracking and potholing can be seen both north and southbound before the undercrossing at Ashby Avenue, and at the undercrossing on the I-80 heading eastbound.

Lighting and Traffic Signals

Based on a field evaluation, lighting is present throughout the project area. Highway lighting is provided along the I-80 corridor, and the subsequent ramps. Pedestrian-scale streetlighting is present along Bay Street, Shellmound Street, Ashby Avenue, and Frontage Road. Existing pedestrian-scale streetlights are assumed to be low- to high-pressure sodium lamps.

Traffic within the interchange would be controlled by two traffic signals, one at the westbound on and off ramps and one at the eastbound on and off ramps. East of the

eastbound on and off ramp locations there would be a traffic signal for the Bay Street connector ramp. A traffic signal would be constructed at the intersection of the Ashby Avenue and West Frontage Road. Both eastbound and westbound on ramps would be metered.

ENVIRONMENTAL CONSEQUENCES

Planning Strategies

The proposed project is included in MTC's RTP, 2019 TIP, and *Plan Bay Area 2050*. Therefore, the proposed project would not obstruct or conflict with statewide or regional planning strategies, including the requirements regarding energy usage and efficiency.

CEQA guidelines require an analysis of a project's potential for significant environmental effects resulting from wasteful, inefficient, or unnecessary use of energy. A quantitative analysis is required for projects that increase capacity or provide congestion relief, both of which would affect the ability of a transportation facility to accommodate existing and future traffic demands.

The proposed project was not classified as a capacity increasing project and is not expected to change the existing vehicle mix. Examples of capacity increasing projects include new highways, added travel or auxiliary lanes, and new or reconfigured interchanges. However, the proposed project would relieve congestion on local roadways. An assessment of the proposed project's potential direct and indirect energy consumption was performed. Direct energy includes operational energy use and the one-time energy expenditure from project construction. Indirect energy includes maintenance activities required to operate or maintain the proposed project.

Direct Energy Usage

Permanent Operational Impacts

Roadway Improvements

Traffic congestion and stop-and-go conditions produce a higher demand for fossil fuels and energy. The proposed project would improve traffic flow during peak travel times and thereby improve vehicle fuel economies. Under the Build Alternative, traffic operations would substantially improve traffic conditions thus reducing the overall energy consumption.

Additional Improvements

The Build Alternative would include several TSM elements. Existing bicycle and pedestrian networks would be expanded within the project area. At-grade sidewalks and

signalized crossings on the east and west sides of the I-80 at the ramps and adjacent to the Ashby Avenue would be included as part of the Build Alternative. Bicyclists and pedestrians would access this connection via 65th street on the east side of the proposed project and West Frontage Road. A separated BPOC would also be constructed south of the new interchange. This structure would include ADA compliant switchbacks on the east and west sides of the I-80 approaching the separate BPOC. Like the proposed at-grade bicycle/pedestrian improvements, the structure would be publicly accessible from 65th Street to the east and West Frontage Road to the west.

Improvements to bicycle and pedestrian networks would help reduce VMT by encouraging walking and bicycling within the project area. These alternative modes of transportation consume no energy; therefore, the proposed project's overall energy consumption would be reduced.

Temporary Construction Impacts

Under the No Build Alternative, the proposed project would not be constructed, and would not have the one-time consumption of direct energy that would under the Build Alternative.

Energy consumed during construction of the proposed project would be temporary and would not result in permanent increases in statewide annual energy consumption. Compared to California's annual energy consumption in the transportation sector, the energy expended to construct the proposed project would represent a negligible increase of the annual statewide energy consumption. Additionally, the construction window for the proposed project would span a 36-month window. This would result in even smaller annual energy expenditures, representing a smaller proportion of the statewide annual energy consumption per year.

Direct energy consumption during construction would result from materials processing, operation of on-site construction equipment, and traffic delays or detours. Energy consumption would vary by construction phase but could be reduced through implementation of a Transportation Management Plan. BMPs would also be implemented to reduce energy consumption including limiting equipment idling, maintaining proper tire pressures on equipment, using local sources for materials, and using local sources for disposal.

Indirect Energy Usage

Maintenance

Long-term maintenance of the I-80 corridor, and surrounding roads within the proposed project area would occur under the Build Alternative or the No Build Alternative. Under

the No Build Alternative, traffic congestion and deficiencies in bicycle/pedestrian infrastructure would persist. Under the Build Alternative, both on- and off-ramps would be metered with a high-occupancy vehicle bypass lane in the westbound direction only, consistent with existing conditions. Under the No Build Alternative, the flow of traffic onto I-80 would continue to be metered with a high-occupancy vehicle bypass lane in the westbound direction only. Pavement conditions would continue to deteriorate, and less efficient technology would continue to be used for the pedestrian-scale streetlights for a long period of time.

The Build Alternative would address these deficiencies by alleviating local traffic congestion, controlling the flow of traffic onto I-80, and promoting zero-energy alternative modes of transportation such as walking and biking. Operationally, the Build Alternative would have increased energy saving potential over the No Build Alternative.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Project Features

There are no project features associated with energy resources.

Avoidance and Minimization

No avoidance and/or minimization measures would be required.

Mitigation Measures

No mitigation measures would be required.

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2.3 BIOLOGICAL ENVIRONMENT

2.3.1 NATURAL COMMUNITIES

This section of the document discusses natural communities of concern. The focus of this section is on biological communities, not individual plant or animal species. This section also includes information on wildlife corridors and habitat fragmentation. Wildlife corridors are areas of habitat used by wildlife for seasonal or daily migration. Habitat fragmentation involves the potential for dividing sensitive habitat and thereby lessening its biological value.

Habitat areas that have been designated as critical habitat under the Federal Endangered Species Act are discussed in Section 2.3.5, Threatened and Endangered Species. Wetlands and other waters are also discussed in Section 2.3.2, Wetlands and Other Waters.

AFFECTED ENVIRONMENT

Unless otherwise noted, information in this section is based on the *Natural Environment Study* (NES) prepared for the proposed project (October 2021).

Biological Study Area

The biological study area (BSA) includes all areas that could potentially be impacted, temporarily or permanently, by the proposed project within the maximum footprint of the project area (see Figure 2.3-1).

The BSA is in a highly developed urban area that is fragmented by existing surface streets; Interstate 80 (I-80) and associated interchanges; and isolated by residential, commercial, and industrial development. As shown in Figure 2.3-1, a total of 14 land cover types occur in the BSA, including 12 vegetative communities (landscaped, ruderal, developed, California annual grassland, ice plant mats, eucalyptus groves, arroyo willow thickets, Monterey cypress stands, acacia, cattail marshes, pickleweed mats, gumplant patches, open water, and saltgrass flats) and one aquatic cover category (open water). The developed land cover type includes all of I-80, Ashby Avenue, the UPRR Pacific Railroad tracks, adjacent surface streets, and commercial and industrial buildings in the BSA. The landscaped cover type includes unpaved areas adjacent to I-80, interchanges, and areas along surface streets. All these features are manmade. Natural communities within the BSA have been altered and continue to be subject to disturbance from human activities.

Habitat Types

Habitat types present within the BSA are depicted in Figure 2.3-1. Of all the habitat types shown, only the open water areas within the San Francisco Bay are federally designated critical habitat under the Federal Endangered Species Act. Habitat areas that have been designated as critical habitat under the Federal Endangered Species Act are discussed further in Section 2.3.5, Threatened and Endangered Species. No sensitive natural communities (e.g., natural communities that have limited distribution) exist within the BSA. Each habitat type present within the BSA is briefly described below.

Acacia

Areas dominated by acacia (*Acacia* spp.) are present in several portions of the BSA. The most common species in these areas is blackwood acacia (*A*. *melanoxylon*).

Arroyo Willow Thickets

Areas dominated by arroyo willow (*Salix lasiolepis*) are present on the east shore of the Radio Tower Pond. Other tree species present in this habitat include red willow (*Salix laevigata*) and ash (*Fraxinus* sp.).

California Annual Grassland

Dominant species include wild oat (*Avena fatua*) and ripgut brome (*Bromus diandrus*). This community is patchily distributed within undeveloped areas of the Ashby Avenue Interchange (interchange).

Developed

Areas mapped as developed include roads and anthropogenic features such as buildings and parking lots. Vegetation in these areas is usually sparse and dominated by weedy herbaceous species. Developed landcover includes all of I-80, Ashby Avenue, adjacent roads, and commercial and residential buildings adjacent to the freeway. Wildlife species typically associated with developed areas include striped skunk (*Mephitis mephitis*), raccoon (*Procyon lotor*), and Virginia opossum (*Didelphis virginiana*). Wildlife observed in developed areas include domestic cat (*Felis catus*), mourning dove (Zenaida macroura), rock dove (*Columba livia*), American crow (*Corvus brachyrhynchos*), turkey vulture (*Cathartes aura*), and European starling (*Sturnus vulgaris*).

Biological Study Area: BSA Figure **2.3-1**

Source: Horizon, 2021

Eucalyptus Grove

Various stands of eucalyptus (*Eucalyptus spp*.) are located along the I-80 off-ramps within the BSA. This habitat has sparse to intermittent herbaceous layers.

Ice Plant Mats

This habitat consists almost exclusively of ice plant (*Carpobrotus* sp.), which is an invasive species, and is found within undeveloped areas of the interchange. No wildlife was observed in this habitat type, and this habitat type generally provides little value to native wildlife species.

Landscaped

Landscaped areas of the BSA are characterized by ornamental vegetation and are in close proximity to the more expansive developed areas. Wildlife species typically associated with landscaped areas include striped skunk (*Mephitis mephitis*), raccoon (*Procyon lotor*), and Virginia opossum (*Didelphis virginiana*). Wildlife observed in developed areas include domestic cat (*Felis catus*), mourning dove (*Zenaida macroura*), rock dove (*Columba livia*), American crow (*Corvus brachyrhynchos*), turkey vulture (*Cathartes aura*), and European starling (*Sturnus vulgaris*).

Monterey Cypress Stands

Planted stands of Monterey cypress (*Hesperocyparis macrocarpa*) are present within the interchange. The understory in these areas ranges from sparse herbaceous to bare ground. Although naturally-occurring Monterey cypress stands are considered a sensitive natural community, the BSA is not within the native range of this vegetation community, and the Monterey cypress trees were planted within the BSA. Therefore, this vegetation type is not considered a sensitive natural community within the BSA.

Open Water

Open water habitats are present in the San Francisco Bay, Radio Tower Pond, and the Model Yacht Basin. The portion of the San Francisco Bay within the BSA is critical habitat for green sturgeon, Central Valley steelhead, Central California Coast steelhead, and Sacramento River winter-run Chinook salmon. Critical habitat is defined as geographic locations critical to the existence of a threatened or endangered species. For further discussion of this critical habitat, refer to Section 2.3.5, Threatened and Endangered Species. The San Francisco Bay is also Essential Fish Habitat (EFH) for Pacific salmonids (Coho and Chinook salmon). In addition, tidal estuaries, seagrass (SAV), and mudflats contained within the open water habitat classification are considered special aquatic sites (SAS) and designated as habitat areas of particular concern (HAPC) within Groundfish EFH.

The Radio Tower Pond and the Model Yacht Basin (Berkeley Aquatic Park) are estuarine habitats, but neither water body represents critical habitat for federally listed species. Estuaries are highly productive ecosystems and typically support large numbers of fish, birds, and invertebrates. Wildlife observed in open water areas include snowy egret (*Egretta thula*), American coot (*Fulica americana*), and American white pelican (*Pelecanus erythrorhynchos*).

Salt Grass Flats

Salt grass (*Distichlis spicata*) is the dominant species in this habitat. This habitat can be found along the pond margins of the Radio Tower Pond and Model Yacht Basin (Berkeley Aquatic Park) and at the edge of the Radio Tower parking lot at elevations above the pickleweed mats and gumplant patches.

Ruderal

Ruderal habitat is the most abundant natural community within the BSA. Ruderal vegetation is characterized by non-native forbs and grasses in disturbed areas typically along the edges of developed areas.

There are 445 trees regulated by local ordinances within the BSA. Regulated trees meet specific size and species requirements and are protected by local ordinances. These trees are primarily located along surface streets and landscaped areas and include native and non-native species. Of the 445 regulated trees, 301 are in Berkeley and 144 are within Emeryville. Trees in the BSA include native and non-native species, predominantly blackwood acacia, Monterey cypress, sheoak (*Casuarina* sp.), and Ngaio tree (*Myoporum laetum*).

Wildlife Corridors and Wildlife Fragmentation

Terrestrial habitat within and near the BSA is isolated, and connectivity is substantially restricted within the BSA due to the highly developed nature of the I-80 corridor. The terrestrial portions of the BSA are highly urbanized and primarily developed, with only small, undeveloped (e.g., unpaved) areas occurring in discontinuous, fragmented patches between developed areas. No impacts on wildlife connectivity are anticipated

ENVIRONMENTAL CONSEQUENCES

Non-Critical Habitat Types

No Build Alternative

The No Build Alternative assumes that the I-80/Ashby interchange would remain in its existing condition and no further action or improvements would occur. Under the No Build Alternative, the existing roadways would remain unchanged except for planned

and programmed improvements outside of the BSA. Therefore, the No Build Alternative would not affect habitat types present within the BSA.

Build Alternative

Table 2.3-1 provides a summary of temporary and permanent impacts in acres to habitat types for the Build Alternative within the BSA. All temporary and permanent impacts of the Build Alternative would be considered direct impacts. Any potential temporary impacts to natural communities would be minimized with the incorporation of project feature PF BIO-2 (standard Caltrans construction BMPs) (refer to Appendix C for further detail regarding project features). None of the habitat types within the BSA (listed in Table 2.3-1) are considered sensitive.

Table 2.3-1 Temporary and Permanent Impacts for Non-Critical Habitat Types within the BSA

Habitat Types	Temporary Impact (Acres)	Permanent Impact (Acres)
Acacia	0.079	0.001
Arroyo Willow Thickets	0.000	0.001
California Annual Grassland	1.697	2.319
Developed	4.794	8.179
Eucalyptus Groves	0.339	0.340
Ice Plant Mats	2.003	1.472
Landscaped	1.049	1.053
Monterey Cypress Stands	0.727	0.715
Salt Grass Flats	0	0.012
Ruderal	6.571	3.355
Total	**17.259**	**17.447**

Source: Horizon Water & Environmental 2021

Trees

Construction and operation of the proposed project would result in the removal of protected trees. Both the cities of Emeryville and Berkeley have local tree ordinances that protect trees. In Emeryville, there are no specific species of trees that are classified as protected trees. The City of Berkeley, places restrictions on the removal of coast live oak (*Quercus agrifolia*); no other restrictions apply. Caltrans and Alameda CTC are exempt from local tree protection ordinances. Landscaping and ornamental trees

provide aesthetic value and can provide habitat and food sources for local wildlife including nesting habitat for common bird species.

No Build Alternative

The No Build Alternative assumes that the I-80/Ashby interchange would remain in the existing condition and no further action or improvements would occur. Under the No Build Alternative, its existing roadways would remain unchanged except for planned and programmed improvements outside of the BSA. The No Build Alternative would not result in removal of regulated trees within the BSA.

Build Alternative

The Build Alternative would remove up to 149 trees within the BSA, up to 127 trees would be removed in Berkeley, and up to 22 trees would be removed in Emeryville. Trees removed by the proposed project will be replaced at a 1:1 ratio as specified in Avoidance and Minimization Measure (AMM) BIO-1. All replacement plantings would be accommodated within the existing interchange.

Cumulative Impacts

The cumulative impacts setting includes sensitive habitat types within and surrounding the BSA. Cumulative effects to natural communities would occur if planned and foreseeable development, when taken in combination with the proposed project, would result in the removal of sensitive habitat types and could reduce sensitive habitat types on a regional level. The BSA is relatively developed and fragmented and experiences a high level of human disturbance. The BSA does not contain sensitive natural communities. As the project vicinity is either urbanized or reserved for park land, surrounding natural areas are not likely to be developed. Development of the project in combination with other planned development is therefore unlikely to substantially affect valuable natural communities. Therefore, no cumulative effect related to natural communities is anticipated.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Project Features

PF BIO-1: Adjacent to the riparian area along the Radio Tower Pond and San Francisco Bay, project limits will be delineated.

PF BIO-2: Temporary impacts to water quality during construction will be avoided or minimized by implementing temporary construction site BMPs.

PF BIO-6: Trees, shrubs, and native vegetation will be preserved in place to the extent practicable.

Avoidance and Minimization

AMM BIO-1 Avoid Regulated Trees and Replace Where Unavoidable – Caltrans will avoid the removal of trees by minimizing the area of disturbance where feasible. An arborist will be retained to identify areas where tree pruning activities can occur without compromising the health of the tree. Tree removal will be minimized as much as possible. Removed or damaged trees will be replaced within the existing interchange. Trees will be replaced at a 1:1 ratio with native trees and will be irrigated for up to five years.

See Appendix C for the full text of AMM BIO-1.

Mitigation Measures

No mitigation would be required.

2.3.2 WETLANDS AND OTHER WATERS

REGULATORY SETTING

Federal

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 [U.S.] Code 1344), is the primary law regulating wetlands and surface waters. One purpose of the CWA is to regulate the discharge of dredged or fill material into Waters of the U.S., including wetlands. Waters of the U.S. include navigable waters, interstate waters, territorial seas, and other waters that may be used in interstate or foreign commerce. The lateral limits of jurisdiction over non-tidal water bodies extend to the ordinary high-water mark, in the absence of adjacent wetlands. When adjacent wetlands are present, CWA jurisdiction extends beyond the ordinary high-water mark to the limits of the adjacent wetlands. To classify wetlands for the purposes of the CWA, a three-parameter approach is used that includes the presence of hydrophytic (water-loving) vegetation, wetland hydrology, and hydric soils (soils formed during saturation and 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 individual. There are two types of general permits: regional and nationwide. Regional permits are issued for a general category of activities when they are similar in nature and cause minimal environmental effect. Nationwide permits are issued to allow a variety of minor project activities with no more than minimal effects.

Ordinarily, projects that do not meet the criteria for a regional or nationwide permit may be permitted under one of USACE's individual permits. There are two types of individual permits: standard permits and letters of permission. For individual permits, the USACE decision to approve is based on compliance with U.S. EPA's Section 404(b)(1) Guidelines (40 Code of Federal Regulations 230), and whether permit approval is in the public interest. The Section 404 (b)(1) Guidelines (Guidelines) were developed by the U.S. EPA in conjunction with the USACE, and allow the discharge of dredged or fill material into the aquatic system (Waters of the U.S.) only if there is no practicable alternative which would have less adverse effects. The Guidelines state that USACE may not issue a permit if there is a "least environmentally damaging practicable alternative" to the proposed discharge that would have lesser effects on Waters of the U.S., and not have any other significant adverse environmental consequences.

The Executive Order (EO) for the Protection of Wetlands (EO 11990) also regulates the activities of federal agencies with regard to wetlands. Essentially, EO 11990 states that a federal agency, such as 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 project includes all practicable measures to minimize harm. A Wetlands Only Practicable Alternative Finding must be made.

State

At the state level, wetlands and waters are regulated primarily by the State Water Resources Control Board, the Regional Water Quality Control Boards (RWQCBs) and the California Department of Fish and Wildlife (CDFW). In certain circumstances, the California Coastal Commission (or Bay Conservation and Development Commission or the Tahoe Regional Planning Agency) may also be involved. Sections 1600 through 1607 of the California Fish and Game Code (CFG) 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 USACE may or may not be included in the area covered by a Streambed Alteration Agreement obtained from the CDFW.

