Interstate 80/Gilman Street Interchange Improvement Project

ALAMEDA COUNTY, CALIFORNIA
District 04 -ALA – 80 – POST MILE 6.38 / 6.95
EA 04-0A7700 / Project ID# 0400020155

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

Prepared by the
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 U.S.C. 327 and the Memorandum of Understanding dated December 23, 2016, and executed by FHWA and Caltrans.

June 2019

GENERAL INFORMATION ABOUT THIS DOCUMENT

The California Department of Transportation (Caltrans), as assigned by the Federal Highway Administration (FHWA), and the Alameda County Transportation Commission (Alameda CTC) have prepared this Initial Study with Negative Declaration/Environmental Assessment (IS/EA) for the proposed Interstate 80 (I-80)/Gilman Street Interchange Improvement Project, located in Alameda County, in the cities of Berkeley and Albany. Caltrans is the lead agency under both the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). This document examines the potential environmental impacts of alternatives being considered for the proposed project. It describes why the project is being proposed, alternatives for the project, the existing environment that could be affected by the project, potential impacts from each of the alternatives, and proposed avoidance and minimization measures. The Initial Study/Draft Environmental Assessment circulated to the public for 42 days between December 26, 2018, and February 5, 2019. Comments received during this period are included in Appendix H. Elsewhere throughout this document, a vertical line in the margin indicates a change made since the draft document circulation. Minor editorial changes and clarifications have not been so indicated. Additional copies of this document are available for review at the District 4 Office (111 Grand Avenue, Oakland, CA 94612); Alameda County Transportation Commission Office (1111 Broadway #800, Oakland, CA 94607), Berkeley Public Library West Branch, 1125 University Avenue, Berkeley, CA 94702; Berkeley Tool Landing Library, 1901 Russell Street (at Martin Luther King Street), Berkeley, CA 94703; and Albany Library, 1247 Marin Avenue, Albany, CA 94706. The related technical studies are available for review at the District 4 Office. This document may be downloaded from the following websites http://www.dot.ca.gov/d4/envdocs.htm or https://www.alamedactc.org/i80gilman.

Alternative formats:

For individuals with sensory disabilities, this document can be made available in Braille, large print, on audiocassette, or on computer disk. To obtain a copy in one of these alternate formats, please call or write to Caltrans, Attention: Cristin Hallissy, Branch Chief, Department of Transportation, Office of Environmental Analysis, MS 8B, 111 Grand Avenue, Oakland, CA 94612, (510) 622-8717, e-mail: Cristin.Hallissy@dot.ca.gov, or use California Relay Service 1 (800) 735-2929 (TTY), 1 (800) 735-2922 (Voice) or 711.

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EA: 0A7700/ Project ID# 0400020155

INTERSTATE 80/GILMAN STREET INTERCHANGE IMPROVEMENT PROJECT

INITIAL STUDY WITH NEGATIVE DECLARATION / ENVIRONMENTAL ASSESSMENT WITH FINDING OF NO SIGNIFICANT IMPACT

Submitted Pursuant to (State) Division 13, Public Resources Code
(Federal) 42 U.S.C. 4332(2)(c) and 49 U.S.C. 303, and/or 23 U.S.C. 138

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

COOPERATING AGENCIES:
U.S. Army Corps of Engineers, National Oceanic and Atmospheric Administration/National Marine Fisheries Service, Bay Conservation and Development Commission, State Historic Preservation Officer, Regional Water Quality Control Board, and the City of Berkeley

RESPONSIBLE AGENCIES:
California Transportation Commission

6/21/19
Date

Tony Tavares
District 4 Director
California Department of Transportation
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CALIFORNIA DEPARTMENT OF TRANSPORTATION
FINDING OF NO SIGNIFICANT IMPACT

FOR THE

INTERSTATE 80/GILMAN STREET INTERCHANGE IMPROVEMENT PROJECT

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

The environmental review, consultation, and any other action required in accordance with applicable Federal laws for this project is being, or has been, carried out by Caltrans pursuant to 23 United States Code 327 and the Memorandum of Understanding dated December 23, 2016, executed by the Federal Highway Administration and Caltrans.

6/21/19
Date

Tony Tavares
District 4 Director
California Department of Transportation

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NEGATIVE DECLARATION

Pursuant to: Division 13, Public Resources Code

Project Description

The California Department of Transportation (Caltrans) and the Alameda County Transportation Commission (Alameda CTC) propose to improve operations for vehicles, bicycles, and pedestrians where Interstate-80 (I-80) and Gilman Street intersect. The purpose of the project is to simplify and improve navigation, mobility and traffic operations, reduce congestion, vehicle queues and conflicts, improve local and regional bicycle connections and pedestrian facilities, and improve safety at the I-80/Gilman Street interchange.

Determination

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

The proposed project would have no effect on existing and future land use; consistency with state, regional, and local plans and programs; community impacts; traffic and transportation/pedestrian and bicycle facilities; tribal resources; wild and scenic rivers; growth; farmlands/timberlands; mineral resources; paleontology; wetlands; plant species; animal species; threatened and endangered species; natural communities; energy; wildfire; and cumulative impacts. In addition, the project would have less than significant effects to visual/aesthetics; utilities/emergency services; cultural resources; hydrology and floodplain; water quality and stormwater runoff; geology, soils, and seismicity; hazardous waste/materials; air quality; and noise.

Tony Tavares
District 4 Director
California Department of Transportation

6/21/19
Date

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Summary

NEPA Assignment

California participated in the "Surface Transportation Project Delivery Pilot Program" (Pilot Program) pursuant to 23 United States Code (U.S.C.) 327, for more than 5 years, beginning July 1, 2007, and ending September 30, 2012. MAP-21 (Moving Ahead for Progress in the 21st Century) (Public Law 112-141), signed by President Barack Obama on July 6, 2012, amended 23 U.S.C. 327 to establish a permanent Surface Transportation Project Delivery Program. As a result, the California Department of Transportation (Caltrans) entered into a Memorandum of Understanding (MOU) pursuant to 23 U.S.C. 327 (National Environmental Policy Act [NEPA] Assignment MOU) with the Federal Highway Administration (FHWA). The NEPA Assignment MOU became effective October 1, 2012, and it was renewed on December 23, 2016, for a term of 5 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 of the United States Department of Transportation (USDOT) Secretary's responsibilities under NEPA. This assignment includes projects on the State Highway System and Local Assistance Projects off of the State Highway System within the State of California, except for certain categorical exclusions that FHWA assigned to Caltrans under the 23 U.S.C. 326 Categorical Exclusion Assignment MOU, projects excluded by definition, and specific project exclusions.

The project is located in Alameda County at the Interstate 80 (I-80)/Gilman Street interchange in the cities of Berkeley and Albany (Post Miles [PM] 6.38 to PM 6.95). The purpose of the project is to simplify and improve navigation, mobility, and traffic operations; reduce congestion, vehicle queues and conflicts; improve local and regional bicycle connections and pedestrian facilities; and improve safety at the I-80/Gilman Street interchange. Two alternatives are under consideration for the proposed project, the No Build Alternative and the Build Alternative – a Roundabout Alternative. The Build Alternative includes the reconfiguration of I-80 ramps and intersections at Gilman Street with roundabouts. The Build Alternative includes construction of pedestrian and bicycle facilities.

This Initial Study/Environmental Assessment (IS/EA) addresses the proposed project's potential to have impacts on the environment. Potential impacts, project features, and avoidance and minimization measures (AMM) are summarized in Table S-1 on the following pages. The full list and text of the project's AMM can be found in Appendix D. Resource area significance determinations are further discussed in the California Environmental Quality Act (CEQA) Checklist in Chapter 3.