The RWQCBs were established under the Porter-Cologne Water Quality Control Act to oversee water quality. Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements and may be required even when the discharge is already permitted or exempt under the CWA. In compliance with Section 401 of the CWA, the RWQCBs also issue water quality certifications for activities 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 Section 2.2.2, Water Quality and Stormwater Runoff for more details

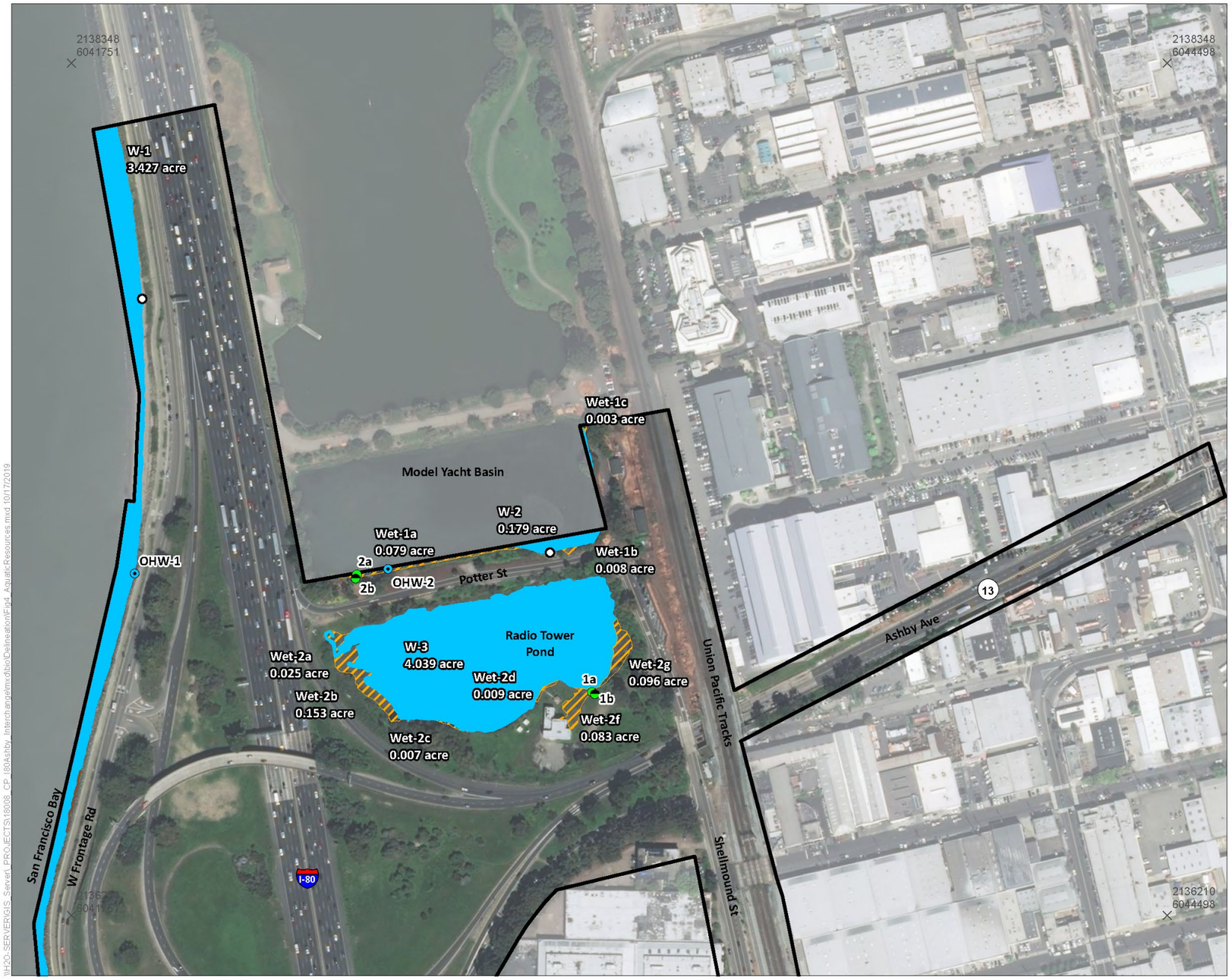
AFFECTED ENVIRONMENT

Potentially jurisdictional waters within the BSA are summarized in the *Aquatic Resources Delineation Report* (ARDR) (February 2021) and the NES (October 2021). An approved preliminary jurisdictional determination (PJD) was obtained on April 20, 2021.

The study area for wetlands and other waters includes water bodies within the BSA that could be affected by erosion or fill during project construction. There are 8.14 acres of wetlands and waters within the BSA (see Figure 2.3-2 and Figure 2.3-3 for wetlands adjacent to project area). Potential waters of the U.S. present within the BSA provide essential ecosystem services that include habitat for plants and wildlife, water quality, and ecological functions.

The waters and wetlands of the U.S. within the BSA provide essential ecosystem services, including habitat for plants and wildlife, water quality, and ecological functions. For example, palustrine wetlands are inland freshwater areas dominated by vegetation that serve as breeding areas, habitats, and water filters for a variety of species. Estuarine areas, such as Radio Tower Pond and the Model Yacht Basin (Berkeley Aquatic Park), are partially enclosed coastal water bodies that contain a mix of freshwater from rivers and streams with salt water from the ocean. This unique habitat type is critical for many birds, mammals, fish, and other wildlife species. Estuarine areas can also help function as buffers between the land and ocean by absorbing flood waters and dissipating storm surges.

As documented in the ARDR and PJD, the BSA contains 7.645 acres of potentially jurisdictional non-wetland waters of the U.S., and 0.495 acre of potentially jurisdictional waters. A total of 8.14 acres of potentially jurisdictional wetlands and other waters of the U.S. resides within the BSA. Such waters are found in the San Francisco Bay, as well as in Radio Tower Pond and Model Yacht Basin, located to the east of I-80. Wetlands are found in narrow bands around the ponds. No wetlands are present adjacent to the San Francisco Bay within in the BSA. The PJD confirmed that the aquatic features within the BSA are waters of the U.S. subject to USACE and RWQCB jurisdiction due to their proximity and hydrologic connectivity to the San Francisco Bay, which is considered a traditionally navigable water. Radio Tower Pond and Model Yacht Basin and their banks are also anticipated to be subject to CDFW jurisdiction under Section 1600 of CFGC and provide suitable habitat for aquatic and semi-aquatic wildlife species.



Study Area (79.3 acres)
Control Points
Culverts

Sample Points

Ordinary High Water
Upland
Wetland

Potentially Jurisdictional Waters of the U.S.

Waters (7.645 acres)
Wetlands (0.463 acre)

0 100 200
Feet
1 inch = 250 feet

N

Spatial Reference System: California State Plane Zone 3, feet (NAD83)
Imagery Source: August 2017 Aerial Imagery, Digital Globe

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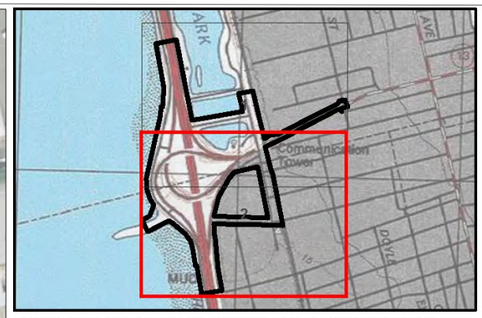
REVISIONS		
DATE	DESCRIPTION	BY

Sheet 1 of 2
Aquatic Resources Delineation

I-80/Ashby Avenue (Route 13)
Interchange Improvement Project

Aquatic Resources Delineation 1 of 2 Figure **2.3-2**

Source: Horizon, 2021



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Study Area (79.3 acres)

Control Points

Culverts

Sample Points

Ordinary High Water

Upland

Wetland

Potentially Jurisdictional Waters of the U.S.

Waters (7.645 acres)

Wetlands (0.463 acre)

0 100 200
Feet

N

1 inch = 250 feet

Spatial Reference System: California State Plane Zone 3, feet (NAD83)
Imagery Source: August 2017 Aerial Imagery, Digital Globe

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REVISIONS		
DATE	DESCRIPTION	BY

Sheet 2 of 2
Aquatic Resources Delineation

I-80/Ashby Avenue (Route 13)
Interchange Improvement Project

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Aquatic Resources Delineation 2 of 2 Figure **2.3-3**

Source: Horizon, 2021

ENVIRONMENTAL CONSEQUENCES

No Build Alternative

The No Build Alternative assumes that existing conditions would remain the same and no further action or improvements would occur. Under the No Build Alternative, the existing roadways would remain unchanged except for planned and programmed improvements outside of the BSA. Therefore, no impacts to wetlands and other waters would occur under the No Build Alternative.

Build Alternative

The Build Alternative would require the construction of a new drainage outfall at an outlet leading into the San Francisco Bay. This activity would result in the placement of permanent and temporary fill material within San Francisco Bay, a water of the U.S. A hydrologic analysis was used in the design of the new drainage outfall to inform the development of avoidance and minimization measures that would reduce adverse impacts due to changes in potential flows or stormwater discharge.

The Build Alternative would result in fill within 0.012 acre of wetlands within the USACE's jurisdiction near Radio Tower Pond. Additionally, construction of the outfall would result in 0.007 acre of permanent impact to USACE jurisdiction non-wetland water in San Francisco Bay from construction of the new outfall. The Build Alternative would be constructed near potentially jurisdictional waters, and there is no practicable alternative that would avoid impacts to these resources.

Impacts to potential waters of the U.S. are summarized in Table 2.3-2. Construction of the Build Alternative would require the following permits relating to wetlands and other waters:

- USACE, Nationwide Permit 7 – Outfall Structures and Associated Intake Structures), Section 404, Clean Water Act
- RWQCB, Section 401 Certification

Construction of the Build Alternative may require an additional permit related to construction activities immediately adjacent to Radio Tower Pond. This will be determined during the design phase in coordination with CDFW.

- CDFW, 1602, Lake and Streambed Alteration Agreement

Table 2.3-2 Summary of Aquatic Resources Impacts

	Temporary Impacts		Permanent Impacts	
Feature Type	**Acres**	**Square Feet**	**Acres**	**Square Feet**
Potentially Jurisdictional Wetland Waters of the U.S.				
Estuarine Emergent	--	--	--	--
Palustrine Emergent	0	0	0.012	507
Potentially Jurisdictional Non-wetland Waters of the U.S.				
Estuarine	0.019	831	0.007	301
Total Impacts to Waters of the U.S.	0.019	831	0.019	808

Source: Horizon Water & Environmental 2020

Temporary Construction Impacts

As shown in Figure 2.3-2, construction of the outfall would result in temporary impacts to 0.019 acre of non-wetland waters in the San Francisco Bay, within jurisdiction of the USACE. Project-related construction activities have the potential to impact water quality from erosion and sedimentation, and from jack and bore-related boring fluid/mud storage pits that could leak into the San Francisco Bay. This could affect the health of wildlife species within the area and cause a loss or degradation of aquatic habitat within the BSA and downstream. However, the implementation of standard Caltrans construction BMPs included in PF BIO-2 would reduce the likelihood of this project resulting in adverse impacts to water quality outside the project footprint. With incorporation of project features PF BIO-1 (avoidance of open water areas in Aquatic Park), PF BIO-3 (implementation of a SWPPP), and PF BIO-4 (construction-period water quality inspector), temporary impacts to other wetlands and water of the U.S. would be avoided and/or minimized. Refer to Appendix C for the full text of these project features.

Cumulative Impacts

The proposed project would permanently impact 0.007 acre of non-wetland waters of the U.S. and 0.012 acre of palustrine emergent wetland. The overall scale of estuarine waters within the San Francisco Bay would not be substantially affected by the proposed project. Additionally, Caltrans would purchase mitigation credits at an approved bank or provide onsite restoration to offset project-related impacts to waters of the U.S. These factors indicate that the contribution of the proposed project in

comparison to the cumulative impact of past, present, and reasonably foreseeable future projects in the San Francisco Bay would not be considerable. The proposed project would not substantially contribute to the cumulative loss of wetlands or other waters in the region.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Project Features

Incorporation of PF BIO-3 and PF BIO-4 will protect water quality within jurisdictional wetlands through implementation of a Stormwater Pollution Prevention Program and utilization of a water quality inspector during construction activities. Additionally, with adherence to PF BIO-7, work in the San Francisco Bay will be limited to the smallest area possible to complete propose construction activities. See Appendix C for the full text of these project features.

Avoidance and Minimization

AMM BIO-2: Limit In-Water Work Area to Smallest Area Possible – Work within the San Francisco Bay and wetlands will be limited to the smallest area possible to complete the proposed construction activities. Additionally, along the San Francisco Bay and in the vicinity of Radio Tower Pond and Model Yacht Basin, the contractor will delineate the project footprint to keep the contractor out of sensitive areas and reduce the extent of ground disturbance. AMM BIO-3 would minimize but not eliminate impacts to waters within the USACE's jurisdiction.

See Appendix C for the full text of AMM BIO-2.

Mitigation Measure

Mitigation Measure (MM) BIO-1: Mitigation will be required for the unavoidable impacts to aquatic resources at the new outfall area within the BSA. Compensatory mitigation would occur at a minimum 1:1 ratio for permanent impacts (impact area to compensation area) to assure no-net-loss of waters of the U.S., and the final mitigation ratio will ultimately be determined through Caltrans' coordination with the USACE during the Section 404 permitting process. Mitigation may occur through one or a combination of on- or off-site mitigation, the purchase of mitigation bank credits, and/or payment of an in-lieu fee. On- and off-site mitigation options include preservation, enhancement, and restoration of the values and functions of wetlands and other waters of the U.S.

2.3.3 PLANT SPECIES

REGULATORY SETTING

Federal and State

The U.S. Fish and Wildlife Service (USFWS) and CDFW have regulatory responsibility for the protection of special-status plant species. “Special-status” species are selected for protection because they are rare and/or subject to population and habitat declines. Special status is a general term for species that are provided varying levels of regulatory protection. The highest level of protection is given to threatened and endangered species; these are species that are formally listed or proposed for listing as endangered or threatened under FESA and/or the California Endangered Species Act (CESA). Please see Section 2.3.5, Threatened and Endangered Species in this document for detailed information about these species. This section of the document discusses all other special-status plant species, including CDFW species of special concern, USFWS candidate species, and the California Native Plant Society (CNPS) rare and endangered plants.

The regulatory requirements for FESA can be found at 16 U.S. Code Section 1531, et seq. See also 50 Code of Federal Regulations Part 402. The regulatory requirements for CESA can be found at CFG, Section 2050, et seq. Department projects are also subject to the Native Plant Protection Act, found at CFG, Section 1900-1913, and the California Environmental Quality Act (CEQA), found at California Public Resources Code, Sections 21000-21177.

AFFECTED ENVIRONMENT

Unless otherwise noted, information in this section is based on the NES prepared for the proposed project (October 2021).

The BSA for plant species includes all areas of ground disturbance and aquatic disturbance that would occur under the proposed project. Searches of the California Natural Diversity Database (CNDDB), CNPS, and USFWS databases were used to determine those plant species that have a potential to occur in the BSA. A total of 88 species where found as having a potential to occur in the region. No special-status plant species were encountered during biological reconnaissance-level surveys, and such plants are unlikely to occur in the BSA due to poor habitat conditions and the urbanized and developed nature of the project area.

ENVIRONMENTAL CONSEQUENCES

No Build Alternative

Under the No Build Alternative, the existing roadways would remain unchanged except for planned and programmed improvements. The No Build Alternative would have no effect on special-status plant species.

Build Alternative

No special-status plant species were observed within the BSA, and such plants are unlikely to occur in the BSA due to the developed nature of the project area. Therefore, Caltrans does not anticipate this project will affect special-status plant species.

Temporary Construction Impacts

No construction impacts to special-status species would occur as none are present within the BSA.

Cumulative Impacts

As discussed, special-status species are unlikely to occur within the BSA; therefore, the proposed project would not contribute to a cumulative effect on plant species.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Project Features

No applicable project features.

Avoidance and Minimization

No applicable AMMs.

Compensatory Mitigation

No compensatory mitigation would be required.

2.3.4 ANIMAL SPECIES

REGULATORY SETTING

Federal and State

Many state and federal laws regulate impacts to wildlife. The U.S. Fish and Wildlife Service (USFWS), the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries Service), 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 FESA or CESA. Species listed or proposed for listing as threatened or endangered are discussed in Section 2.3.5, Threatened and Endangered Species below. All other special-status animal species are discussed here, including CDFW fully protected species and species of special concern.

Federal laws and regulations relevant to wildlife include the following:

- National Environmental Policy Act (NEPA)
- Migratory Bird Treaty Act (MBTA)
- Fish and Wildlife Coordination Act

State laws and regulations relevant to wildlife include the following:

- California Environmental Quality Act (CEQA)
- Sections 1600 – 1603 of the CFG
- Sections 4150 and 4152 of the CFG
- Sections 3503 and 3505.5 of the CFG

AFFECTED ENVIRONMENT

Unless otherwise noted, information in this section is based on the NES prepared for the proposed project (October 2021).

The BSA for animal species includes all areas of ground disturbance and aquatic disturbance that would occur under the proposed project. The identification of special-status animal species with the potential to occur in the BSA is based on a search of USFWS, CNDDB, and NMFS databases. These searches identified a total of 5 special-status fish and 55 special-status animal species with potential to occur in the region. Based on biological field surveys, suitable habitat exists within the BSA for eight of these species: northern harrier (*Circus hudsonius* [formerly *cyaneus*]), white-tailed kite (*Elanus leucurus*), western pond turtle (*Emys* [=*Actinemys*] *marmorata*), southern DPS green sturgeon (*Acipenser medirostris)*, Sacramento River winter-run Chinook salmon (*Oncorhynchus tshawytscha*), Central California Coast steelhead (*Oncorhynchus mykiss irideus*), Central Valley steelhead (*Oncorhynchus mykiss*), and longfin smelt (*Spirinchus thaleichthys*). Although these species have the potential to occur within the BSA, none were observed during biological surveys.

Migratory bird species protected by MBTA and/or CFGC may utilize the BSA for foraging and nesting activities, though the potential for this remains low due to the

developed nature of the project area. There are only small, isolated patches of habitat within the BSA. Suitable nesting substrate for Cooper's hawk (*Accipiter cooperii*), great egret (*Ardea alba*), and great blue heron (*Ardea herodias*) occurs in limited portions of the BSA and adjacent areas. Several other bird species, such as cliff swallow (*Petrochelidon pyrrhonota*) and black phoebe (*Sayornis nigricans*), could nest on structures and vegetation within and adjacent to the BSA.

Animal Species in the BSA

Animal species vary between habitat types within the BSA. Animal species with potential to occur in the BSA are described below.

Northern Harrier

The northern harrier is a State Species of Special Concern (SSC). The northern harrier nests in marshes and moist fields, and forages over open areas. The northern harrier has the potential to occur due to the marginally suitable nesting habitat present outside of and adjacent to the BSA, but habitat is absent from the BSA itself due to frequent human activity, traffic, night lighting, and road noise.

White-Tailed Kite

The white-tailed kite is a federally protected species. The species typically resides in ungrazed or minimally grazed grasslands, agricultural areas, and grass dominated wetlands. The white-tailed kite has a potential to occur near the BSA due to the presence of marginally suitable nesting habitat. The species is unlikely to occur in the BSA because of its developed nature.

The Western Pond Turtle

The western pond turtle is an SSC and is a predominantly aquatic turtle. Residing in ponds, marshes, rivers, and streams within the region, the western pond turtle has the potential to occur within open waters and stormwater basins within the BSA. Marginal brackish to marine aquatic habitat is present in the Aquatic Park lagoon, Model Yacht Basin, and Radio Tower Pond, but this would only provide temporary refuge for the species. Suitable permanent aquatic habitat is present in the freshwater wetland east of the lagoon.

Fish Species

As discussed in Section 2.3.1, Natural Communities, the San Francisco Bay provides suitable habitat for a variety of special-status fish species such as southern DPS green sturgeon, Sacramento River winter-run Chinook salmon, Central California Coast steelhead, Central Valley steelhead, and longfin smelt. Spawning habitat is absent from the BSA. These fish species are discussed further in Section 2.3.5, Threatened and

Endangered Species. Caltrans will conduct consultation with NMFS and prepare a biological assessment to support effects findings regarding fish species.

Other Common Species within the BSA

Wildlife species typically associated with developed areas include striped skunk (*Mephitis mephitis*), raccoon (*Procyon lotor*), and Virginia opossum (*Didelphis virginiana*). Wildlife observed in developed cover includes domestic cat (*Felis catus*), mourning dove (*Zenaida macroura*), rock dove (*Columba livia*), American crow (*Corvus brachyrhynchos*), turkey vulture (*Cathartes aura*), Canada goose (*Branta hutchinsii leucopareia),* and European starling (*Sturnus vulgaris*).

Wildlife observed in ruderal and California annual grassland includes mourning dove (*Zenaida macroura*), black phoebe (*Sayornis nigricans*), and dark-eyed junco (*Junco hyemalis*), wild oat (*Avena fatua*), and ripgut brome (*Bromus diandrus*).

ENVIRONMENTAL CONSEQUENCES

White-Tailed Kite and Northern Harrier

No Build Alternative

Under the No Build Alternative, the existing roadways would remain unchanged except for planned and programmed improvements. Thus, the No Build Alternative would have no effect on white-tailed kite or norther harrier.

Build Alternative

Marginally suitable nesting habitat for northern harrier and white-tailed kite is present within grasslands and trees outside of and adjacent to the BSA, but not within the BSA itself. Therefore, direct permanent effects on the white-tailed kite and northern harrier are not anticipated.

Temporary Construction Impacts

Caltrans does not anticipate direct impacts to the white-tailed kite or northern harrier from construction of the proposed project. Project-related noise and vibration generated from construction activities could indirectly impact active nests of both bird species, if present near the BSA. Project features such as PF BIO-2 (standard Caltrans construction BMPs) will help minimize indirect effects on both species during construction.

Western Pond Turtle

No Build Alternative

Under the No Build Alternative, the existing roadways would remain unchanged except for planned and programmed improvements. Thus, the No Build Alternative would have no effect on the western pond turtle.

Build Alternative

Western pond turtle could be indirectly impacted by project activities that affect water quality under the Build Alternative. Project features such as PF WQ-2 (compliance with water quality regulations) would ensure proper adherence to the requirements of the Caltrans MS4 permit and other regulatory agency requirements, which would avoid and/or minimize permanent effects on water quality. Furthermore, the project would not affect primary western pond turtle habitat within the BSA, which is present in the Aquatic Park lagoon.

Temporary Construction Impacts

No construction activities would occur within potential aquatic habitat for western pond turtle. Potential indirect impacts include aquatic habitat degradation from erosion and sedimentation during construction. Any water quality impacts would only affect a small fraction of suitable habitat for this species in the region, with better quality habitat present nearby in the Aquatic Park lagoon. Therefore, aspects of the proposed project affecting suitable aquatic habitat could result in temporarily degradation of aquatic habitat.

Nesting Birds

No Build Alternative

Under the No Build Alternative, the existing roadways would remain unchanged except for planned and programmed improvements. The No Build Alternative would have no effect on nesting birds.

Build Alternative

There is a potential for this project to affect nesting migratory birds nesting on structures and vegetation within and adjacent to the BSA.

Temporary Construction Impacts

Active bird nests could be impacted by construction-related noise, which could disrupt the behavior of birds and cause them to abandon their nest.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Project Features

Temporary construction impacts to animal species would be avoided through implementation of standard BMPs as outlined in the list of project features, including PF BIO-5 (education regarding nesting birds), PF BIO-8 (appointment of biological monitors during construction), and PF BIO-9 (education program regarding common species in the BSA).

Avoidance and Minimization

AMM BIO-3: Nesting Bird Avoidance – Construction activities would be conducted so as to limit vegetation clearing and ground disturbing activities during the typical nesting bird season (February 1 to September 30) to the extent feasible.

AMM BIO-5: Prior to conducting work within Bay waters, a cofferdam will be constructed to create a dry work area. This will limit the potential for the project to result in water quality impacts and potential impacts to aquatic species habitat.

See Appendix C for the full text of AMM BIO-3, and AMM BIO-5.

Mitigation Measures

MM BIO-1: Caltrans and Alameda CTC would compensate for the loss of wetlands and waters of the U.S. by purchasing credits at a mitigation bank, or paying into an in-lieu fee program. See Appendix C for the full text of Mitigation BIO-1. This measure is also discussed in Section 2.3.2, Wetlands and Other Waters.

2.3.5 THREATENED AND ENDANGERED SPECIES

REGULATORY SETTING

Federal and State

The primary federal law protecting threatened and endangered species is FESA: 16 Code of Federal Regulations Section 1531, et seq. See also 50 Code of Federal Regulations Part 402. This act and later amendments provide for the conservation of endangered and threatened species and the ecosystems upon which they depend. Under Section 7 of this act, federal agencies, such as the FHWA (and Caltrans, as assigned), are required to consult with the USFWS and the NOAA Fisheries Service to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat. Critical habitat is defined as geographic locations critical to the existence of a threatened or endangered species. The outcome of consultation

under Section 7 may include a Biological Opinion with an Incidental Take statement or a Letter of Concurrence. Section 3 of FESA defines take as “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or any attempt at such conduct”.

California has enacted a similar law at the state level, CESA, CFG Code Section 2050, et seq. CESA emphasizes early consultation to avoid potential impacts to rare, endangered, and threatened species and to develop appropriate planning to offset project-caused losses of listed species populations and their essential habitats. The CDFW is the agency responsible for implementing CESA. Section 2080 of the CFG prohibits "take" of any species determined to be an endangered species or a threatened species. Take is defined in Section 86 of the CFG as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.” CESA allows for take incidental to otherwise lawful development projects; for these actions an incidental take permit is issued by CDFW. For species listed under both FESA and CESA requiring a Biological Opinion under Section 7 of FESA, the CDFW may also authorize impacts to CESA species by issuing a Consistency Determination under Section 2080.1 of the CFG.

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 U.S., 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.

AFFECTED ENVIRONMENT

Unless otherwise noted, information in this section is based on the NES prepared for the proposed project (October 2021).

Federally Listed Species

The study area for animal species includes all areas of ground disturbance and aquatic disturbance that would occur under the proposed project. Lists of USFWS- and NMFS-listed species potentially occurring in the BSA were obtained for the proposed project. Additionally, CNDDB and CNPS lists of special-status species occurrences in the BSA and surrounding vicinity, including federally listed species, were obtained prior to the biological surveys that were conducted as part of the NES. Recent CNDDB and CNPS lists were queried on July 3, 2021.

Evaluations of federally listed species resulted in a total of 17 species with “no effect” determination due to the lack of suitable habitat within the BSA. Evaluations resulted in a total of 5 species with “may affect, but not likely to adversely affect” determinations due to the construction of the new outfall within Bay waters. AMMs are proposed that would avoid and minimize effects on federally listed wildlife species resulting from construction of the proposed project. Caltrans will conduct Section 7 consultation with NMFS and USFWS. Table 2.3-3 summarizes the proposed project’s impact on federally listed species.

Table 2.3-3 Federally Listed Species

Common Name	Scientific Name	Federal Status	Effect Finding
green sturgeon – southern DPS	*Acipenser medirostris*	Threatened	May affect, but not likely to adversely affect.
Steelhead – Central California Coast DPS	*Oncorhynchus mykiss*	Threatened	May affect, but not likely to adversely affect.
Steelhead – Central Valley DPS	*Oncorhynchus mykiss*	Threatened	May affect, but not likely to adversely affect.
Chinook salmon - Sacramento River winter-run ESU	*Oncorhynchus tshawytscha*	Endangered	May affect, but not likely to adversely affect.
longfin smelt	*Spirinchus thaleichthys*	Candidate	May affect, but not likely to adversely affect.
tidewater goby	*Eucyclogobius newberryi*	Endangered	No Effect
Delta smelt	*Hypomesus transpacifus*	Threatened	No Effect
chinook salmon - Central Valley spring-run ESU	*Oncorhynchus tshawytscha*	Threatened	No Effect
eulachon	*Thaleichthys pacificus*	Threatened	No Effect

Common Name	Scientific Name	Federal Status	Effect Finding
San Bruno elfin butterfly	*Callophrys mossii bayensis*	Endangered	No Effect
Bay checkerspot butterfly	*Euphydryas editha bayensis*	Threatened	No Effect
Mission blue butterfly	*Plebejus icarioides missionensis*	Endangered	No Effect
Callippe silverspot butterfly	*Speyeria callippe*	Endangered	No Effect
California tiger salamander	*Ambystoma californiense*	Threatened	No Effect
California red-legged frog	*Rana draytonii*	Threatened	No Effect
Alameda whipsnake	*Masticophis lateralis euryxanthus*	Threatened	No Effect
San Francisco garter snake	*Thamnophis sirtalis tetrataenia*	Endangered	No Effect
western snowy plover	*Charadrius alexandrinus nivosus*	Threatened	No Effect
California Ridgway's rail	*Rallus obsoletus*	Endangered	No Effect
California least tern	*Sternula antillarum browni*	Endangered	No Effect
southern sea otter	*Enhydra lutris nereis*	Threatened	No Effect
salt marsh harvest mouse	*Reithrodontomys raviventris*	Endangered	No Effect

Note: District Population Segment (DPS); evolutionarily significant unit (ESU); Federal Endangered (FE); Federal Threatened (FT); Federal Candidate (FC), State Endangered (SE); State Threatened (ST); Fully Protected (FP); State Species of Special Concern (SSC).
Source: Horizon Water & Environmental 2020

State Listed Species

Based on a review of the CNDDB and CNPS lists of special-status species occurrences in the BSA and results of biological surveys, no state threatened, or endangered

species are expected to occur within the BSA (Table 2.3-4). Therefore, the proposed project is anticipated to have no effect on state listed species.

Table 2.3-4 State Listed Species

Common Name	Scientific Name	State Status	Occurrence in the BSA
Mammals			
Salt marsh harvest mouse	*Reithrodontomys raviventris*	Endangered	Not likely to affect: Suitable saline wetland habitat is absent from the BSA.
Fish			
Chinook salmon-Sacramento River winter-run	*Oncorhynchus tshawytscha*	Endangered	Not likely to affect: The BSA is not within the known current range of this species.
Longfin smelt	*Spirinchus thaleichthys*	Threatened	Not likely to affect: The BSA is upstream of a tide gate which would prevent passage of longfin smelt into the BSA.

Source: Horizon Water & Environmental 2020

Critical Habitat

USFWS and NMFS designated critical habitat to protect areas that are essential to the survival of federally listed species of plants and wildlife. The BSA contains critical habitat for southern DPS green sturgeon, Sacramento River winter-run Chinook salmon, central California coast steelhead, and Central Valley steelhead within the San Francisco Bay.

ENVIRONMENTAL CONSEQUENCES

No Build Alternative

Under the No Build Alternative, the existing roadways would remain unchanged except for planned and programmed improvements. Thus, the No Build Alternative would have no effect on state or federally listed species.

Build Alternative

Federally Listed Species

Evaluations of federally listed species resulted in a total of 17 species with "no effect" determinations due to the lack of suitable habitat within the BSA. Evaluations resulted in a total of 5 species with "may affect, but not likely to adversely affect" determinations due to the construction of the new outfall within critical habitat in the San Francisco Bay. These species are the southern DPS green sturgeon, Sacramento River winter-run Chinook salmon, Central California Coast steelhead, Central Valley steelhead, and longfin smelt. While construction would permanently impact 0.007 acre of critical habitat within the San Francisco Bay, the outfall structure would be located in shallow water along the shoreline where none of the fish listed above except southern DPS green sturgeon are expected to occur.

State Listed Species

Based on a review of the CNDDB and CNPS lists of special-status species and results of biological surveys, no state threatened or endangered species or their habitat are expected to occur within the BSA. Therefore, the Build Alternative would have no effect on state listed species.

Temporary Construction Impacts

Project construction activities in San Francisco Bay (namely construction of the drainage outfall) have the potential to affect critical habitat for the southern DPS green sturgeon, Sacramento River winter-run Chinook salmon, Central California Coast steelhead, and Central Valley steelhead. The project is unlikely to directly affect listed fish species. In-water work would be limited to the proposed outfall and placement of associated riprap. This work would be conducted in shallow-water areas where fish species are unlikely to be present. Cofferdams will be utilized to create a dry work area and to avoid potential impacts to aquatic habitat (AMM BIO-5). Project-related noise from installation of the temporary cofferdams could directly impact species, if present, through injury and/or behavioral shift. Therefore, a hydroacoustic evaluation would be conducted to determine the thresholds of impact. Furthermore, in-water work would be conducted outside the migratory period for listed fish species (AMM BIO-6). For steelhead, Chinook salmon, and green sturgeon, the migratory period occurs between November and June. Avoiding in-water work between November and June would reduce the likelihood project activities would adversely affect listed fish species. Water quality related BMPs would further minimize the potential for adverse effects from occurring.

Cumulative Impacts

As discussed, the Build Alternative would not adversely effect on threatened and endangered animal species or habitat with incorporation of AMM BIO-2 and AMM BIO-5 through AMM BIO-7. Therefore, the Build Alternative would not contribute to cumulative effects on listed species.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Project Features

PF BIO-9: A Caltrans approved biologist will conduct an educational program to provide information on protected species and the habitats that are applicable to the study area.

Avoidance and Minimization

AMM BIO-2: Limit in-water work to the smallest area possible.

AMM BIO-5: Use cofferdams to create a dry work area and avoid potential impacts to aquatic habitat for wildlife.

AMM BIO-6: No in-water work during fish migration periods (November through June).

AMM BIO-7: Conduct a hydroacoustic evaluation of potential effects on protected fish species if pile driving is necessary for installation of cofferdams.

See Appendix C for the full text of AMM BIO-2, and AMM BIO-5 through AMM BIO-7.

Mitigation Measures

No mitigation would be required.

2.3.6 INVASIVE SPECIES

REGULATORY SETTING

On February 3, 1999, President William J. Clinton signed EO 13112 requiring federal agencies to combat the introduction or spread of invasive species in the U.S. The order defines invasive species as “any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem whose introduction does or is likely to cause economic or environmental harm or harm to human health.” FHWA guidance issued August 10, 1999, directs the use of the state’s invasive species list, maintained by the California Invasive Species Council to define the invasive species that must be considered as part of the NEPA analysis for a proposed project.

AFFECTED ENVIRONMENT

Unless otherwise noted, information in this section is based on the NES prepared for the proposed project (October 2021).

The study area for invasive species includes all areas of ground disturbance and aquatic disturbance that would occur under the proposed project. The invasive plant species listed in Table 2.3-5 were identified in numerous locations within the landscaped and ruderal areas and along surface roads within the BSA. Invasive plants observed include a broad range of species ranging from trees (such as Brazilian pepper trees and Ngaio trees) to grasses and weeds (such as yellow star thistle, veldt grass, and smilograss), and aquatic species (such as sea figs). Invasive birds, mammals, amphibians, reptiles, or fish were not observed in the BSA.

Table 2.3-5 Invasive Species Observed in the BSA

Scientific Name	Common Name
Acacia melanoxylon	blackwood acacia
Avena fatua	wild oat
Bromus diandrus	ripgut brome
Carduus pycnocephalus	Italian thistle
Carpobrotus chilensis	sea fig
Centaurea solstitialis	yellow star thistle
Conium maculatum	poison hemlock
Convolvulus arvensis	field bindweed
Ehrharta erecta	veldt grass
Eucalyptus camaldulensis	river red gum
Eucalyptus globulus	blue gum eucalyptus
Festuca perennis	Italian ryegrass
Foeniculum vulgare	fennel
Hirschfeldia incana	short-podded mustard
Lactuca serriola	prickly lettuce
Lepidium latifolium	broad-leaf pepperwort
Malva parviflora	cheeseweed mallow
Myoporum laetum	Ngaio tree
Piptatherum miliaceum (*Stipamiliacea* var. *miliacea*)	smilograss

Scientific Name	Common Name
Plantago lanceolate	English plantain
Polypogon monspeliensis	rabbitsfoot grass
Raphanus sativus	wild radish
Rubus armeniacus	Himalayan blackberry
Rumex crispus	curly dock
Schinus terebinthifolia	Brazilian pepper tree

Source: Horizon Water & Environmental 2020

ENVIRONMENTAL CONSEQUENCES

No Build Alternative

Under the No Build Alternative, the existing roadways would remain unchanged except for planned and programmed improvements outside of the BSA. Disturbance of invasive plants and soil within the BSA would not occur. The No Build Alternative would have no effect on the spread or introduction of invasive species.

Build Alternative

The Build Alternative would disturb invasive plants and soil within the BSA. The BSA is known to contain several invasive plant species, construction activities could lead to the spread or introduction of invasive plants elsewhere. Since no invasive animal species were observed within the BSA, the Build Alternative would be unlikely to result in the spread of invasive animals.

Temporary Construction Impacts

Construction of the Build Alternative could spread invasive plant species to areas where they are absent outside of the BSA if invasive plants are removed during clearing, grubbing, and construction and are not disposed of or transported correctly.

Cumulative Impacts

Cumulative effects from invasive species would occur if planned and foreseeable development in the area, when taken in combination with the proposed project, would result in the spread or distribution of invasive species. Caltrans does not anticipate this project would appreciably contribute to the spread of invasive species in the region above and beyond what is likely to occur due to urbanization. Caltrans will take measures to avoid and reduce the further spread of invasive species within the project area. Given this, there would be no cumulative effect related to invasive species.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Project Features

PF BIO-10: The project will be managed to reduce and minimize the propagation of invasive weeds through implementation of standard Caltrans BMPs.

PF BIO-11: The landscaping included in the project will not use species listed on the California list of invasive species.

Avoidance and Minimization

No avoidance and/or minimization measures would be required.

Mitigation Measures

No mitigation would be required.

3.0 CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) EVALUATION

3.1 DETERMINING SIGNIFICANCE UNDER CEQA

The proposed project is a joint project between 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 actions required by applicable federal environmental laws for the proposed project are being, or have been, carried out by Caltrans pursuant to 23 United States Code Section 327 (23 USC 327) and the Memorandum of Understanding dated December 23, 2016, and executed by FHWA and Caltrans. 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 proposed project and ways to mitigate each significant effect. If the proposed project may have a significant effect on any environmental resource, then an EIR must be prepared. Every significant effect on the environment must be disclosed in the EIR and mitigated if feasible. In addition, the CEQA Guidelines list several "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 the proposed project and CEQA significance.

3.2 CEQA ENVIRONMENTAL CHECKLIST

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

Project features, which can include both design elements of the proposed project and standardized measures that are applied to all or most Caltrans projects such as Best Management Practices (BMPs) and measures included in the Standard Plans and Specifications or as Standard Special Provisions, are considered to be an integral part of the proposed project and have been considered prior to any significance determinations documented below. The annotations to this checklist are summaries of information contained in Sections 2.1, Human Environment through 2.3, Biological Environment.

3.2.1 AESTHETICS

Would the proposed project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☒	☐
c) Substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced	☐	☐	☒	☐

Would the proposed project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
from publicly accessible vantage point). If the proposed project is in an urbanized area, would the proposed project conflict with applicable zoning and other regulations governing scenic quality?				
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

a) Have a substantial adverse effect on a scenic vista?

Less than Significant Impact. From the west side of the interchange, viewers have unrestricted scenic vistas of San Francisco Bay, Angel Island, Golden Gate Bridge, the San Francisco skyline, and Mount Tamalpais. These resources are also visible from within the interchange, but the views are intermittently obstructed by existing transportation infrastructure and signage. Views from the east side of the interchange are also intermittently obstructed by transportation infrastructure as well as nearby commercial and residential buildings in Emeryville.

The proposed project would replace the existing overcrossing structures with new overcrossing structures of a similar mass and scale. Additionally, a bicycle/pedestrian overcrossing (BPOC) structure would be constructed across I-80 on the south side of the interchange. Refer to Figure 2.1-3 through Figure 2.1-20 in Section 2.1.10, Visual/Aesthetics for a comparison of existing conditions photographs to simulated views of the proposed project.

These changes would not affect unrestricted views on the west side of the interchange. While the new BPOC would be taller than existing structures within the interchange, views of distant vistas from the I-80 corridor would still be visible through the BPOC structure. Existing partially obstructed views of scenic vistas would not change substantially and the impact would be less than significant.

b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

Less Than Significant Impact. There are no state scenic highways or highways eligible for such designation located within the visual study area (VSA). No rock outcroppings or other similar features would be altered. The proposed project would require tree removal; however, all removed trees would be replaced or replanted within the project limits on site according to standard Caltrans processes outlined in project features (PF) PF VIS-3 through PF VIS-5 and AMM BIO-1 (see Appendix C for the full text of these project features). Therefore, the impact would be less than significant.

c) Substantially degrade the existing visual character or quality of the site and its surroundings?

Less than Significant Impact. The proposed project would result in temporary and permanent changes to the visual environment within the VSA. Temporary visual impacts from short-term construction activities are anticipated. Construction activities required for the proposed project would include excavation, drilling, dewatering, pavement demolition, bridge demolition, mass grading, concrete form work, pavement installation, storm system installation, highway planting and irrigation, sign installation, striping operations, and traffic control.

Construction of the proposed project would comply with all applicable construction regulations, standards, and procedures including BMPs. Project construction would be completed with standard construction equipment and protocols as described in Section 1.0, Proposed Project. These protocols and equipment are required for all Caltrans projects and are not considered mitigation. Visual impacts during construction would be temporary in nature and would not substantially degrade the existing visual character or quality of the VSA. Therefore, construction impacts would be less than significant.

Once operational, the proposed project would moderately alter existing views within the VSA. The proposed project would replace existing overcrossing and ramp structures on I-80 and add a new BPOC structure. While the BPOC would be taller than existing infrastructure within the interchange, it would be consistent with similar structures along I-80, particularly the existing BPOC at University Avenue.

While changes under the proposed project would result in more manmade features and less vegetation, the I-80 corridor would continue to be the dominant visual feature in the area. Incorporation of PF VIS-1 (preservations of existing vegetation) and PF VIS-4 (landscape plantings) would ensure that any removed highway plantings would be replaced within the existing interchange, and new structures such as retaining walls or bridges, would undergo aesthetic treatments consisting of color, texture, and/or patterning to ensure consistency within the existing transportation corridor (refer to

Appendix C for the full text of all project features). Additionally, the replacement of all removed trees at a 1:1 ratio within the existing interchange per avoidance and minimization measure PF VIS-3 through PF VIS-5 and AMM BIO-1 would avoid impacts related to tree removal. With incorporation of PF VIS-1, PF VIS-4, and AMM BIO-1, negative visual changes from the proposed project would be minimized and would not substantially degrade the existing visual character and visual quality of the VSA. Therefore, this impact would be less than significant.

d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Less than Significant Impact. During construction, new sources of light or glare would be installed within construction staging areas and along new on-and off-ramps throughout the VSA. This incremental increase in nighttime lighting would be temporary in nature. Adherence to appropriate light and glare screening measures as required by Caltrans, such as downward cast lighting would be employed at construction staging areas. With adherence to standard measures as described in PF VIS-6 (light and glare minimization), construction impacts would be less than significant.