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Table S-1: Summary of Environmental Impacts

Affected Resource	Potential Impact		Avoidance and Minimization Measures (AMM)
	No Build Alternative	Build Alternative – Roundabout Alternative	
Existing and Future Land use	No impacts.	No impacts.	None.
Consistency with State, Regional, and Local Plans and Programs	No impacts.	No impacts.	None.
San Francisco Bay and Shoreline	No impacts.	The Build Alternative includes improvements within SF Bay Conservation and Development Commission (BCDC) jurisdiction including modifications to the Bay shoreline, reinforced concrete pipe outfall, replacement rock slope protection, removal of parking spaces, and an extension of the San Francisco Bay Trail (Bay Trail). The proximity of the study area to San Francisco Bay and the elevation of the project site would make the area susceptible to inundation from future sea level rise.	Pre-permitting consultation will be initiated.
Parks and Recreational Facilities	No impacts.	The Build Alternative would require acquisition of 0.45 acre from Tom Bates Regional Sports Complex and would extend the Bay Trail approximately 660 feet to the west along the south side of Gilman Street, from its current terminus at the intersection of West Frontage Road and Gilman Street to just beyond the Berkeley city limits. On-street parking would be reduced by approximately 18 informal spaces at the end of Gilman Street as a result of the new trail extension. The Build Alternative would require acquisition of 1.27 acres from Tom Bates Regional Sports Complex for temporary construction easements. This would temporarily reduce the amount of parking available for users of the sports complex by approximately 125 spaces for the duration of the project. Construction of the pedestrian and bicycle overcrossing would result in closures of 800 feet of the Bay Trail for limited periods of time, 370 feet for construction of the overcrossing retaining wall, and 430 feet for construction of the overcrossing columns.	AMM COM-1: Caltrans and Alameda County Transportation Commission (Alameda CTC), and will coordinate as needed with the City of Berkeley Office of Parks, Recreation, and Waterfront (510-981-6700) as operators of Tom Bates Regional Sports Complex to minimize event scheduling impacts due to reduction of parking from potential staging areas during construction. These potential additional staging areas would be subject to additional permits and owner permissions to be secured by the contractor before the staging area could be used.

Table S-1: Summary of Environmental Impacts

Affected Resource	Potential Impact		Avoidance and Minimization Measures (AMM)
	No Build Alternative	Build Alternative – Roundabout Alternative	
Relocations and Acquisitions	No impacts.	The Build Alternative would require partial acquisitions along property frontages in study area. Temporary construction easements from some of the adjacent parcels would be required for construction.	None.
Environmental Justice	No impacts.	The Build Alternative would not result in disproportionate or adverse effects to minority or low-income populations.	AMM COM-2: A Public Outreach Plan for environmental justice populations will be developed to identify specific methods of communication. Effective communication methods include distributing flyers within the study area, at The Hub (1901 Fairview Street, Berkeley), and at community centers, houses of worship, and grocery stores, and posting information on vehicles, bus stops, and other locations frequented by low-income and minority populations.
Utilities and Emergency Services	Emergency service providers would experience increased delays due to traffic congestion.	Existing PG&E overhead electric lines would be relocated under the Build Alternative; some may be placed underground. An existing East Bay Municipal Utility District (EBMUD) recycled water transmission line would be relocated and extended as part of the Build Alternative. A new sewer line may be installed along Gilman Street. Under the Build Alternative, there would be sufficient space for an emergency vehicle to pass other vehicles in the roundabout.	AMM COM-3 in Traffic and Transportation/Pedestrian and Bicycle Facilities will help reduce potential impacts to utilities and emergency services (see full text of measure in Traffic and Transportation, Pedestrian and Bicycle Facilities).

Table S-1: Summary of Environmental Impacts

Affected Resource	Potential Impact		Avoidance and Minimization Measures (AMM)
	No Build Alternative	Build Alternative – Roundabout Alternative	
Traffic and Transportation, Pedestrian and Bicycle Facilities	Circulation and access and traffic accidents would continue to worsen due to increasing congestion.	Average delay at intersections in the study area would be reduced under the Build Alternative. Pedestrian and bicycle facilities would be improved with construction of a pedestrian and bicycle overcrossing, shared-use path, two-way cycle track, and extension of the Bay Trail.	AMM COM-3: A public education campaign will be developed by Alameda CTC in coordination with Caltrans and implemented to inform area drivers and residents about the new roundabout to minimize potential accidents and disruptions to emergency service providers. It will include information on how drivers should respond when emergency vehicles are approaching the roundabout. Proactive public information systems, such as changeable message signs, will notify travelers of pending construction activities. The campaign will include measures such as: • Holding public meetings prior to opening the roundabout to traffic and/or giving presentations at local organization meetings; • Preparing news releases detailing what motorists and pedestrians can expect during and after construction; and • Distributing an informational brochure to residents explaining how to navigate roundabouts (both in a vehicle and as a pedestrian or bicyclists). AMM COM-4: Signs would be placed on the trail in advance of construction activities to notify users of temporary closures. The Alameda CTC project website and Bay Trail Project website will be updated with temporary trail closures and traffic detours.
Visual/ Aesthetics	No impacts.	The Build Alternative would alter the existing visual character and quality to a less than substantial degree with the addition of the pedestrian and bicycle overcrossing, improvements to the path under the I-80 undercrossing, roundabouts, and potential undergrounding of overhead utilities.	AMM VA-1 through AMM VA-12: Minimization measures are included to help improve the overall visual quality of the study area and help soften the additional hard surfaces created by the project elements.

Table S-1: Summary of Environmental Impacts

Affected Resource	Potential Impact		Avoidance and Minimization Measures (AMM)
	No Build Alternative	Build Alternative – Roundabout Alternative	
Cultural Resources	No impacts.	To prevent inadvertent project-related effects to the National Register of Historic Places (NRHP)-assumed eligible prehistoric archaeological site identified within the area of potential effect (APE), an environmentally sensitive area (ESA) would be clearly demarcated around the established boundary of the site. An Archaeological Monitoring Area will be established in proximity to the site boundaries.	AMM CUL-1, AMM CUL-2, and AMM CUL-3: No project-related activities will take place within the vertical limits of the ESA and within an established Archaeological Monitoring Area.
Hydrology and Floodplain	No impacts.	The Build Alternative would add just under 1 acre of impervious surface area, which would have a negligible impact on flooding in the study area. The project would not result in a significant encroachment in the floodplain.	None.
Water Quality and Stormwater Runoff	The No Build Alternative may have potential permanent water quality impacts due to increasing congestion, leading to a greater deposition of particulates from exhaust and heavy metals from braking.	Stormwater impacts would be minimized through proper implementation of permanent stormwater treatment measures. There would be minimal to no impacts on water quality associated with the local water supply, recreational fishing, or other recreational aquatic features. Temporary construction site Best Management Practices (BMPs) will be implemented. Design features to address water quality impacts are a condition of the Caltrans Municipal Separate Storm Sewer Systems (MS4) Permit, Municipal Regional Permit (MRP), Construction General Permit (CGP), and other regulatory agency requirements.	AMM WQ-1 dictates restoration methods for disturbed areas, such as all slopes and disturbed areas will be restored to original topography and stabilized with effective erosion control materials. AMM WQ-2 will require turbidity monitoring during installation of the cofferdam and during dewatering.