Once operational, the proposed project would result in more man-made features and a change in vegetation and would include new lighting fixtures that would introduce a new source of light and glare at night. The incremental increase in nighttime lighting would not be noticeable in the context of existing nighttime lighting in the area. Therefore, the proposed project would continue to be consistent with the existing transportation corridor setting and would not adversely affect the key elements of visual character within the visual impact study area. This impact would be less than significant, and no mitigation would be required.

3.2.2 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 proposed project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒

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))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
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?	☐	☐	☐	☒

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?

And

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?

No Impact. According to the California Department of Conservation's California Important Farmland Finder, there is no Prime, Unique, or Statewide Importance Farmland located within proximity to the project area.[1] In addition, there is no land protected under a Williamson Act within the vicinity of the project area and the proposed

[1] California Department of Conservation, 2016. California Important Farmland Finder. Available: https://maps.conservation.ca.gov/DLRP/CIFF/. Accessed: March 2020.

project would not conflict with existing zoning for agricultural use. Therefore, no impact would occur.

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))?

And

d) Result in the loss of forest land or conversion of forest land to non-forest use?

No Impact. The urbanized project area does not contain any forest land as defined in Public Resources Code section 12220(g), timberland as defined by the Public Resources Code section 4526, or property zoned for Timberland Production as defined by Government Code section 51104(g). There are no forest lands adjacent to the project area. Therefore, the proposed project would not conflict with existing zoning for forest land or timberland. No impact would occur.

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?

No Impact. No farming operations or forest lands exist on or near the project area, therefore, the proposed project would not result in the loss of farmland or conversion of forest land. No impact would occur.

3.2.3 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 proposed project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☐	☒

Information in this section is based on the Air Quality Report (October 2021).

a) Conflict with or obstruct implementation of the applicable air quality plan?

No Impact. The proposed project is included in the Plan Bay Area 2050 financially constrained Regional Transportation Plan (RTP) (ID 17-01-0037) which was found to conform by the Metropolitan Transportation Commission (MTC), and FHWA and Federal Transit Administration made a regional conformity determination finding on December 17, 2018. The proposed project is also included in MTC's financially constrained 2019 Regional Transportation Improvement Program (TIP) (ID ALA170002). The MTC determined that the 2019 Regional TIP conformed with FHWA and Federal Transit Administration on December 17, 2018. The design concept and scope of the proposed project is consistent with the project description in the 2019 RTP and Regional TIP, and the "open to traffic" assumptions of the MTC's regional emissions analysis. The proposed project was found to be in regional conformance with the State Implementation Plan and would not conflict with implementation of applicable local air quality plans. Therefore, there would be no impact.

b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non- attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

And

c) Expose sensitive receptors to substantial pollutant concentrations?

Less than Significant Impact. The project area is in the San Francisco Bay Area Air Basin, under jurisdiction of the Bay Area Air Quality Management District (BAAQMD). The Basin is designated nonattainment for ozone (O_3), particulate matter (PM_{10} and $PM_{2.5}$) for state standards and nonattainment for O_3 and $PM_{2.5}$ for federal standards. Because the proposed project is included in a conforming RTP and TIP, emissions of ozone precursors from project-related traffic are not anticipated to cause or contribute to, or worsen, any violations of the federal air quality standards for ozone. Furthermore, the proposed project would be expected to improve traffic flow and relieve congestion in the I-80/Ashby Avenue Interchange (interchange), which would be expected to reduce vehicle idling and associated emissions. The direct access to Shellmound Street from westbound I-80 along with the proposed project's enhanced bicycle and pedestrian access would result in a reduction in local traffic. The impact would be less than significant.

d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

No Impact. The proposed project would replace the existing interchange with a redesigned interchange and a new BPOC structure. The new improvements would be a similar use to existing conditions and would not include any new sources of emissions, including any that would create objectionable odors. Therefore, there would be no impact, and no mitigation is required.

3.2.4 BIOLOGICAL RESOURCES

Would the proposed project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☒	☐
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?	☐	☐	☒	☐
c) Have a substantial adverse effect on federally protected wetlands as defined by	☐	☒	☐	☐

Would the proposed project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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?				
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?	☐	☐	☐	☒
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☒	☐
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?	☐	☐	☐	☒

Information in this section is based on the Natural Environment Study (NES) prepared for the proposed project (November 2021).

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?

And

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?

Less than Significant Impact. The proposed project could affect eight special-status species, which are identified below, along with their listing status:

- *Acipenser medirostris* (green sturgeon – southern DPS), federally threatened
- *Oncorhynchus mykiss* (steelhead – Central California Coast DPS), federally threatened
- *Oncorhynchus mykiss* (steelhead – Central Valley DPS), federally threatened
- *Oncorhynchus tshawytscha* (Chinook salmon – Sacramento River winter-run ESU), federally endangered/state Endangered
- *Spirinchus thaleichthys* (longfin smelt), federal candidate/state threatened
- *Emys* (=*Actinemys*) *marmorata* (western pond turtle), State Species of Special Concern
- *Circus hudsonius* (formerly *cyaneus*) (northern harrier), State Species of Special Concern
- *Elanus leucurus* (white-tailed kite), state fully protected

Construction of the new outfall would permanently impact up to 0.007 acre within the San Francisco Bay, which is federally-designated critical habitat for the southern DPS green sturgeon, Sacramento River winter-run Chinook salmon, central California coast steelhead, and Central Valley steelhead. However, the outfall structure would be located in shallow water along the shoreline where the fish listed above are not expected to occur. Furthermore, impacts to green sturgeon, Central Valley and Central California Coast steelhead DPS, Chinook salmon, and longfin smelt would be avoided and/or minimized with implementation of standard BMPs as outlined in AMM BIO-2 (minimize impacts to aquatic resources), AMM BIO-5 (avoid in-water work in the San Francisco Bay during fish migration periods), and AMM BIO-6 (use of coffer dams to create a dry work area). With incorporation of these avoidance and minimization measures into the proposed project, the loss of critical habitat for green sturgeon,

Central Valley and Central California Coast steelhead DPS, Chinook salmon, and longfin smelt would be less than significant and no mitigation would be required for the purposes of CEQA.

Western pond turtle could be indirectly impacted by project activities that affect water quality. Project features such as PF WQ-2 (compliance with water quality regulations) would ensure proper adherence to the requirements of the Caltrans MS4 permit and other regulatory agency requirements, which would avoid and/or minimize permanent effects on water quality. Furthermore, the proposed project would not affect the primary western pond turtle habitat within the BSA, which is present in the Aquatic Park lagoon. Therefore, impacts to the western pond turtle would be less than significant and no mitigation would be required.

Construction of the proposed project could result in indirect noise and vibration impacts to nesting northern harrier and white-tailed kite. Nesting birds protected by the Migratory Bird Treaty Act potentially occurring throughout the project area could also be impacted by construction and noise impacts. In both cases, the proposed project could result in indirect impacts on active nests if present near the project area. Implementation of standard BMPs as outlined in AMM BIO-3, (nesting bird avoidance) would avoid impacts to active nests of northern harrier and white-tailed kite near the project area. Therefore, impacts would be less than significant, and no mitigation would be required.

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?

Less than Significant with Mitigation. The proposed project would result in fill within 0.012 acre of palustrine emergent wetlands within the USACE's jurisdiction near Radio Tower Pond. This wetland area is separated from the Radio Tower Pond by a berm dominated by upland vegetation and is underlain by asphalt associated with the Radio Tower parking lot. Additionally, construction of the outfall would result in 0.007 acre of permanent impacts to USACE jurisdiction non-wetland waters in the San Francisco Bay from construction of the new outfall. Work within the San Francisco Bay will be limited to the smallest area possible to complete proposed construction of the outfall. Implementation of a cofferdam, as outlined in AMM WQ-4 (minimization of impacts to aquatic resources) and AMM BIO-4 (limitation of in-water work area to smallest area possible), would further avoid water quality impacts on federally protected or potentially affected wetlands. Construction within the San Francisco Bay will last approximately 35 working days.

<u>Mitigation Measure</u>

Mitigation Measure BIO-1 would be required pursuant to Section 404 of the Clean Water Act for unavoidable impacts to aquatic resources within the BSA. This measure would require that impacted aquatic resources be replaced at a minimum 1:1 ratio for permanent impacts (impact area to compensation area) to assure there is a no net loss of waters of the U.S., and the final mitigation ratio will ultimately be determined through Caltrans' coordination with USACE during the permitting phase of this project (for the full text of this measure, refer to Appendix C). With implementation of Mitigation Measure BIO-1, and adherence to AMM WQ-4 and AMM BIO-2, impacts to wetlands and waters would be less than significant with mitigation.

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?

No Impact. The Model Yacht Basin and Radio Tower Pond are muted tidal features and have connection to the San Francisco Bay via existing culverts. They are not considered migratory corridors nor expected to be routinely used by migratory or anadromous aquatic species. The ponds do not provide connections to stream habitats, and so would not be considered part of migratory corridors for anadromous fish. Work within the San Francisco Bay would be limited to shallow coastal areas where migratory fish are not expected to occur.

The area within the BSA is highly urbanized and developed leaving only small, disconnected patches of habitat. Given this, construction and operation of the proposed project would not impact wildlife or fish movement through the project area. No impact would occur.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Less than Significant Impact. A total of 445 trees are present within the BSA. Some of these trees are subject to regulation under local tree ordinances in Emeryville and Berkeley. Trees within the BSA provide aesthetic value and other benefits to the community and could provide habitat and food sources for local wildlife. A maximum of 149 trees would be removed by the proposed project and would be replaced at a 1:1 ratio as required in avoidance and minimization measure AMM BIO-1. All replacement planting would be accommodated within the existing interchange. Therefore, this impact would be less than significant, and no mitigation would be required.

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?

No Impact. The project footprint does not overlap with an adopted conservation plan, natural community conservation plan or other approved local, regional, or state habitat conservation plan. Construction and operation of the proposed project would not conflict with any such plans and no impact would occur.

3.2.5 CULTURAL RESOURCES

Would the proposed project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☐	☒	☐
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☐	☐	☒

Information in this section is based on the Historic Property Survey Report (HPSR) prepared for the proposed project (August 2020).

a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?

No Impact. The Area of Potential Effects (APE) contains the KRE Radio Station that qualifies for listing on the National Register of Historic Places and California Register of Historical Resources. However, the boundaries of the historic property are limited to the KRE Radio Station building and do not include the area where proposed improvements along Bay Street would modify guy wires supporting the radio tower. No other listed or

potentially eligible resources are present within the project area. Therefore, no impact would occur.

b) Cause a substantial adverse change in the significance of an archaeological resource as defined in §15064.5?

Less than Significant Impact. While no archaeological or Native American cultural resources have been recorded in the APE, it is possible that an unrecorded resource, such as cultural materials or human remains, could be unearthed during construction. This could result in damage to the resource and would be considered an adverse effect.

As discussed in Section 4.0, Comments and Coordination, a field review of the project area was conducted on February 13, 2020, by Chairperson Perez and two other tribal representatives, along with Caltrans District 4 archaeology personnel, Kathryn Rose and Katie Jorgensen. Chairperson Perez expressed concern for the potential of deeply buried cultural resources beneath the fill on which I-80 and the interchange has been constructed. Project team members shared the general excavation would only be up to 10 feet, while cast-in-drilled-hole (CIDH) pile foundations would require drilled excavations of approximately 80 feet. Thus, while possible, the likelihood of discovering deeply buried cultural resources is low.

Furthermore, potential impacts would be minimized by halting work until the resource can be evaluated by a qualified archaeologist (PF CUL-1) and notifying the Most Likely Descendent of human remains (PF CUL-2). With incorporation of these project features, impacts to archaeological resources are expected to be less than significant.

c) Disturb any human remains, including those interred outside of dedicated cemeteries?

No Impact. No previously recorded archaeological or Native American cultural resources are within the APE. Implementation of PF CUL-2 would require the halting of construction should human remains be discovered within the project footprint and would adhere to State Health and Safety Code Section 7050.5 and Public Resources Code Section 5097.98 regarding the treatment of discovered remains. With incorporation of PF CUL-2 into the project, there would be no impacts to human remains.

3.2.6 ENERGY

Would the proposed project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☒	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☐	☒	☐

a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

And

b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Less than Significant Impact. The proposed project is not a capacity increasing project. The proposed project would result in direct energy use during construction. However, the energy expenditure would be offset by the long-term operational energy savings associated with reduced local traffic congestion. The proposed project would increase alternative modes of transportation, thereby reducing direct energy consumption through bicycle and pedestrian infrastructure improvements. The impact would be less than significant.

3.2.7 GEOLOGY AND SOILS

Would the proposed project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Directly or indirectly cause potential substantial adverse effects including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42?	☐	☐	☐	☒
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
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 proposed project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐

Would the proposed project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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 wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒
f) Directly or indirectly destroy a unique paleontological resource or site or unique geological feature?	☐	☐	☐	☒

Information in this section is based on the Preliminary Geotechnical Report prepared for the proposed project.

a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42?

No Impact. During an earthquake, surface rupture occurs when the ground surface is broken as a result of fault movement. Surface rupture mostly occurs along active faults. The project area is not within the Alquist-Priolo Special Study Zone and no known or mapped active faults pass through the project area. Therefore, the potential for ground surface rupture due to faulting is extremely low to non-existent. There would be no impact.

ii) Strong seismic ground shaking?

or

iii) Seismic-related ground failure, including liquefaction?

Less than Significant Impact. The project area is in a liquefaction zone. Regional faults could result in strong seismic groundshaking. The project area is susceptible to liquefaction due to the presence of loose, saturated and cohesionless soils present in the project area. During construction, groundshaking could pose a risk to workers through the collapse of structures. Adherence to PF GEO-1 would ensure construction worker safety in the event of groundshaking by requiring employers to adhere to the Occupational Safety and Health Act and Caltrans's hazard-specific standards, as well as standard design and construction guidelines.

Strong groundshaking could also occur during project operation, threatening the collapse of structures and impacts to motorists travelling through the project area. Adherence to PF GEO-3 would require incorporation of findings from structure foundation reports and geotechnical design reports, as well as standard Caltrans design features that would ensure the project design would accommodate the risks of groundshaking. All project components including the foundations would be designed to meet current Caltrans design standards for structures. Caltrans seismic design procedures would ensure structural integrity, including addressing risks from liquefaction.

With incorporation of PF GEO-1, PF GEO-3, and all standard Caltrans seismic design procedures, impacts from groundshaking and liquefaction during construction and operation would be less than significant.

iv) Landslides?

No Impact. The project area and its surroundings are flat and highly urbanized. The project area does not have any steep slopes or hillsides that would be susceptible to landslides. Further, the project area is not located in a landslide hazard zone. Landslides would not pose a risk during project construction or operation. There would be no impact.

b) Result in substantial soil erosion or the loss of topsoil?

No Impact. Soil erosion related to the project would be avoided with the incorporation of standard Caltrans BMPs included in PF BIO-2, PF WQ-1, PF WQ-10. Such BMPs would prevent erosion and the loss of topsoil by ensuring appropriate drainage on-site during construction and permanently stabilizing slopes with vegetation, netting, blankets, and/or paving where necessary. No impact would occur.

c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the proposed project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

Less than Significant Impact. The proposed project would not result in settlement, subsidence, collapse, lateral spreading, or landslide on- or off-site. As the project area is characterized by flat topography, landslide and lateral spreading would not pose a risk to the proposed project or the surrounding area. Furthermore, all project components including the foundations would be designed to meet current Caltrans design standards for structures. Caltrans seismic design procedures would ensure structural integrity including potential for subsidence and liquefaction. This impact would be less than significant.

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?

No Impact. Based on available as-built boring data, expansive clays were not encountered near the surface. The proposed project would not create substantial risk to life or property due to being located on expansive soil and no impact would occur.

e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

No Impact. The proposed project would not require the use of septic tanks during project construction or operation. There would be no impact.

f) Directly or indirectly destroy a unique paleontological resource or site or unique geological feature?

No Impact. There are no documented paleontological resources in or near the project area. However, fossiliferous Pleistocene-age deposits may be present within the study area beneath the Holocene-age sediments starting at depths of 25 to 40 feet below the existing ground surface. Excavation for CIDH pile foundations would extend approximately 80 feet below the existing ground surface and could therefore encounter unrecorded paleontological resources, potentially resulting in direct damage to or destruction of unique paleontological resources or unique geologic features. Implementation of AMM PAL-1 would require preparation of a Paleontological Mitigation Plan and would entail full-time monitoring if Pleistocene deposits are observed or discovered during ground disturbing activities. In addition, work in the immediate vicinity of a discovery would be halted until it can be evaluated by a qualified paleontologist. See Appendix C for specific details about AMMs. With incorporation of AMM PAL-1, no the impact would be less than significant.

3.2.8 GREENHOUSE GAS EMISSIONS

Would the proposed project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	☒

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Less than Significant Impact. Greenhouse gases emitted during construction would be temporary and would be offset by anticipated emissions reduction during project operation.

As shown in Table 3.2-1, the estimated annual CO_2 emissions for the Build Alternative during the opening year (2025), horizon year (2040), and design year (2045) of the proposed project would be lower than the emissions for the No Build Alternative. This difference is due to the reduction in regional VMT under the Build Alternative, which would result from improved connectivity and circulation within the intersection. The estimated annual CO_2 emissions for the Build and No Build Alternative would be lower in the opening year (2025) compared to the existing year (2018) because federal and state fuel economy standards are expected to reduce greenhouse gas (GHG) emissions over time; however, the CO_2 emissions for the Build and No Build Alternative would be higher in the horizon year (2040) and design year (2045) compared to the existing year (2018). This is because regional VMT is expected to increase about 20 and 25 percent with or without the proposed project by the horizon year (2040) and design year (2045), respectively. This would exceed the rate of GHG emission reductions currently expected through federal and state regulatory programs.

Because the proposed project would reduce GHG emissions below levels anticipated under the No-Build Alternative, this impact would be less than significant.

Table 3.2-1 Operational CO_2 Emissions

	Existing Conditions (2018)	Opening Year (2025)		Horizon Year (2040)		Design Year (2045)	
		No Build	Build	No Build	Build	No Build	Build
Daily VMT	2,071,480	2,239,684	2,235,317	2,499,264	2,494,434	2,585,791	2,580,806
CO_2 (metric tons/year)	273,500	270,600	270,100	274,400	273,800	278,900	278,400

Source: Baseline Environmental Consulting, 2020

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

No Impact. The proposed project is included in the current RTP and TIP, both of which contain regional strategies for reducing GHG emissions from transportation sources. One of the main strategies to reduce GHG emissions is to make transportation systems more efficient by reducing congestion. The proposed project would improve travel within the I-80/Ashby Avenue interchange by reconfiguring the I-80/Ashby Avenue connector ramps, providing multimodal transportation options, and increasing bicycle and pedestrian connectivity and safety. No impact would occur.

3.2.9 HAZARDS AND HAZARDOUS MATERIALS

Would the proposed project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b) Create a significant hazard to the public or the environment through	☐	☐	☒	☐

Would the proposed project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒
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 proposed project result in a safety hazard for people residing or working in the project area?	☐	☐	☒	☐
f) Impair implementation of or physically interfere with an adopted emergency response	☐	☐	☒	☐

Would the proposed project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
plan or emergency evacuation plan?				
g) 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?	☐	☐	☐	☒

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Less than Significant Impact. Project construction would require the transport, use, and disposal of products and the excavation of soil that may contain contaminants such as petroleum hydrocarbons, metals, and asbestos. With the incorporation of AMM HAZ-1 and AMM HAZ-3, project construction would not create a significant hazard to the public or the environment through the transport, use, or disposal of, hazardous materials. See Appendix C for specific information about AMMs.

As a transportation infrastructure project, project operations would not directly involve the routine use, disposal, or transportation of hazardous materials and would not have a significant impact on the public or the environment. With implementation of AMM HAZ-1 and AMM HAZ-3, this impact would be less than significant, and no mitigation would be required.

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?

Less than Significant Impact. Excavation could encounter contaminated groundwater as well as other potential risks from existing contaminated sites. Refer to Figure 2.2-4 for a map of contaminated sites near the project area. Construction would entail large areas of grading, installation of road surfaces, drainage improvements and cut/fill

embankments. Project construction would also require vehicles trips to deliver materials and remove waste products or excavated soil. Excavation and grading could encounter residual contamination associated with previous residential and commercial uses on the project area. There is the potential for the release of hazardous materials into the environment. Adherence to AMM HAZ-1 (perform a Preliminary Site Investigation during the final design phase), AMM HAZ-2 (store and characterize groundwater from dewatering), and AMM HAZ-3 (prepare and implement a site safety plan) would require additional site testing prior to construction, development of a site safety plan, and retention of contaminated groundwater in temporary on-site tanks to avoid exposure of construction workers or further spread of contamination.

During operation, automobile traffic could result in collisions that result in the accidental release of substances such as fuel, lubricants, or hazardous freight. In order to account for these potential hazards, the proposed project would be designed and engineered to standard Caltrans engineering requirements for roadway slopes, curvature, speeds, storm water treatment, lane orientation, and other standard roadway design criteria. Compliance with these standards would minimize the potential for hazardous material or waste release under accident conditions. The proposed project would be designed and operated consistent with all applicable standards and regulations for safety and would not present a unique or above-average risk for accidents involving hazardous materials. With implementation of AMM HAZ-1, AMM HAZ-2, and AMM HAZ-3, this impact would be less than significant, and no mitigation would be required.

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

No Impact. The closest school to the project area is Rosa Parks Elementary School, 1.1 miles away. As a transportation network, the proposed project would not result in the use or frequent handling of hazardous materials. Due to the distance between the project area and the nearest school, it is unlikely that the proposed project would result in impacts associated with hazardous emissions or hazardous materials. No impact would occur.

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?

No Impact. The project area is not included on a list of hazardous materials sites compiled pursuant to Government Code Section 6596.5. No impact would occur.

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?

And

f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Less than Significant Impact. The closest fire station to the project area is the Alameda County Fire Station No. 35, approximately 1 mile to the southeast. The Emeryville Police Department is located 1 mile north of the interchange. Although no property owned or used by emergency service providers would be acquired, construction activities have the potential to temporarily disrupt roadway access, potentially affecting emergency access. Adherence to PF UTL-2 would require emergency responders be notified prior to temporary road closures or detours. Refer to Appendix C for the full text of this project feature. With implementation of PF UTL-2, this impact would be less than significant.

g) 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?

No Impact. The project area is not located within a Fire Hazard Severity Zone (FHSZ), demonstrating a low susceptibility to fire hazards. Construction and operation of the proposed project would represent little to no threat of exposing people or structures to fire hazards. Therefore, no impact would occur.

3.2.10 HYDROLOGY AND WATER QUALITY

Would the proposed project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐
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?				
i) result in a substantial erosion or siltation on- or off-site;	☐	☐	☐	☒
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	☐	☐	☐	☒
iii) create or contribute runoff water which would exceed the capacity or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;	☐	☐	☐	☒
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?	☐	☐	☒	☐
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?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☒	☐
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?	☐	☐	☐	☒
j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

a) Violate any water quality standards or waste discharge requirements?

Less than Significant Impact. Construction of the proposed project would involve ground disturbing activities such as excavation, trenching, grading, demolition, and shrub removal. Construction activities could result in runoff that contains sediment and other pollutants. Sources of sediment include uncovered or improperly covered

stockpiles, unstable slopes, bare soil, construction staging areas, and construction equipment not properly maintained or cleaned. Polluted runoff could degrade water quality if not properly controlled. Therefore, the proposed project would have the potential to temporarily affect water quality. The estimated area of disturbed soil for the proposed project is 34.15 acres.

Potential effects to water quality would be minimized in accordance with the 2016 Caltrans Statewide SWMP through the application of AMM WQ-1. This measure includes construction erosion and sediment control BMPs, storm monitoring, and maintenance activities to prevent any construction materials or debris from entering storm drains or drainage ditches within the project area. AMM WQ-2 would also be applied to minimize construction-period effects and permanent water quality impacts. This measure includes full revegetation of all graded and disturbed areas. See Appendix C for the full text of these AMMs.

During construction, construction vehicles would be stored, refueled, and repaired/maintained at the project area. This presents a risk of accidental spills or releases of fuels, oils, or other potentially toxic materials. An accidental release could pose a threat to water quality if contaminants enter storm drains, open channels, or surface water receiving bodies. Waste management and materials pollution control measures would be applied through PF WQ-5 to avoid accidental spills or accidental releases that could affect water quality. See Section 1.0 for specific details about project features. This impact would be less than significant.

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)?

Less than Significant Impact. Groundwater conditions would be verified during the final design phase, but groundwater is expected to occur between 5 to 10 feet below ground surface. As such, some dewatering would be required during construction. However, dewatering activities would comply with the Caltrans Standard Specifications and Field Guide to Construction Site Dewatering. The proposed project would not use groundwater during operation. Therefore, this impact would be less than significant.

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?

i) Result in a substantial erosion or siltation on- or off-site;

ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;

iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;

And

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?

No Impact. The increased impervious surface area for the proposed project would generate minor increases in stormwater peak flow rates and runoff volumes. The proposed project would not result in substantial erosion or siltation and increases in surface runoff would be minimized because Caltrans would require the contractor to prepare and comply with a stormwater pollution prevention plan (SWPPP) (PF WQ-3). Existing drainage systems in the project area have poor integrity and would therefore be replaced by new pipes installed under I-80. Additionally, a new outfall would be added to replace the existing outfall north of Point Emery that is buried by accumulated sediment. Therefore, the project would improve drainage within the project area and there would be no impact.

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?

Less than Significant Impact. The proposed project would avoid and/or minimize permanent impacts related to stormwater pollution and capacity by incorporating new stormwater treatment facilities and replacing existing drainage systems that have poor integrity. The proposed project's temporary impacts would be addressed with construction BMPs included in AMM WQ-1, AMM WQ-2, and AMM WQ-3. Refer to Appendix C for the full text of these avoidance and minimization measures. With incorporation of these avoidance and minimization measures, the impact would be less than significant, and no mitigation would be required.

f) Otherwise substantially degrade water quality?

Less than Significant Impact. The number of dissolved contaminants, automotive oil, and grease contained in stormwater runoff would also increase. Adherence to standard protocols and regulation described in AMM WQ-1 and AMM WQ-2 would avoid adverse effects to water quality from oil, grease, and other chemical pollutants.

The proposed project would comply with Caltrans' guidelines on the application and use of chlorpyrifos-based pesticides for control of weeds and invasive plants for maintenance of vegetated areas. Diazinon or DDT would not be used. Caltrans' Vegetation Control Policy mandates preparation of a Vegetation Control Plan, which regulates the use and application of pesticides by trained personnel. The policy requires the use of the least toxic chemical that is available and effective to control the target plan species. Caltrans maintains a current listing of state-approved pesticides for use. Therefore, this impact would be less than significant.

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?

No Impact. The proposed project is a transportation infrastructure project and does not propose housing. Therefore, no impact would occur.

h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?

Less than Significant Impact. The proposed project would not add any structures to a 100-year flood hazard area. A small (less than one acre) area of fill in a portion of a 100-year flood hazard area associated with the KRE Radio Station property would be required. However, the new BPOC and interchange would not redirect or impede flood flows as the area is already paved with a vacant parking lot, and the proposed project would not change the topography of this area. Therefore, this impact would be less than significant.

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?

And

j) Inundation by seiche, tsunami, or mudflow?

No Impact. The Highway Design Manual (Caltrans, 2020) requires the proposed project design include appropriate measures to prevent flooding from surface runoff. In order to meet this requirement, the proposed drainage system would be designed to capture and convey stormwater runoff from the design storm in the project area. The drainage improvements, construction of a new outfall, in conjunction with stormwater BMPs application, would help minimize stormwater impacts due to surface runoff and/or sea level rise. The proposed project would not cause a significant or longitudinal encroachment. Therefore, no impact would occur.

3.2.11 LAND USE AND PLANNING

Would the proposed project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Physically divide an established community?	☐	☐	☐	☒
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the proposed 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?	☐	☐	☐	☒

a) Physically divide an established community?

No Impact. The proposed project includes modifying existing transportation infrastructure within an existing interchange to improve overall efficiency of the local transportation network and add bicycle. The proposed project also features pedestrian and bicycle safety improvements increasing mobility within the project area. Construction and operation of the proposed project would not physically divide an established community. No impact would occur.

b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the proposed 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?

No Impact. The land use study area surrounding the interchange consists of flat terrain developed with urban and commercial land uses interspersed with residential neighborhoods.

The Emeryville and Berkeley's general plans identify the interchange as an area that could benefit from improved circulation and enhanced mobility. MTC, as the regional transportation planning agency in the San Francisco Bay Area, has also included the proposed project in the RTP. Therefore, the project changes are accounted for in both local general plans and overarching, regional plans. Moreover, the proposed project would not require or result in changes to existing land uses or zoning in the project area. Although some property acquisitions would be required, such acquisition would be minimal and would not conflict with local plans (see Section 2.1.3, Community Impacts). The proposed project would not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction of the proposed project. Therefore, no impact would occur.

3.2.12 MINERAL RESOURCES

Would the proposed project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
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?	☐	☐	☐	☒

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?

And

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?

No Impact. The project area is located 9.8 miles away from the nearest known mineral resource of statewide, regional, or local value. The proposed project would not disturb protected mineral resources and no impact would occur.

3.2.13 NOISE

Would the proposed project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the proposed project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b) Generation of excessive ground borne vibration or ground borne noise levels?	☐	☐	☒	☐
c) For a project within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted within two miles of a public airport of public use airport, would the proposed project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Information in this section is based on the Noise Study Report (October 2021) prepared for the proposed project.

a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the proposed project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

And

b) Generation of excessive ground borne vibration or ground borne noise levels?

Less than Significant Impact. As presented in the discussion below, the proposed project would have a less than significant impact related to these topics.

Operation

FHWA Traffic Noise Model Version 2.5 (TNM 2.5) was used to provide representative predictions of future traffic noise levels at sensitive land uses in the project area, assuming the worst-case (loudest) traffic speeds and maximum lane capacities. At each modeled receptor, predictions were made for future worst-case traffic noise levels with and without the proposed project, and for the maximum noise level change with respect to existing conditions. Traffic noise impacts occur at a noise-sensitive land use if predicted design year noise levels exceed or approach the noise abatement criteria (NAC) of 67 A-weighted dB equivalent sound level (dBA Leq[h]) or if predicted design year noise levels increase substantially (by 12 dBA or more) over existing levels.

The existing noise environment throughout the project area varies by location, depending on site characteristics such as proximity to other roadways or noise sources, the relative elevation of roadways and receptors, and any intervening structures or topography.

As shown in Table 2.2-10 in Section 2.2.7, Noise and Vibration, both the No Build Alternative and the Build Alternative are expected result in increased noise levels over existing conditions by 0 to 10 dBA at most receivers. This is because traffic on I-80 is the primary source of noise in the project area. Because the proposed project would not add capacity to I-80, future noise levels would be similar under both the Build and No Build scenarios.

As noise impacts are expected to occur at these receiver locations, noise abatement was considered for the proposed project. Noise abatement in the form of sound walls was considered in the Noise Study Report prepared for the proposed project. There is no existing sound wall. As described in detail in Section 2.2.7, Noise, the cost of adding

suggested sound walls was determined not to be reasonable. Therefore, none of the new sound walls are recommended.

Though the future condition with the proposed project (2045 with project) would approach or exceed the NAC of 67 dBA, future noise levels with the no-project condition (2045 No Project) are also expected to exceed this threshold as increased traffic on existing roads would increase NAC in both scenarios. Additionally, no uses are proposed that would generate substantial ground borne vibration. Therefore, this impact would be less than significant, and no mitigation would be required.

Construction

The Emeryville and Berkeley Municipal Codes contain policies that regulate construction related noise for development. These policies require that:

- General construction noise on private and public projects shall be limited to weekdays from 7:00 am to 6:00 pm. Pile driving, and similarly loud activities shall be limited to weekdays from 8:00 am to 5:00 pm.
- Operating or causing the operation of any tools or equipment used in construction, drilling, repair, alteration, or demolition work between weekday hours of 7 pm and 7 am, or 8 pm and 9 am on weekends or holidays such that the sound therefrom creates a noise disturbance across a residential or commercial property line.
- Vibration. Operating or permitting the operation of any device that creates a vibration, which annoys or disturbs at least two or more reasonable persons of normal sensitiveness who reside in separate residences at or beyond the property boundary of the source, or at least 150 feet (46 meters) from the source, if on a public space or right-of-way is prohibited.

Construction phases would include excavation and grading, construction of bridge structures; miscellaneous concrete work; relocation of utilities; pacing, and installation of overhead signs and lighting. Construction noise would primarily result from the operation of heavy construction equipment and arrival and departure of heavy-duty trucks. The highest maximum instantaneous noise levels would result from paving and demolition activities. No pile driving would be required for the proposed project, so the generation of substantial ground borne noise and vibration is not anticipated.

For the purpose of the Noise Study Report (October 2021) prepared for the proposed project, general roadway construction noise levels were projected based on typical equipment and activity levels related to roadway construction activities. Typical construction noise levels at 100 feet and daytime noise level estimates for construction

of the proposed project are shown in Tables 15 and 16 of the Noise Study Report (October 2021).

Incorporation of PF NOI-1 through PF NOI-6 referenced in Section 2.2.7, Noise and Vibration, would reduce construction-period noise below 86 dBA and minimize the potential for noise impacts from project construction. Therefore, construction impacts would be less than significant, and no mitigation would be required.

c) For a project within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted within two miles of a public airport of public use airport, would the proposed project expose people residing or working in the project area to excessive noise levels?

No Impact. The proposed project is not within two miles of a private airstrip or airport land use plan. Therefore, no impact would occur.

3.2.14 POPULATION AND HOUSING

Would the proposed project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

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)?

And

b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

No Impact. The proposed project would improve traffic movement throughout the project area, but it would not increase the capacity of I-80 or the local roadway network. The proposed project is not anticipated to be growth inducing. The proposed project would not include right of way relocations or the purchase and displacement of housing or people. There would be no impact.

3.2.15 PUBLIC SERVICES

Would the proposed project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) 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?	☐	☐	☐	☒

a) Would the proposed 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 and Police Protection

Less than Significant Impact. The closest fire station to the project area is Alameda County Fire Station Number 35, located approximately 0.3 mile to the east of the project area. The closest police station is the Emeryville Police Department located approximately one mile south of the project area. Although no property owned or used by emergency service providers would be acquired, construction activities would have

the potential to temporarily disrupt roadway access within the project area, potentially affecting emergency response times. Adherence to AMM UTL-2 would ensure that emergency service providers are notified in advance of any roadway closure or change in local access. This would allow emergency service providers to be aware of detours in advance and plan alternate routes where needed. Additionally, the proposed project would not cause growth that would increase demand for fire or police services. Therefore, with implementation of AMM UTL-2, this impact would be less than significant.

Schools

No Impact. The proposed project does not have the potential to directly or indirectly induce population growth in the project area. Given this, the proposed project would not result in increased demand for schools or result in impacts related to new or expanded school facilities. Therefore, no impact would occur.

Parks and Other Public Facilities

No Impact. Open space and other public facilities such as libraries and community centers are typically provided to serve the residents of their respective jurisdictions. The proposed project would not directly or indirectly induce population growth. Given this, the proposed project would not increase demand for open space or other public facilities. Additionally, a temporary detour along the San Francisco Bay Trail would not impact access to public recreational resources including Point Emery, as pedestrian and bicycle access would be maintained. Therefore, no impact would occur.

3.2.16 RECREATION

Would the proposed project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) 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) Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒

a) Would the proposed 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?

And

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?

No Impact. The proposed project would not include residential, recreational, or business uses and does not have the potential to induce population growth in the project area. The proposed project would not increase the use of existing neighborhood and regional parks such that substantial physical deterioration or expansion would occur. Temporary vehicular detours along the San Francisco Bay Trail would not impact access to recreational resources, including Point Emery, as pedestrian and bicycle access would be maintained. No impact would occur.

3.2.17 TRANSPORTATION/TRAFFIC

Would the proposed project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with a program, plan, or ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☐	☒
b) Conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b)?	☐	☐	☐	☒
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
d) Result in inadequate emergency access?	☐	☐	☒	☐

a) Conflict with a program, plan, or ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

No Impact. The proposed project is sponsored by Alameda County Transportation Commission and Caltrans as a project identified to improve connectivity, accessibility, safety, traffic flow, and bicycle and pedestrian facilities. Therefore, no impact would occur.

b) Conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b)?

No Impact. Construction of the Build Alternative would be anticipated to reduce total VMT by about 4,000 to 5,000 miles per day when compared to the No Build Alternative (see Table 3.2-2). This reduction is the result of the new connections between I-80 southbound and Shellmound Street and the replacement of the existing interchange with a more efficient form. The existing interchange also has larger free flowing ramps

and when they are replaced with a tight diamond form, the overall VMT decreases. Therefore, there would be no impact.

Table 3.2-2 2025 and 2045 VMT

Scenario	Daily Vehicle Miles Travelled		
	No Build Alternative	Build Alternative	Difference
Opening Year (2025)	2,239,684	2,235,317	-4,367
Design Year (2045)	2,585,791	2,580,806	-4,984

Source: Kittleson & Associates, Inc., 2020

c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

No Impact. The proposed project would not increase hazards due to a design feature. Common design features to the Build Alternative would include upgrades such as new on- and off- ramps, intersection signalization, and a new bridge structure. In addition, the new BPOC would reduce automobile/bicycle conflicts at the ramps. None of the additional features mentioned would increase the risk of hazards in the existing area. Therefore, no impact would occur.

d) Result in inadequate emergency access?

Less than Significant Impact. Long term impacts of the proposed project on emergency access would generally be positive because of reductions in traffic delays and congestion at the study intersections. Temporary lane closures during construction would be required, which could result in short-term temporary impacts to emergency access. This impact would be minimized by the incorporation of PF TRA-1, and AMM ULT-2.Therefore, this impact would be less than significant.

As required by PF TRA-1, a TMP will be prepared to ensure efficient movement of local and regional traffic during construction. The TMP will provide for public outreach to inform community agencies, such as the fire department, and the public of the times and locations of upcoming construction, signage in and approaching the project area, and incident management for traffic control in the vicinity of construction activities. Creation and implementation of a TMP is a standard requirement for all Caltrans projects. Additionally, AMM ULT-2, would require that emergency Services will be notified prior to construction of any temporary road closures and/or detours as part of the TMP established in PF TRA-1. Therefore, this impact would be less than significant.

3.2.18 TRIBAL CULTURAL RESOURCES

Would the proposed project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a 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:				
i) 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	☐	☐	☐	☒
ii) 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.	☐	☐	☒	☐

Information in this section is based in part on the Historic Property Survey Report (HPSR) prepared for the proposed project (August 2020).

a) Would the proposed 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:

i) 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)

No Impact. As discussed in Section 2.1.7, Cultural Resources and Tribal Cultural Resources, the proposed project would not result in a substantial adverse change to any properties officially designated or recognized as historically significant by a local government pursuant to a local ordinance or resolution (as defined in PRC section 5020.1(k)). The project area contains the KRE Radio Station that qualifies for listing on the National Register of Historic Places and California Register of Historical Resources. However, the boundaries of the historic property are limited to the KRE Radio Station building and do not include the area where proposed improvements along Bay Street would modify guy wires supporting the radio tower. No other listed or potentially eligible resources are present within the project area. Therefore, no impact would occur.

ii) 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.

Less than Significant Impact. A Sacred Lands File Search was conducted on behalf of the proposed project by the Native American Heritage Commission (NAHC) in 2019. Although the NAHC determined that no Tribal Cultural Resources have been previously identified within the APE, a list of interested Native American tribal representatives with traditional lands or cultural places within Alameda County was included in the NAHC response.

In November 2019 certified Assembly Bill 52 (AB 52) letters were sent to all Native American contacts provided by the NAHC describing the proposed project, providing a location map, and requesting any information and concerns the Tribes may have reading the proposed project or study area. Chairperson Perez of the North Valley Yakuts Tribe requested consultation on the proposed project and a site visit. A field review of the project area was conducted on February 13, 2020, by Chairperson Perez and two other tribal representatives, along with Caltrans District 4 archaeology personnel, Kathryn Rose and Katie Jorgensen, and other members of the project team. Chairperson Perez expressed concern for the potential of deeply buried cultural

resources beneath the fill on which I-80 and the interchange has been constructed. Project team members shared the general excavation would only be up to 10 feet, while cast-in-drilled-hole (CIDH) pile foundations would require drilled excavations of approximately 80 feet. Thus, while possible, the likelihood of discovering deeply buried cultural resources is low. Caltrans will continue Native American consultation throughout the life of the proposed project.

While no tribal cultural resources have been recorded in the APE, there is the possibility that unrecorded resources could be unearthed during construction. Adherence to PF CUL-1 would ensure the if tribal resources are discovered during construction, all earth-moving activity would cease until a qualified archaeologist can assess the nature and significance of the fine, thus avoiding impacts to such resources.

Once construction is complete, the proposed project would not entail earth-moving activities with the potential to damage or discover previously unrecorded tribal cultural resources. Given this, the proposed project would not endanger the integrity of tribal cultural resources long term. With incorporation of PF CUL-1, the impacts to tribal cultural resources would be less than significant, and no mitigation would be required.

3.2.19 UTILITIES AND SERVICE SYSTEMS

Would the proposed project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☒	☐
b) Have sufficient water supplies available to serve the proposed project and reasonably foreseeable future development during	☐	☐	☒	☐

Would the proposed project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
normal, dry and multiple dry years?				
c) Result in a determination by the wastewater treatment provider which serves or may serve the proposed project that it has adequate capacity to serve the proposed project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
d) Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☐	☒
e) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒

a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

And

b) Have sufficient water supplies available to serve the proposed project and reasonably foreseeable future development during normal, dry and multiple dry years?