Table S-1: Summary of Environmental Impacts

Affected Resource	Potential Impact		Avoidance and Minimization Measures (AMM)
	No Build Alternative	Build Alternative – Roundabout Alternative	
Geology, Soils, and Seismicity	No impacts.	The primary seismic hazards in the study area are strong shaking and liquefaction. Foundations for the pedestrian and bicycle overcrossing would be located on cast-in-drilled-hole piles 120 feet below the existing ground surface. Retaining walls for the pedestrian bridge will be excavated 50 feet below the ground surface. Foundations should be placed below the potentially liquefiable soils or ground improvements installed to provide lateral resistance for the foundation elements. Caltrans seismic design procedures would ensure structural integrity. All project components will be designed in accordance with standard engineering practices and Caltrans standard specifications.	None.
Paleontology	No impacts.	Construction of the Build Alternative is likely to encounter geologic units that could potentially contain paleontological resources. Any encountered fossils are likely to be poorly preserved and would not meet significance criteria because the sandstone has undergone extensive hydrothermal alteration. Any paleontological resource found within the low paleontological sensitivity deposits would be disturbed, removed from its stratigraphic location in the subsurface, and potentially damaged. These paleontological resources would not meet significance criteria.	None.

Table S-1: Summary of Environmental Impacts

Affected Resource	Potential Impact		Avoidance and Minimization Measures (AMM)
	No Build Alternative	Build Alternative – Roundabout Alternative	
Hazardous Waste and Materials	No impacts.	Contamination by petroleum hydrocarbons is widely reported in the study area, and many facilities formerly operated aboveground and underground storage tanks for fuel or solvent storage. Impacts from historical releases of chemicals could occur if contaminated media is encountered during excavations associated with light pole foundations, utility relocations, drainage systems, and piles for the pedestrian bridge overcrossing over I-80. The proposed excavation within the San Francisco Bay Is unlikely to encounter contaminated sediment.	AMM HW-1 through AMM HW-15: The soil sampling plan for the preliminary site investigation, to be conducted during the design phase, shall include a strategy for assessing the concentrations of metals associated with historical industrial releases in the study area. Due to the multiple potential sources and potential transport mechanisms (i.e., air emissions and stormwater flows), the sampling plan shall develop a statistical approach to characterizing the project site where surface and subsurface soils will be disturbed during construction. The preliminary site investigation shall collect and analyze soil samples for lead in areas near roadways or painted structures where surface soil will be disturbed.
Air Quality	Air quality would worsen in the study area under the No Build Alternative due to increased congestion, slower speeds, queuing, and delay times.	When compared to the No Build Alternative, the Build Alternative would result in slight reductions in daily criteria pollutant emissions due to improved traffic flow. The contractor shall comply with Caltrans Standard Specifications and require compliance with all applicable laws and regulations related to air quality.	AMM AQ-1: Measures to reduce particulate matter of 10 micrometers or smaller (PM_{10}), particulate matter of 2.5 micrometers or smaller ($PM_{2.5}$), 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.

Table S-1: Summary of Environmental Impacts

Affected Resource	Potential Impact		Avoidance and Minimization Measures (AMM)
	No Build Alternative	Build Alternative – Roundabout Alternative	
Noise	No impacts.	Noise modeling results indicated noise levels would not increase between existing conditions and the design year. The noise levels in the design year are predicted to approach or exceed the Noise Abatement Criteria (NAC) at three receptors. Noise abatement was considered; however, the estimated cost to construct noise abatement for these receptors far exceeds the reasonable allowance, and the noise barriers are not recommended for construction.	AMM NOI-1: 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. Each internal combustion engine used for any purpose on the job or related to the job shall be equipped with a muffler of a type recommended by the manufacturer. No internal combustion engine should be operated on the jobsite without an appropriate muffler. Idling equipment will be turned off. AMM NOI-2: 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. AMM NOI-1: Work hours along the internal access road within Golden Gate Fields property would only occur from 10:00 a.m. to 5:00 p.m., and night work would be prohibited from occurring within or adjacent to Golden Gate Fields property.
Natural Communities	No impacts.	The Build Alternative would not result in impacts to sensitive habitats or natural communities. The project would result in the removal of approximately 47 trees.	AMM AS-21 an AMM AS-4 would minimize impacts to natural communities. AMM AS-2 specifies pre-construction surveys for nesting birds will be conducted by a qualified Caltrans-approved biologist during the nesting season (February 1 to September 30). AMM AS-4 states native trees removed will be replaced by native trees at a 1:1 ratio. All other non native tress removed will be replaced with natives at a 1:1 ratio to the extent possible.
Wetlands and Other Waters	No impacts.	The Build Alternative would result in permanent and temporary impacts to San Francisco Bay associated with installation of the tidal flap gate. These impacts would be minor in nature. No stream or wetland impacts are proposed.	None. If required, avoidance and minimization measures for impacts would be determined at the design phase.