Less than Significant Impact. As a roadway project, operation would not include the regular use of water or recycled water services other than minor use for irrigation of highway plantings. No natural gas or telecommunications facilities and minimal electric

power would be required. Although water may be used intermittently at the project area for maintenance purposes such as street sweeping, this use would be similar to existing conditions and adequate water supplies would be available. Similarly, operation of the proposed project would not generate wastewater, as no habitable structures or other facilities such as restrooms are proposed. Furthermore, the proposed project would replace existing stormwater drainage systems that lack integrity. Therefore, this impact would be less than significant.

c) Result in a determination by the wastewater treatment provider, which serves or may serve the proposed project that it has adequate capacity to serve the proposed project's projected demand in addition to the provider's existing commitments?

No Impact. The proposed project would not require additional capacity for wastewater treatment, as project construction and operation would not generate wastewater or otherwise increase the volume of wastewater requiring treatment by a provider. Therefore, there would be no impact, and no mitigation would be required.

d) Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

No Impact. Proposed project operation would not result in the regular generation of solid waste. Therefore, there would be no impact, and no mitigation would be required.

e) Comply with federal, state, and local statutes and regulations related to solid waste?

No Impact. As a transportation improvement project, the proposed project would not require landfill capacity or solid waste disposal. Operation of the proposed project would not generate solid waste and municipal waste collection would not be needed. Therefore, regulations related to solid waste would not apply and no impact would occur.

3.2.20 WILDFIRE

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the proposed project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☐	☒
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	☒
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☒

a) Substantially impair an adopted emergency response plan or emergency evacuation plan?

And

b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

And

c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

And

d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

No Impact. The California Department of Forestry and Fire Protection (CAL FIRE) FHSZ Maps include proposed FHSZ Maps for State Responsibility Area lands. CAL FIRE allows those reviewing local responsibility area hazard zone maps to verify any adopted ordinances that may affect communities' hazard mapping and building code requirements. The project area is located with a local responsibility area. Due to the project being within an urbanized area and well-maintained parks with surface water features surrounding the project area, the risk for wildfire is considered very low. The project area is not located within a FHSZ, and no wildfire impacts would occur.[2]

[2] Cal Fire Database. 2020. *Fire Hazard Severity Zones Maps.* Available here: https://osfm.fire.ca.gov/divisions/wildfire-planning-engineering/wildland-hazards-building-codes/fire-hazard-severity-zones-maps/. Accessed: March 17, 2020.

3.2.21 MANDATORY FINDINGS OF SIGNIFICANCE

Would the proposed project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Does the proposed 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 proposed 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 proposed project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

a) Does the proposed 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?

Less than Significant Impact. The project area is in a developed area and contains no sensitive wildlife communities. The project would result in a small (0.007 acre) loss of federally-designated critical habitat for southern DPS green sturgeon, Sacramento River winter-run Chinook salmon, central California coast steelhead, and Central Valley steelhead within the San Francisco Bay. However, this loss would occur in a shallow area near the coastline where these species are not expected to occur. Therefore, the proposed project would not substantially reduce the habitat of any fish or wildlife species. Furthermore, adherence to AMM BIO-2 through BIO-7, described in Section 3.2.4, Biological Resources, as well as AMM BIO-1 (avoid regulated trees and replace where unavoidable) and AMM BIO-8 (avoid spread and introduction of invasive plants) would further minimize impacts to fish and wildlife species. This impact would be less than significant, and no mitigation would be required.

b) Does the proposed 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)?

Less than Significant Impact. The proposed project would involve the redesign of an existing interchange and the addition of a new BPOC. No other projects are proposed within the area of disturbance that would combine with the proposed project to cause cumulatively considerable direct impacts on the environment. Within the broader project area, the proposed project would contribute to reductions in VMT and associated pollutant emissions, and improve bicycle/pedestrian access across I-80. Therefore, with incorporation of avoidance, minimization, and mitigation measures discussed in this section, the proposed project would not make a substantial contribution to a cumulatively considerable impact.

c) Does the proposed project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

Less than Significant. With incorporation of project features and avoidance and minimization measures identified herein, all potential impacts would be less than significant. The proposed project would not result in impacts that would cause

substantial adverse effects on human beings, either directly or indirectly. Therefore, these impacts would be less than significant, and no mitigation would be required.

3.3 CLIMATE CHANGE

Climate change refers to long-term changes in temperature, precipitation, wind patterns, and other elements of the earth's climate system. An ever-increasing body of scientific research attributes these climatological changes to GHG emissions, particularly those generated from the production and use of fossil fuels.

While climate change has been a concern for several decades, the establishment of the Intergovernmental Panel on Climate Change (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_2O), 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.[3] In California, however, transportation sources (including passenger cars, light-duty trucks, other trucks, buses, and motorcycles) are the largest contributors of GHG emissions.[4] The dominant GHG emitted is CO_2, mostly from fossil fuel combustion.

Two terms are typically used when discussing how we address the impacts of climate change: “greenhouse gas mitigation” and “adaptation.” "Greenhouse gas mitigation" is a term for reducing GHG emissions to reduce or "mitigate" the impacts of climate change. “Adaptation" refers to planning for and responding to impacts resulting from climate change (such as adjusting transportation design standards to withstand more intense storms and higher sea levels). This analysis will include a discussion of both.

3.3.1 REGULATORY SETTING

This section outlines federal and state efforts to comprehensively reduce GHG emissions from transportation sources.

[3] Environmental Protection Agency, 2019. *Greenhouse Gas Emissions.* Available online at: https://www.epa.gov/ghgemissions/us-greenhouse-gas-inventory-report-1990-2014; last accessed: July 2020

[4] California Air Resources Board, 2019. *GHG Current California Emission Inventory Data.* Available online at: https://www.arb.ca.gov/cc/inventory/data/data.htm; last accessed: July 2020

FEDERAL

To date, no national standards have been established for nationwide mobile-source GHG reduction targets, nor have any regulations or legislation been enacted specifically to address climate change and GHG emissions reduction at the project level.

The NEPA (42 United States Code [USC] Part 4332) requires federal agencies to assess the environmental effects of their proposed actions prior to making a decision on the action or project.

The FHWA recognizes the threats that extreme weather, sea-level change, and other changes in environmental conditions pose to valuable transportation infrastructure and those who depend on it. FHWA therefore supports a sustainability approach that assesses vulnerability to climate risks and incorporates resilience into planning, asset management, project development and design, and operations and maintenance practices.[5] This approach encourages planning for sustainable highways by addressing climate risks while balancing environmental, economic, and social values—"the triple bottom line of sustainability."[6] Program and project elements that foster sustainability and resilience also support economic vitality and global efficiency, increase safety and mobility, enhance the environment, promote energy conservation, and improve the quality of life. Addressing these factors up front in the planning process will assist in decision-making and improve efficiency at the program level and will inform the analysis and stewardship needs of project-level decision-making.

Various efforts have been promulgated at the federal level to improve fuel economy and energy efficiency to address climate change and its associated effects. The most important of these was the Energy Policy and Conservation Act of 1972 (42 USC Section 6201) and corporate Average Fuel Economy (CAFE) Standards. This act establishes fuel economy standards for on-road motor vehicles sold in the United States. Compliance with federal fuel economy standards is determined through the CAFE program based on each manufacturer's average fuel economy for the portion of its vehicles produced for sale in the United States.

The Energy Policy Act of 1992 (EPACT92, 102nd Congress H.R.776.ENR): With this act, Congress set goals, created mandates, and amended utility laws to increase clean energy use and improve overall energy efficiency in the United States. EPACT92

[5] U.S. Department of Transportation, 2019. *Sustainability, Resilience.* Available online at: https://www.fhwa.dot.gov/environment/sustainability/resilience/; last accessed: October 2019

[6] U.S. Department of Transportation, 2019. *Sustainable Highways Initiative.* Available online at: https://www.sustainablehighways.dot.gov/overview.aspx; last accessed: October 2019

consists of 27 titles detailing various measures designed to lessen the nation's dependence on imported energy, provide incentives for clean and renewable energy, and promote energy conservation in buildings. Title III of EPACT92 addresses alternative fuels. It gave the U.S. Department of Energy administrative power to regulate the minimum number of light-duty alternative fuel vehicles required in certain federal fleets beginning in fiscal year 1993. The primary goal of the Program is to cut petroleum use in the United States by 2.5 billion gallons per year by 2020.

Energy Policy Act of 2005 (109th Congress H.R.6 (2005–2006): This act sets forth an energy research and development program covering: (1) energy efficiency; (2) renewable energy; (3) oil and gas; (4) coal; (5) Indian energy; (6) nuclear matters and security; (7) vehicles and motor fuels, including ethanol; (8) hydrogen; (9) electricity; (10) energy tax incentives; (11) hydropower and geothermal energy; and (12) climate change technology.

The U.S. EPA in conjunction with the National Highway Traffic Study Administration (NHTSA) is responsible for setting GHG emission standards for new cars and light-duty vehicles to significant increase the fuel economy of all new passenger cars and light trucks sold in the United States. Fuel efficiency standards directly influence GHG emissions.

Executive Order 13514, Federal Leadership in Environmental, Energy, and Economic Performance, 74 Federal Register 52117 (October 8, 2009): This federal EO set sustainability goals for federal agencies and focuses on making improvements in their environmental, energy, and economic performance. It instituted as policy of the United States that federal agencies measure, report, and reduce their GHG emissions from direct and indirect activities.

Executive Order 13693, Planning for Federal Sustainability in the Next Decade, 80 Federal Register 15869 (March 2015): This EO reaffirms the policy of the United States that federal agencies measure, report, and reduce their GHG emissions from direct and indirect activities. It sets sustainability goals for all agencies to promote energy conservation, efficiency, and management by reducing energy consumption and GHG emissions. It builds on the adaptation and resiliency goals in previous executive orders to ensure agency operations and facilities prepare for impacts of climate change. This order revokes Executive Order 13514.

U.S. EPA’s authority to regulate GHG emissions stems from the U.S. Supreme Court decision in Massachusetts v. EPA (2007). The Supreme Court ruled that GHGs meet the definition of air pollutants under the existing Clean Air Act and must be regulated if these gases could be reasonably anticipated to endanger public health or welfare. Responding to the Court’s ruling, U.S. EPA finalized an endangerment finding in

December 2009. Based on scientific evidence it found that six GHGs 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 the NHTSA issued the first of a series of GHG emission standards for new cars and light-duty vehicles in April 2010 and significantly increased the fuel economy of all new passenger cars and light trucks sold in the United States.[7] The standards required these vehicles to meet an average fuel economy of 34.1 miles per gallon by 2016. In August 2012, the federal government adopted the second rule that increases fuel economy for the fleet of passenger cars, light-duty trucks, and medium-duty passenger vehicles for model years 2017 and beyond to average fuel economy of 54.5 miles per gallon by 2025. Because NHTSA cannot set standards beyond model year 2021 due to statutory obligations and the rules' long timeframe, a mid-term evaluation is included in the rule. The Mid-Term Evaluation is the overarching process by which NHTSA, EPA, and ARB will decide on CAFE and GHG emissions standard stringency for model years 2022–2025. NHTSA has not formally adopted standards for model years 2022 through 2025. However, the EPA finalized its mid-term review in January 2017, affirming that the target fleet average of at least 54.5 miles per gallon by 2025 was appropriate. In March 2017, President Trump ordered EPA to reopen the review and reconsider the mileage target.[8]

NHTSA and EPA issued a Final Rule for "Phase 2" for medium- and heavy-duty vehicles to improve fuel efficiency and cut carbon pollution in October 2016. The agencies estimate that the standards will save up to 2 billion barrels of oil and reduce CO_2 emissions by up to 1.1 billion metric tons over the lifetimes of model year 2018–2027 vehicles.

Presidential Executive Order 13783, Promoting Energy Independence and Economic Growth, of March 28, 2017, orders all federal agencies to apply cost-benefit analyses to

[7]Center for Climate and Energy Solutions, 2019. Available online at: http://www.c2es.org/federal/executive/epa/greenhouse-gas-regulation-faq; last accessed: October 2020

[8]ABS News, 2017. *Trump Rolls Back Obama-Era Fuel Economy Standards.* Available online at: http://www.nbcnews.com/business/autos/trump-rolls-back-obama-era-fuel-economy-standards-n734256.

The Daily Journal of the United State Government, 2017. *Notice of Intention to Reconsider the Final Determination of the Mid-Term Evaluation of Greenhouse Gas Emissions Standards for Model Year 2022-2025 Light Duty Vehicles.* Available online at: https://www.federalregister.gov/documents/2017/03/22/2017-05316/notice-of-intention-to-reconsider-the-final-determination-of-the-mid-term-evaluation-of-greenhouse; last accessed" October 2020

regulations of GHG emissions and evaluations of the social cost of carbon, nitrous oxide, and methane.

STATE

California has been innovative and proactive in addressing GHG emission and climate change by passing multiple Senate and Assembly bills and executive orders (EOs) including, but limited to, the following:

Assembly Bill 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.

EO S-3-05 (June 1, 2005): The goal of this executive order (EO) is to reduce California's GHG emissions to: (1) year 2000 levels by 2010, (2) year 1990 levels by 2020, and (3) 80 percent below year 1990 levels by 2050. This goal was further reinforced with the passage of Assembly Bill 32 in 2006 and SB 32 in 2016.

Assembly Bill 32 (AB 32), Chapter 488, 2006: Núñez and Pavley, The Global Warming Solutions Act of 2006: AB 32 codified the 2020 GHG emissions reduction goals as outlined in EO S-3-05, while further mandating that ARB create a scoping plan and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases." The Legislature also intended that the statewide GHG emissions limit continue in existence and be used to maintain and continue reductions in emissions of GHGs beyond 2020 (Health and Safety Code Section 38551(b)). The law requires ARB to adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective GHG reductions.

Executive Order S-20-06 (October 18, 2006): This order establishes the responsibilities and roles of the Secretary of the California Environmental Protection Agency (Cal/EPA) and state agencies with regard to climate change.

EO S-01-07 (January 18, 2007): This order sets forth the low carbon fuel standard (LCFS) for California. Under this EO, the carbon intensity of California's transportation fuels is to be reduced by at least 10 percent by the year 2020. ARB re-adopted the LCFS regulation in September 2015, and the changes went into effect on January 1, 2016. The program establishes a strong framework to promote the low-carbon fuel adoption necessary to achieve the Governor's 2030 and 2050 GHG reduction goals.

Senate Bill 97 (SB 97), Chapter 185, 2007, Greenhouse Gas Emissions: This bill requires the Governor's Office of Planning and Research 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 ARB to set regional emissions reduction targets for passenger vehicles. The Metropolitan Planning Organization for each region must then develop a "Sustainable Communities Strategy" that integrates transportation, land-use, and housing policies to plan how it will achieve the emissions target for its region.

Senate Bill 391 (SB 391), Chapter 585, 2009, California Transportation Plan: This bill requires the State's long-range transportation plan to meet California's climate change goals under AB 32.

EO B-16-12 (March 2012) orders State entities under the direction of the Governor, including ARB, the California Energy Commission, and the Public Utilities Commission, to support the rapid commercialization of zero-emission vehicles. It directs these entities to achieve various benchmarks related to zero-emission vehicles.

EO B-30-15 (April 2015) establishes an interim statewide GHG emission reduction target of 40 percent below 1990 levels by 2030 in order to ensure California meets its target of reducing GHG emissions to 80 percent below 1990 levels by 2050. It further orders all state agencies with jurisdiction over sources of GHG emissions to implement measures, pursuant to statutory authority, to achieve reductions of GHG emissions to meet the 2030 and 2050 GHG emissions reductions targets. It also directs ARB to update the Climate Change Scoping Plan to express the 2030 target in terms of million metric tons of carbon dioxide equivalent ($MMTCO_2e$). Finally, it requires the Natural Resources Agency to update the state's climate adaptation strategy, Safeguarding California, every 3 years, and to ensure that its provisions are fully implemented.

Senate Bill 32, (SB 32) Chapter 249, 2016, codifies the GHG reduction targets established in EO B-30-15 to achieve a mid-range goal of 40 percent below 1990 levels by 2030.

Senate Bill 1386, (SB1386), Chapter 545, 2016, declared "it to be the policy of the state that the protection and management of natural and working lands … is an important strategy in meeting the state's greenhouse gas reduction goals, and would require all state agencies, departments, boards, and commissions to consider this policy when revising, adopting, or establishing policies, regulations, expenditures, or grant criteria relating to the protection and management of natural and working lands."

AB 134, Chapter 254, 2017, allocates Greenhouse Gas Reduction Funds and other sources to various clean vehicle programs, demonstration/pilot projects, clean vehicle rebates and projects, and other emissions-reduction programs statewide.

SB 743, Chapter 386 (September 2013): This bill changes the metric of consideration for transportation impacts pursuant to CEQA from a focus on automobile delay to alternative methods focused on vehicle miles travelled, to promote the state's goals of reducing greenhouse gas emission and traffic related air pollution and promoting multimodal transportation while balancing the needs of congestion management and safety.

SB 150, Chapter 150, 2017, Regional Transportation Plans: This bill required ARB to prepare a report that assesses progress made by each metropolitan planning organization in meeting their established regional greenhouse gas emission reduction targets.

EO B-55-18 (September 2018) sets a new statewide goal to achieve and maintain carbon neutrality no later than 2045. This goal is in addition to existing statewide targets of reducing GHG emissions.

EO-N-19-19 (September 2019) advances California's climate goals in part by directing the California State Transportation Agency to leverage annual transportation spending to reverse the trend of increased fuel consumption and reduce GHG emissions from the transportation encouraging alternatives to driving. This EO also directs ARB to encourage automakers to produce more clean vehicles, formulate ways to help Californians purchase them, and propose strategies to increase demand for zero-emission vehicles.

3.3.2 AFFECTED ENVIRONMENT

In 2006, the Legislature passed the California Global Warming Solutions Act of 2006 (AB 32), which created a comprehensive, multi-year program to reduce GHG emissions in California. AB 32 required ARB to develop a Scoping Plan that describes the approach California will take to achieve the goal of reducing GHG emissions to 1990 levels by 2020. The Scoping Plan was first approved by ARB in 2008 and must be updated every 5 years. ARB approved the *First Update to the Climate Change Scoping Plan* on May 22, 2014. ARB is moving forward with a *Discussion Draft of an Updated Scoping Plan* that will reflect the 2030 target established in EO B-30-15 and SB 32.

The AB 32 Scoping Plan and the subsequent updates contain the main strategies California will use to reduce GHG emissions. As part of its supporting documentation for the Draft Scoping Plan, ARB released the GHG inventory for California.[9] ARB is responsible for maintaining and updating California's GHG Inventory per H&SC Section

[9]California Air Resources Board, 2019. *GHG Current California Emission Inventory Data.* Available online at: https://www.arb.ca.gov/cc/inventory/data/data.htm; last accessed: July 2020

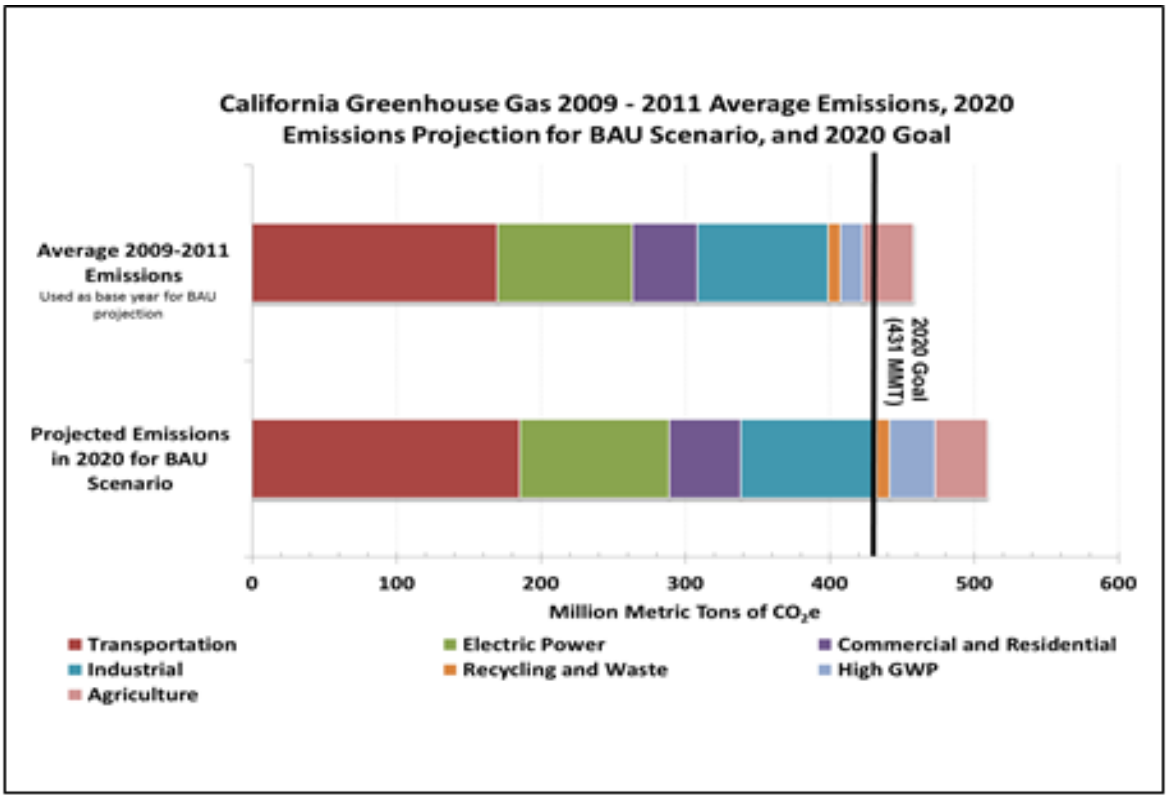
39607.4. The associated forecast/projection is an estimate of the emissions anticipated to occur in the year 2020 if none of the foreseeable measures included in the Scoping Plan were implemented.

An emissions projection estimates future emissions based on current emissions, expected regulatory implementation, and other technological, social, economic, and behavioral patterns. The projected 2020 emissions provided in Figure 3.3-1 represents a business-as-usual (BAU) scenario assuming none of the Scoping Plan measures are implemented. The 2020 BAU emissions estimate assists ARB in demonstrating progress toward meeting the 2020 goal of 431 $MMTCO_2e$.[10] The 2017 edition of the GHG emissions inventory found total California emissions of 440.4 $MMTCO_2e$, showing progress towards meeting the AB 32 goals.

The 2020 BAU emissions projection was revisited in support of the First Update to the Scoping Plan (2014). This projection accounts for updates to the economic forecasts of fuel and energy demand as well as other factors. It also accounts for the effects of the 2008 economic recession and the projected recovery. The total emissions expected in the 2020 BAU scenario include reductions anticipated from Pavley I and the Renewable Electricity Standard (30 $MMTCO_2e$ total). With these reductions in the baseline, estimated 2020 statewide BAU emissions are 509 $MMTCO_2e$.

[10]The revised target using Global Warming Potentials (GWP) from the IPCC Fourth Assessment Report (AR4).

Figure 3.3-1 2020 Business as Usual (BAU) Emissions Projection 2014 Edition



3.3.3 PROJECT ANALYSIS

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. 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 proposed 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.

GHG emissions for transportation projects can be divided into those produced during operations and those produced during construction. The following represents a best faith effort to describe the potential GHG emissions related to the proposed project.

3.3.4 OPERATIONAL EMISSIONS

The purpose of the proposed project is to improve interchange access and circulation, provide multimodal connectivity, provide a westbound I-80 connection to Shellmound Street, provide safe bicycle and pedestrian connectivity across I-80, improve circulation at I-80/Powell Street and 7th Street, and alleviate local surface street congestion. The proposed project will not increase the vehicle capacity of these roadways. This type of project generally causes minimal or no increase in operation GHG emissions.

As shown in Table 3.2-1 in Section 3.2.8, Greenhouse Gas Emissions, the estimated annual CO_2 emissions for the Build Alternative during the opening year (2025), horizon year (2040), and design year (2045) scenarios would be lower than the emissions for the No-Build Alternative, which is primarily attributed to the reduction in regional VMT under the Build Alternative. The estimated annual CO_2 emissions for the Build and No Build Alternative would be lower in the opening year (2025) compared to the existing year (2018) because federal and state fuel economy standards are expected to reduce GHG emissions over time; however, the CO_2 emissions for the Build and No Build Alternative would higher in the horizon year (2040) and design year (2045) compared to the existing year (2018). This is because regional VMT is expected to increase about 20 and 25 percent with or without the proposed project by the horizon year (2040) and design year (2045), respectively, which would exceed the rate of GHG emission reductions currently expected through federal and state regulatory programs.

3.3.5 CONSTRUCTION EMISSIONS

Construction GHG emissions would result from material processing, on-site construction equipment, and traffic delays due to construction. These emissions will be produced at different levels throughout the construction phase; their frequency and occurrence can be reduced through innovations in plans and specifications and by implementing better traffic management during construction phases.

In addition, with innovations such as longer pavement lives, improved traffic management plans, and changes in materials, the GHG emissions produced during construction can be offset to some degree by longer intervals between maintenance and rehabilitation activities. Currently Caltrans has not adopted GHG significance thresholds that apply to construction activities. For informational purposes, the total CO_2e emissions and annual average CO_2e emissions estimated for construction of the Build Alternative is 3,551 CO_2e (total metric tons). Annually, the CO_2e emissions for the Build Alternative is 1,420 CO_2e (metric tons). The temporary increase in GHG emissions resulting from project construction would be offset by the long-term improvement in operational GHG emissions compared with the No Build Alternative.

3.3.6 CEQA CONCLUSION

Both the future with proposed project and future No Build scenarios show decreases in CO_2 emissions over the existing levels. Therefore, it is Caltrans determination that in the absence of further regulatory or scientific information related to greenhouse gas emissions and CEQA significance, it is too speculative to make a determination regarding significance of the proposed project's direct impact and its contribution on the cumulative scale to climate change. However, Caltrans is firmly committed to implementing measures to help reduce the potential effects of the proposed project. These measures are outlined in the following section.

3.3.7 GREENHOUSE GAS REDUCTION STRATEGIES

STATEWIDE EFFORTS

In an effort to further the vision of California's GHG reduction targets outlined an AB 32 and SB 32, Governor Brown identified key climate change strategy pillars (concepts). These pillars highlight the idea that several major areas of the California economy will need to reduce emissions to meet the 2030 GHG emissions target. These pillars are (1) reducing today's petroleum use in cars and trucks by up to 50 percent; (2) increasing from one-third to 50 percent our electricity derived from renewable sources; (3) doubling the energy efficiency savings achieved at existing buildings and making heating fuels cleaner; (4) reducing the release of methane, black carbon, and other short-lived climate pollutants; (5) managing farm and rangelands, forests, and wetlands so they can store carbon; and (6) periodically updating the state's climate adaptation strategy, Safeguarding California.

Figure 3.3-2 The Governor's Climate Change Pillars: 2030 Greenhouse Gas Reduction Goals

Source: California Air Resources Board, 2019

The transportation sector is integral to the people and economy of California. To achieve GHG emission reduction goals, it is vital that we build on our past successes in reducing criteria and toxic air pollutants from transportation and goods movement activities. GHG emission reductions will come from cleaner vehicle technologies, lower-carbon fuels, and reduction of vehicle miles traveled. One of *Governor Brown's Key Pillars* sets the ambitious goal of reducing today's petroleum use in cars and trucks by up to 50 percent by 2030.

Governor Brown called for support to manage natural and working lands, including forests, rangelands, farms, wetlands, and soils, so they can store carbon. These lands have the ability to remove carbon dioxide from the atmosphere through biological processes, and to then sequester carbon in above- and below-ground matter.

CALTRANS ACTIVITIES

Caltrans continues to be involved on the Governor's Climate Action Team as the ARB works to implement EOs S-3-05 and S-01-07 and help achieve the targets set forth in AB 32. EO B-30-15, issued in April 2015, and SB 32 (2016), set a new interim target to cut GHG emissions to 40 percent below 1990 levels by 2030. The following major initiatives are underway at Caltrans to help meet these targets.

California Transportation Plan (CTP 2050)

The California Transportation Plan (CTP) is a statewide, long-range transportation plan to meet our future mobility needs and reduce GHG emissions. The CTP defines performance-based goals, policies, and strategies to achieve our collective vision for California's future statewide, integrated, multimodal transportation system. It serves as an umbrella document for all of the other statewide transportation planning documents.

SB 391(Liu 2009) requires the CTP to meet California's climate change goals under AB 32. Accordingly, the CTP 2050 identifies the statewide transportation system needed to achieve maximum feasible GHG emission reductions while meeting the state's transportation needs. While MPOs have primary responsibility for identifying land use patterns to help reduce GHG emissions, CTP 2050 identifies additional strategies in Pricing, Transportation Alternatives, Mode Shift, and Operational Efficiency.

Caltrans Strategic Management Plan

The Strategic Management Plan, released in 2021 creates a performance-based framework to preserve the environment and reduce GHG emissions, among other goals. Specific performance targets in the plan that will help to reduce GHG emissions include:

- Increasing percentage of non-auto mode share
- Reducing VMT per capita
- Reducing Caltrans' internal operational (buildings, facilities, and fuel) GHG emissions

Funding and Technical Assistance Programs

In addition to developing plans and performance targets to reduce GHG emissions, Caltrans also administers several funding and technical assistance programs that have GHG reduction benefits. These include the Bicycle Transportation Program, Safe Routes to School, Transportation Enhancement Funds, and Transit Planning Grants. A more extensive description of these programs can be found in *Caltrans Activities to Address Climate Change* (2013).

Caltrans Director's Policy 30 (DP-30) Climate Change (June 22, 2012) is intended to establish a department policy that will ensure coordinated efforts to incorporate climate change into departmental decisions and activities.

Caltrans Activities to Address Climate Change (April 2013) provides a comprehensive overview of activities undertaken by Caltrans statewide to reduce GHG emissions resulting from agency operations.

Project-Level GHG Reduction Strategies

The following measures will also be implemented in the proposed project to reduce GHG emissions and potential climate change impacts from the proposed project.

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—or, put another way, planning and design for resilience. Climate change is expected to produce increased variability in precipitation, rising temperatures, rising sea levels, variability in storm surges and their intensity, and the frequency and intensity of wildfires. These changes may affect the transportation infrastructure in various ways, such as damage to roadbeds from longer periods of intense heat; increasing storm damage from flooding and erosion; and inundation from rising sea levels. These effects will vary by location and may, in the most extreme cases, require that a facility be relocated or redesigned. These types of impacts to the transportation infrastructure may also have economic and strategic ramifications.

Federal Efforts

At the federal level, the Climate Change Adaptation Task Force, co-chaired by the CEQ, the Office of Science and Technology Policy, and the National Oceanic and Atmospheric Administration, released its interagency task force progress report on October 28, 2011[11], 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 provided an update on actions in key areas of federal adaptation, including building resilience in local communities, safeguarding critical natural resources such as fresh water, and providing accessible climate information and tools to help decision-makers manage climate risks.

The federal Department of Transportation issued *U.S. DOT Policy Statement on Climate Adaptation* in June 2011, committing to "integrate consideration of climate change impacts and adaptation into the planning, operations, policies, and programs of DOT in order to ensure that taxpayer resources are invested wisely, and that

[11]The White House President Barak Obama, 2014. *Council on Environmental Quality, Climate Change Resilience.* Available online at: https://obamawhitehouse.archives.gov/administration/eop/ceq/initiatives/resilience; last accessed: July 2020

transportation infrastructure, services and operations remain effective in current and future climate conditions."[12]

To further the DOT Policy Statement, on December 15, 2014, FHWA issued order 5520 (*Transportation System Preparedness and Resilience to Climate Change and Extreme Weather Events*).[13] This directive established FHWA policy to strive to identify the risks of climate change and extreme weather events to current and planned transportation systems. The FHWA will work to integrate consideration of these risks into its planning, operations, policies, and programs in order to promote preparedness and resilience; safeguard federal investments; and ensure the safety, reliability, and sustainability of the nation's transportation systems.

FHWA has developed guidance and tools for transportation planning that fosters resilience to climate effects and sustainability at the federal, state, and local levels.[14]

State Efforts

On November 14, 2008, then-Governor Arnold Schwarzenegger signed EO S-13-08, which directed a number of state agencies to address California's vulnerability to sea-level rise caused by climate change. This EO set in motion several agencies and actions to address the concern of sea-level rise and directed all state agencies planning to construct projects in areas vulnerable to future sea-level rise to consider a range of sea-level rise scenarios for the years 2050 and 2100, assess project vulnerability and, to the extent feasible, reduce expected risks and increase resiliency to sea-level rise. Sea-level rise estimates should also be used in conjunction with information on local uplift and subsidence, coastal erosion rates, predicted higher high water levels, and storm surge and storm wave data.

Governor Schwarzenegger also requested the National Academy of Sciences to prepare an assessment report to recommend how California should plan for future sea-level rise. The final report, *Sea-Level Rise for the Coasts of California, Oregon, and Washington* (Sea-Level Rise Assessment Report) was released in June 2012 and included relative sea-level rise projections for the three states, taking into account

[12]U.S. Department of Transportation, 2011. *Policy and Guidance, US DOT Policy Statement on Climate Change Adaptation.* Available online at: https://www.fhwa.dot.gov/environment/sustainability/resilience/policy_and_guidance/usdot.cfm; last accessed: July 2020
[13]U.S. Department of Transportation, 2014. *FHWA Order 5520.* Available online at: https://www.fhwa.dot.gov/legsregs/directives/orders/5520.cfm; last accessed: July 2020
[14]U.S. Department of Transportation, 2019. *Sustainability, Resilience.* Available online at: https://www.fhwa.dot.gov/environment/sustainability/resilience/; last accessed: July 2020

coastal erosion rates, tidal impacts, El Niño and La Niña events, storm surge, and land subsidence rates; and the range of uncertainty in selected sea-level rise projections. [15] It provided a synthesis of existing information on projected sea-level rise impacts to state infrastructure (such as roads, public facilities, and beaches), natural areas, and coastal and marine ecosystems; and a discussion of future research needs regarding sea-level rise.

In response to EO S-13-08, the California Natural Resources Agency (Resources Agency), in coordination with local, regional, state, federal, and public and private entities, developed *The California Climate Adaptation Strategy* (Dec 2009), which summarized the best available science on climate change impacts to California, assessed California's vulnerability to the identified impacts, and outlined solutions that can be implemented within and across state agencies to promote resiliency. The adaptation strategy was updated and rebranded in 2014 *as Safeguarding California: Reducing Climate Risk (Safeguarding California Plan*). [16]

Governor Jerry Brown enhanced the overall adaptation planning effort by signing EO B-30-15 in April 2015, requiring state agencies to factor climate change into all planning and investment decisions. In March 2016, sector-specific Implementation Action Plans that demonstrate how state agencies are implementing EO B-30-15 were added to the Safeguarding California Plan. This effort represents a multi-agency, cross-sector approach to addressing adaptation to climate change-related events statewide.

EO S-13-08 also gave rise to the *State of California Sea-Level Rise Interim Guidance Document* (SLR Guidance), produced by the Coastal and Ocean Working Group of the California Climate Action Team (CO-CAT), of which Caltrans is a member. First published in 2010, the document provided “guidance for incorporating sea-level rise (SLR) projections into planning and decision making for projects in California,” specifically, “information and recommendations to enhance consistency across agencies in their development of approaches to SLR.” The *March 2013 update* finalizes the SLR Guidance by incorporating findings of the *National Academy’s 2012 final Sea-Level Rise Assessment Report;* the policy recommendations remain the same as those in the 2010 interim SLR Guidance. [17] The guidance will be updated as necessary in the

[15]The National Academies Press, 2012. *Sea Level Rise for the Coasts of California, Oregon, and Washington, Past, Present, and Future (2012).* Available online at: http://www.nap.edu/catalog.php?record_id=13389; last accessed: July 2020
[16]California Climate Change, 2013. *California Climate Adaptation Strategy.* Available online at: http://www.climatechange.ca.gov/adaptation/strategy/index.html; last accessed: July 2020
[17] Ocean Protection Council, 2013. *State of California Sea-Level Rise Guidance Document.* Available online at: http://www.opc.ca.gov/2013/04/update-to-the-sea-level-rise-guidance-document/; last accessed: July 2020

future to reflect the latest scientific understanding of how the climate is changing and how this change may affect the rates of SLR.

Climate change adaptation for transportation infrastructure involves long-term planning and risk management to address vulnerabilities in the transportation system from increased precipitation, and flooding; the increased frequency and intensity of storms and wildfires; rising temperatures; and rising sea levels. Caltrans is actively engaged in in working towards identifying these risks throughout the state and will work to incorporate this information into all planning and investment decisions as directed in EO B-30-15.

3.3.8 ADAPTATION

Reducing GHG emissions is only one part of an approach to addressing climate change. Caltrans must plan for the effects of climate change on the state's transportation infrastructure and strength or protect the facilities from damage. Climate change is expected to produce increased variability in precipitation, rising temperatures, rising sea levels, variability in storm surges and their intensity, and variability in the frequency and intensity of wildfires. Flooding and erosion can damage or wash out roads; longer periods of intense heat can buckle pavement and railroad tracks, and storm surges combined with a rising sea level can inundate highways. Wildfire can directly burn facilities and indirectly cause damage when rain falls on denuded slopes that suffer landslides after a fire. Effects will vary by location and may, in the most extreme cases, require that a facility be relocated or redesigned. Accordingly, Caltrans must consider these types of climate stressors in how highways are planned, designed, built, operation, and maintained.

FEDERAL EFFORTS

Under NEPA assignment, Caltrans is obligated to comply with all applicable federal environmental laws and FHWA NEPA regulations, policies, and guidance.

The U.S. Global Change Research Program delivers a report to Congress and the president every 4 years, in accordance with the Global Change Research Act of 1990 (15 U.S.C. Chapter 56A Section 2921 *et seq.*). The *Fourth National Climate Assessment,* published in 2018, presents the foundational science and the "human welfare, societal, and environmental elements of climate change and variability for 10 regions and 18 national topics, with particular attention paid to observed and projected risks, impacts, consideration of risk reduction, and implications under different mitigation pathways." Chapter 12 "Transportation," presents a key discussion of vulnerability assessments. It notes that "asset owners and operators have increasingly conducted more focused studies of particular assets that consider multiple climate hazards and

scenarios in the context of asset-specific information, such as design lifetime" (USGCRP 2018).

The U.S. DOT Policy Statement on Climate Adaptation in June 2011 committed the federal Department of Transportation to "integrate consideration of climate change impacts and adaptation into the planning, operations, policies, and programs of DOT in order to ensure that taxpayer resources are invested wisely, and that transportation infrastructure, services and operations remain effective in current and future climate conditions" (U.S. DOT 2011).

FHWA order 5520 (*Transportation System Preparedness and Resilience to Climate Change and Extreme Weather Events,* December 15, 2014) established FHWA policy to strive to identify the risks of climate change and extreme weather events to current and planned transportation systems. FHWA has developed guidance and tools for transportation planning that foster resilience to climate effects and sustainability at the federal, state, and local levels (FHWA 2019).

STATE EFFORTS

Climate change adaptation for transportation infrastructure involves long-term planning and risk management to address vulnerabilities in the transportation system. *California Fourth Climate Change Assessment* (2018) is the state's effort to "translate the state of climate science into useful information for action" in a variety of sectors at both statewide and local scales. It adopts the following key terms used widely in climate change analysis and policy documents.

- Adaptation to climate change refers to adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial to opportunities
- Adaptive capacity is the "combination of the strengths, attributes, and resources available to an individual, community, society, or organization that can be used to prepare for and undertake actions to reduce adverse impacts, moderate harm, or exploit beneficial opportunities."
- Exposure is the presence of people, infrastructure, natural systems, and economic, cultural, and social resources in areas that are subject to harm.
- Resilience is the "capacity of any entity – an individual, a community, an organization, or a natural system – to prepare for disruptions, to recover from shocks and stresses, and to adapt and grow from a disruptive experience." Adaptation actions contribute to increasing resilience, which is a desired outcome or state of being.

- Sensitivity is the level to which a species, natural system, or community, government, etc., would be affected by changing climate conditions.
- Vulnerability is the "susceptibility to harm from exposure to stresses associated with environmental and social change and from the absence of capacity to adapt." Vulnerability can increase because of physical (built and environmental), social, political, and/or economic factor(s). These factors include, but are not limited to: ethnicity, class, sexual orientation and identification, national origin, and income inequality. Vulnerability is often defined as the combination of sensitivity and adaptive capacity as affected by the level of exposure to changing climate.

Several key state policies have guided climate change adaptation efforts to date. Recent state publications produced in response to these policies draw on these definitions.

EO S-13-08, issued by then-governor Arnold Schwarzenegger in November 2008, focused on sea-level rise and resulted in the *California Climate Adaptation Strategy* (2009), updated in 2014 as *Safeguarding California: Reducing Climate Risk* (Safeguarding California Plan). The Safeguarding California Plan offers policy principles and recommendations and continues to be revised and augmented with sector-specific adaptation strategies, ongoing actions, and next steps for agencies.

EO S-13-08 also led to the publication of a series of sea-level rise assessment reports and associated guidance and policies. These reports formed the foundation of an interim *State of California Sea-Level Rise Interim Guidance Document* (SLR Guidance) in 2010, with instructions for how state agencies could incorporate "sea-level rise (SLR) projections into planning and decision making for projects in California" in a consistent way across agencies. The guidance was revised and augmented in 2013. *Rising Seas in California – An Update on Sea-Level Rise Science* was published in 2017 and its updated projections of sea-level rise and new understanding of processes and potential impacts in California were incorporated into the *State of California Sea-Level Rise Guidance* Update in 2018.

EO B 30 15, signed in April 2015, requires state agencies to factor climate change into all planning and investment decisions. This EO recognizes that effects of climate change other than sea-level rise also threaten California's infrastructure. At the direction of EO B-30-15, the Office of Planning and Research published *Planning and Investing for a Resilient California: A Guidebook for State Agencies* in 2017, to encourage a uniform and systematic approach. Representatives of Caltrans participated in the multi-agency, multidisciplinary technical advisory group that developed this guidance on how to integrate climate change into planning and investment.

AB 2800 (Quirk 2016) created the multidisciplinary Climate-Safe Infrastructure Working Group, which in 2018 released its report, *Paying it Forward: The Path Toward Climate-Safe Infrastructure in California*. The report provides guidance to agencies on how to address the challenges of assessing risk in the face of inherent uncertainties still posed by the best available science on climate change. It also examines how state agencies can use infrastructure planning, design, and implementation processes to address the observed and anticipated climate change impacts.

CALTRANS ADAPTATION EFFORTS

Caltrans Vulnerability Assessments

Caltrans is conducting climate change vulnerability assessments to identify segments of the State Highway System (SHS) vulnerable to climate change effects including precipitation, temperature, wildfire, storm surge, and sea-level rise. The approach to the vulnerability assessments was tailored to the practices of a transportation agency, and involves the following concepts and actions:

- *Exposure* – Identify Caltrans assets exposed to damage or reduced service life from expected future conditions.
- *Consequence* – Determine what might occur to system assets in terms of loss of use or costs of repair.
- *Prioritization* – Develop a method for making capital programming decisions to address identified risks, including considerations of system use and/or timing of expected exposure.

The climate change data in the assessments were developed in coordination with climate change scientists and experts at federal, state, and regional organizations at the forefront of climate science. The findings of the vulnerability assessments will guide analysis of at-risk assets and development of adaptation plans to reduce the likelihood of damage to the SHS, allowing Caltrans to both reduce the costs of storm damage and to provide and maintain transportation that meets the needs of all Californians.

Project Adaptation Analysis

Although CEQA does not require analysis of effects of climate change on a project, an environmental document should disclose if a project would exacerbate the effects of climate change related to flooding, hazards, and wildfire.

Climate-change risk analysis involves uncertainties as to the timing and intensity of potential risks. Such uncertainties may be documented in the proposed project's risk register. For example, if a project design feature is not implemented in the proposed

project because of cost, the future consequence may be greater cost (in dollars, time, and lost service) to repair the damage.

Sea Level Rise

The State of California Sea-Level Rise Guidance, 2018 Update (2018 SLR Guidance), was used to obtain scenario based on SLR projections applicable for the project area. The SLR projects for the San Francisco Bay included the 2018 SLR Guidance, which uses 2000 as a baseline for SLR projections and have low and high emission scenarios leading up to 2150.

Since the proposed project includes both structures and roadway improvements, a design life of 40 years for roadway improvements was taken into consideration. SLR for the project area was projected for the year 2066, which is 40 years from the anticipated completion of construction in 2026. The proposed project's SLR depth of 3.14 feet was interpolated assuming medium-high emissions and using 0.5% (1-in 200) chance of occurrence.

The Location Hydraulic Study Report identifying the floodplains within the project area was approved by Caltrans on May 14, 2021. The report also documents SLR, mitigation, and or minimization measures that would be considered during the design phase. Per the Location Hydraulic Study, the 100-year flood elevation for the project area is approximately 13 feet based on North American Vertical Datum 1988 (NAVD 88). Depending upon the aversion, the water surface elevation in this area is expected to increase to 16.14 feet by 2066. Even though proposed project elements, including the Ashby overcrossing, bike-pedestrian overcrossing, ramps, and re-aligned West Frontage Road are above elevation 16.1 feet; I-80 within the project area, Point Emery, San Francisco Bay Trail, and remaining portions of the West Frontage Road beyond the area are below 16.1 feet in elevation. The existing drainage inlets within the project area, especially those along Aquatic Park Lagoon, Potter Street, West Bolivar Drive, and Ashby Avenue north of the railroad tracks are also below elevation 16.1 feet. High tide stages, storm surges, and SLR may cause flooding within the project area due to the back flow through the drainage system or from overland tidal inundation.

Caltrans is currently evaluating the addition of a tidal flap gate or a duck bill valve at the proposed new outfall structure to prevent backwater from the San Francisco Bay into the drainage system. Caltrans, in collaboration with local and regional stakeholders, including BCDC and others, is also developing local and regional responses to sea-level rise impacts. Multi-agency collaboration will help Caltrans and our partner agencies achieve a multi-benefit approach to protecting bayfront development, infrastructure, and assets, and distribute potential mitigation costs, as well as balancing environmental justice concerns to achieve equitable adaptation solutions.

Caltrans cannot act alone in developing individual adaptation responses on a project by project basis, as sea level rise presents a regional problem demanding coordinated, consistent regional solutions. Regional approaches to addressing sea level rise are occurring concurrently with the proposed project. Such adaptive measures include constructing a sea wall/flood wall, and installing a tidal flap gates at all out-fall structures along the I-80 corridor to reduce the risk of exposure. A decision on the addition of a tidal flap gate or a duck bill valve at the proposed new outfall structure as a near-term measure to prevent backwater flow conditions for the proposed project will be made during final design.

Floodplains

The District 4 Caltrans Climate Change Vulnerability Assessment discusses how climate change is expected to bring less precipitation falling in heavier individual rainfall events in the District. These heavier events may change and become more frequent over time. To evaluate how to incorporate the risk of such events in the design of transportation assets, analysts consider changes in the 100-year return period storm event. Water courses within project limits consist of flood controls. The proposed project would result in an increase in impervious surface area. This increase would not significantly affect the regional level of impervious surface area or alter the 100-year flood water surface elevations.

If flooding increases in frequency or severity as a result of climate change, floodplains may need to be remapped. The reduction in water surface elevation and design adjustments based on further hydraulic analysis will ensure the proposed project's resilience to potential changes in precipitation and flooding under climate change.

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4.0 COMMENTS AND COORDINATION

4.1 EARLY COORDINATION AND CONSULTATION

Early and continuing coordination with local, state, and regional agencies is an essential part of the environmental process. It helps California Department of Transportation (Caltrans) determine the necessary scope of environmental documentation and the level of analysis required, and identify potential impacts and avoidance, minimization, and/or mitigation measures and related environmental requirements. Agency consultation and public participation for the proposed project have been accomplished through a variety of formal and informal methods, including project development team (PDT) meetings, interagency coordination meetings, and public meetings. This chapter summarizes the results of Caltrans' efforts to fully identify, address, and resolve project-related issues through early and continuing coordination.

4.1.1 PUBLIC PARTICIPATION

PUBLIC AND AGENCY SCOPING PROCESS

Alameda County Transportation Commission (Alameda CTC), Caltrans, and the project design team held a public open house meeting on May 22, 2019, at the South Berkeley Senior Center in Berkeley, CA. The purpose of the meeting was to solicit input on the preliminary Build Alternatives from local agencies and the community. The location was chosen due to its accessibility and proximity to the project.

The meeting featured an overview of the proposed project, including key take-aways such as funding sponsors, working groups, history, and the schedule of the proposed project. Information on the proposed project alternatives, with the accompanying data and statistics of the traffic patterns was also presented. After the presentation, members of the public were able to ask questions and submit written comments and concerns about the proposed project.

Outreach ahead of the May 2019 meeting included several channels of outreach:

- Mailer invitations to the public open house meeting were sent to approximately 1,400 addresses within a 0.25-mile radius of the I-80/Ashby Avenue interchange
- Postcards were distributed at nearby bike-to-work energizer stations at Parker Street and Seventh Street, 2234 9th Street, Berkeley Bowl West, and Greenway and 65th Street

- Invitation letters to the open house meeting were sent to approximately 60 elected officials and select staff in the cities of Emeryville and Berkeley
- Email invitations to the public open house meeting were sent to approximately 160 recipients, including businesses near the interchange, project work group participants, transit agencies within a 0.5-mile radius of the interchange, and key stakeholders
- Digital advertisements were placed on Berkelyside (https://www.berkeleyside.org), E'ville Eye (https://evilleeye.com), and Facebook
- Invitation posts to the open house meeting were shared via Alameda CTC's Facebook and Twitter feeds, Caltrans District 4 Facebook and Twitter feeds, and Nextdoor Emeryville
- Website postings on the Alameda CTC home page (https://www.alamedactc.org) and I-80/Ashby Avenue Interchange Improvement Project page (https://www.alamedactc.org/programs-projects/highway-improvement/i-80-ashby-avenue-sr-13-interchange-improvements).

COMMUNITY BASED ORGANIZATIONS INVOLVEMENT

Stakeholder outreach began in 2018 and has included a variety of community events. Key stakeholder groups near the project area were identified collaboratively with local agencies. Each of the stakeholder groups were contacted via email in early Spring 2018. Follow-up email and phone messages were sent four to eight days prior to each stakeholder meeting, and a reminder message was sent the day-of.

Stakeholder groups were selected based on their interest and proximity to the project area. These events gave the outreach team opportunities to connect with stakeholder members at established community activities. A detailed description of each stakeholder meeting is provided below.

Bicycle and Pedestrian Meetings

Meeting #1: Bicycle and Pedestrian

Bicycle and Pedestrian Meeting #1 was held at 125 12th Suite #400 on Thursday, February 14, 2019, at 3 pm. The purpose of this meeting was to convene key stakeholders, specifically those who focus on bicycle and pedestrian infrastructure. The meeting attendees shared their concerns and comments regarding the proposed project. Topics of discussion fell into the following categories: project vehicle and bicycle infrastructure; level of service and safety; access to and from Shellmound Street; and financial resources.

Participants raised questions about the types of connections proposed; the demand for the proposed bicycle/pedestrian overcrossing (BPOC) structure, connectivity with other existing and planned projects in the area, and the need to consider future bicycle and pedestrian trip origins.

Participants expressed a desire for the proposed project to improve the Level of Service of the interchange. Participants also raised questions about the relationship between the project's Level of Service and safety for future bicyclists and pedestrians and indicated that safety should be the top priority.

Participants asked how the project would affect bicycle traffic on Shellmound Street and suggested that additional bicycle/pedestrian infrastructure on that roadway might be necessary to accommodate increased demand.

Caltrans and Alameda CTC participants shared information regarding the use of Measure B funding and the possibility of future funding opportunities.

Meeting #2: Bicycle and Pedestrian

Bicycle and Pedestrian Meeting #2 was held at 1111 Broadway on Wednesday, April 10, 2019, from 3:00 pm to 4:30pm. The purpose of the meeting was to reconvene with the group that participated in the Meeting #1 (February 14, 2019), and present them with project updates in relation to pedestrian and bicycle safety. There were nine participants.

Participants raised questions about the types of connections proposed; the demand for the proposed BPOC structure; signalized and stop controlled ramp termini; connectivity with other existing and planned projects in the area; and the need to consider how the proposed 22-foot width can be allocated for bicycle and pedestrian pathways.

Meeting #3: Bicycle and Pedestrian

Bicycle and Pedestrian Meeting #3 was held at 1111 Broadway on Wednesday, November 6, 2019, at 5 pm. This meeting was held to provide updates about project alternatives and solicited input from the various stakeholder groups. Representatives from 12 local agencies and cities were in attendance, including Emeryville, Berkeley, Caltrans, and Alameda CTC.

Participants raised questions regarding types of connections proposed, the demand for the proposed BPOC structure, and the proposed Build Alternative.

Participants requested updates on the proposed bicycle-pedestrian connections to Shellmound/Bay Street, Berkeley, and Aquatic Park in Berkeley.

Caltrans and Alameda CTC participants shared information regarding the use of Measure BB and ATP funding and the possibility of future funding opportunities.

Meeting #4: Bicycle and Pedestrian

Bicycle and Pedestrian Meeting #4 was a virtual meeting held on Microsoft Teams on October 7, 2020, from 5:00 pm to 7:00 pm. The purpose of the meeting was to provide project updates, status of action items from Meeting #3, status of Shellmound Street, Vista Park concept and the West Frontage Road/San Francisco Bay Trail connection. In addition, the aesthetics of the project design and BPOC concepts were discussed. The meeting had 34 participants.

Participants showed concerns regarding the project's cost and how the project would be funded. The current projected cost of $100 million dollars, which would be supplied by Measure BB funds, ATP Grants, and other sources was discussed. For additional details regarding funding for the proposed project, see Chapter 1.0, Proposed Project.

Participants expressed a desire for the proposed project to improve the Level of Service of the interchange. Participants also raised questions about the relationship between the project's Level of Service and safety for future bicyclists and pedestrians and indicated that safety should be the top priority.

Work Group Meetings

Meeting #1: Work Group Meeting

Work Group Meeting #1 was held at 1111 Broadway on Wednesday October 10, 2018, from 4:00 pm to 6:00 pm. The purpose of this meeting was to convene key stakeholders in a collaborative "work group" to interface directly with the Project Development Team as well as share valuable input. The inaugural work group meeting was attended by 15 participants from various stakeholder groups including Bike East Bay and the East Bay Regional Park District.

The primary concern was around adding a new vehicular connection to Shellmound and potentially increasing vehicular traffic as a result. Shellmound Street is currently a Class III facility providing access to Aquatic Park; it is used by members of the community for its connection to Aquatic Park. A secondary concern was making sure the design on Ashby west of the Union Pacific Railroad crossing is designed for separated bicycle and walking facilities with connections to Aquatic Park.

Participants relayed concerns regarding sea level rise within the project area, specifically around West Frontage Road. Given the Ashby Interchange's proximity to the San Francisco Bay, participants discussed the potential for sea level rise effects and flooding in the project area.

Participants discussed ensuring that the proposed project also does not simply displace congestion onto neighboring roadways, inadvertently giving rise to other traffic and/or safety issues.

Meeting #2: Work Group Meeting

Work Group Meeting #2 was held at 1111 Broadway on Tuesday, April 16, 2019, from 3:00 pm to 4:00 pm. This meeting was to reconvene key stakeholders from Work Group Meeting #1 in order to ensure there was sufficient representation from the broadest possible cross-section of the proposed project's key stakeholder groups. Representatives from responsible agencies, Caltrans, and Alameda CTC responded to questions and comments. The work group meeting was attended by 16 participants, 8 of whom were members of the public.

Primary concerns discussed during the meeting included features to enhance pedestrian and bicycle safety (e.g., signals and crosswalks), and limiting interactions between bicycles, pedestrians, and vehicles.

Meeting #3: Work Group Meeting

Work Group Meeting #3 was a virtual meeting held on Zoom on May 13, 2021, from 5:00 p.m. to 6:30 p.m. This meeting was held to reconvene the key stakeholders in the work group and update them on the project status and discuss the single build alternative; BPOC design concepts; and the project schedule. Representatives from responsible agencies, Alameda CTC, and the City of Emeryville responded to questions and comments mainly concerning project costs and funding gaps, and a bicycle/pedestrian bridge connection at Ashby Avenue. A total of 19 people attended the meeting.

Participants raised questions regarding types of connections proposed, the demand for the proposed BPOC structure, and the proposed Build Alternatives.

Caltrans and Alameda CTC participants shared information regarding the use of Measure B funding and the possibility of future funding opportunities.

NOTICE OF AVAILABILITY OF THE ENVIRONMENTAL DOCUMENT

A Notice of Availability was circulated to the project mailing list and to parties listed on the distribution list (see Chapter 6.0, Distribution List) on November 30, 2021. All property owners/occupants within a 500-foot radius of the project area received a project mailer informing them of the availability of the IS/EA. The notice provided information on the proposed project including a summary of the alternatives being considered, where the environmental document can be reviewed, the address to where comments can be sent, and the close of the comment period.

PUBLIC MEETING

Information on the proposed project and the Draft IS/EA will be presented at the following public forum. The public open house will be conducted virtually during the public comment period on January 11, 2022.

Comments on the Proposed IS/Draft EA must be submitted by January 31, 2022 at 5:00 p.m.

4.1.2 NATIVE AMERICAN CONSULTATION

On August 22, 2019, archeologists contacted the Native American Heritage Commission (NAHC) requesting a search of the Sacred Lands File on behalf of the proposed project. The NAHC responded stating that no significant resources have previously been identified in the area of potential effect. A list of interested Native American Tribal representatives with traditional lands or cultural places within Alameda County was included in the NAHC response.

The NAHC provided a list of seven tribal contacts that may have information pertinent to the project area or have concerns regarding the proposed project. In November 2019, letters were sent via certified mail to the following seven contacts provided by the NAHC:

- The Amah Mutsun Tribal Band, Valentin Lopez, Representative
- Costanoan Rumsen Carmel Tribe, Tony Cerda, Chairperson
- Indian Canyon Mutsun Band of Coastanoan, Ann Marie Sayers, Chairperson
- Muwekma Ohlone Indian Tribe of the San Francisco Bay Area, Charlene Nijmeh, Chairperson
- North Valley Yokuts Tribe, Katherine Erolinda Perez, Chairperson
- The Confederated Villages of Lisjan, Corrina Gould, Chairperson
- Ohlone Indian Tribe, Andrew Galvin, Chairperson

One response was received via email from Chairperson Katherine Perez of the Northern Valley Yokuts Tribe. A field review of the project area was conducted on February 13, 2020, by Chairperson Perez and two other tribal representatives, along with Caltrans District 4 archaeology personnel, Kathryn Rose and Katie Jorgensen. Chairperson Perez expressed concern for the potential of deeply buried cultural resources beneath the fill on which I-80 and the interchange has been constructed. Project team members shared the general excavation would only be up to 10 feet, while

cast-in-drilled-hole (CIDH) pile foundations would require drilled excavations of approximately 80 feet. Thus, while possible, the likelihood of discovering deeply buried cultural resources is low. Additionally, with adherence to PF-CUL-1 and PF-CUL-2, the potential effects would be minimized. For additional information about consultation with Native American tribes, see Section 2.1, Human Environment.

4.1.3 CONSULTATION AND COORDINATION WITH PUBLIC AGENCIES

PROJECT DEVELOPMENT TEAM

Regular PDT meetings have provided a forum for coordination, issue resolution, and information feedback between Caltrans, Alameda CTC, the cities of Emeryville and Berkeley, and project consultants.

PDT meetings have occurred since 2017 and will continue to occur throughout the remainder of the environmental and project approval process. The PDT represents various fields of expertise, including design, environmental, traffic operations, right-of-way, and project management. Accordingly, the PDT convenes to review the project status, address issues as they arise, and provide overall direction throughout the project development process.

AGENCY CONSULTATION

There are several public agencies involved in environmental clearance and permitting of the proposed project. These agencies include the State Historic Preservation Officer, San Francisco Bay Conservation and Development Commission (BCDC), and the Metropolitan Transportation Commission (MTC) Air Quality Conformity Task Force.

MTC is responsible for updating the Regional Transportation Plan (RTP), which is a comprehensive blueprint for the development of mass transit, highway, freight, bicycle and pedestrian facilities. MTC and the Association of Bay Area Governments (ABAG) program San Francisco Bay Area projects in the RTP *Plan Bay Area 2050*. The I-80/Ashby Avenue Interchange improvement is included in the RTP under reference number ID 17-01-0037. The proposed project is also included in the MTC Transportation Improvement Program (TIP) under reference numbers ID ALA170002. The proposed project is also included in the MTC adopted the TIP on May 17, 2021. FHWA approved and incorporated the TIP into the Federal Statewide Transportation Improvement Program (FSTIP) on July 16, 2021.

A quantitative particulate matter (PM) analysis is required under the U.S. EPA Transportation Conformity rule for projects of air quality concern (POAQC). On March 10, 2006, the U.S. EPA published a final rule that establishes the transportation conformity criteria and procedures for determining which transportation projects must be

analyzed for local air quality impacts. MTC's Air Quality Conformity Task Force met on July 23, 2020, as part of interagency consultation for the Build Alternatives and took action to conclude that the proposed project is not a POAQC.

Caltrans has begun early consultation with BCDC regarding the required permit for temporary work within BCDC jurisdiction. As part of the permitting process, BCDC requires a Sea Level Rise Assessment and a comprehensive construction closure, detour, and signage plan. A Sea Level Rise Memorandum was prepared for the project, and approved November 1, 2021. A virtual BCDC Focus meeting for the proposed project was held on August 18, 2021.

Permits and approvals from various agencies, such as the MTC, San Francisco Bay Regional Water Quality Control Board, and the U.S. Army Corps of Engineers would be required for project construction. Table 1.6-1 in Chapter 1 provides a list of all anticipated permits and approvals needed for this project.

5.0 LIST OF PREPARERS

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6.0 DISTRIBUTION LIST

This Draft Initial Study and Environmental Assessment (IS/EA) was distributed to the following responsible and trustee agencies and elected officials. Distribution of this Draft IS/EA included hard copies, electronic media, reference to the web site in which the document is available, or a combination of these. Agency names marked with an asterisk (*) received copies through the State Clearinghouse.

In addition to the following list, local officials, stakeholders, community groups, businesses, and interested persons on the project mailing list were notified of the availability of this document and public meetings as described in Chapter 4.0, Comments and Coordination. Furthermore, all property owners/occupants within a 500-foot radius of the project area received a project mailer informing them of the availability of the Draft IS/EA.

FEDERAL AGENCIES

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