Table S-1: Summary of Environmental Impacts

Affected Resource	Potential Impact		Avoidance and Minimization Measures (AMM)
	No Build Alternative	Build Alternative – Roundabout Alternative	
Animal Species	No impacts.	Construction-related disturbance has the potential to result in the take of nests, eggs, young, or individuals of protected species.	AMM AS-1 through AMM AS-4 would avoid and minimize impacts to animal species. These measures include pre-construction surveys and biological monitoring, installation of a cofferdam, and replacement of trees.
Threatened and Endangered Species	No impacts.	Five federally listed endangered or threatened fish species have the potential to occur within the proposed project area. The effect finding for four species was “may affect, but not likely to adversely affect”. The remaining species had a “no effect” finding. Permanent impacts to the critical habitat for these species, San Francisco Bay, have been minimized and would be limited to removal and replacement of the existing headwall, wingwalls, and rock slope protection at the Gilman Street outfall. Sediment excavation within the bay is also proposed. Two federally listed threatened or endangered bird species have the potential to occur within the proposed project area. The effect finding for each was “no effect” with no potential for a take.	AMM AS-1 through AMM AS-4 would avoid and minimize impacts to threatened and endangered species.
Invasive Species	No impacts.	Implementation of the Build Alternative has the potential to spread invasive species by the entering and exiting of construction equipment. If 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 invasive species.	None.
Climate Change	The No Build Alternative would result in less CO_2 emissions than existing conditions, primarily due to improvements in engine exhaust controls.	The Build Alternative would result in less CO_2 emissions due to improved traffic flow when compared to the No Build Alternative and existing conditions.	AMM GHG-1 through AMM GHG-5 and AMM SLR-1 through AMM SLR-3 would avoid and minimize impacts to greenhouse gases and sea-level rise.

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Chapter 1 Proposed Project

1.1 Introduction

The California Department of Transportation (Caltrans) District 4, in cooperation with the Alameda County Transportation Commission (Alameda CTC), proposes the Interstate 80 (I-80)/Gilman Street Interchange Improvement Project to improve traffic, pedestrian, and bicycle operations. The Gilman Street interchange is located on I-80 between Post Miles (PM) 6.38 and 6.95 in the cities of Berkeley and Albany, Alameda County (Figures 1-1 and 1-2).

Within the limits of the proposed project, I-80 is a conventional 10-lane freeway with 12-foot-wide lanes and 11-foot-wide shoulders. Gilman Street is a four-lane major arterial with 11-foot-wide lanes and 6-foot-wide shoulders that passes underneath I-80. The I-80/Gilman Street interchange is a four-lane arterial roadway (Gilman Street) with two lanes in the east-west direction that are intersected with four I-80 on- and off-ramps.

Project documentation has been prepared in compliance with the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). Caltrans is the lead agency under NEPA and CEQA.

The project is funded by federal and local sources. It is included in the *Alameda Countywide Transportation Plan* and Metropolitan Transportation Commission's (MTC) *2040 Regional Plan*. The 2017 Transportation Improvement Program Identification Number is ALA050079, and the Regional Transportation Plan Identification Number is 21144. The project cost is estimated at $55,357,000, which includes $53,362,400 for construction and $2,788,418 for right-of-way acquisition and utilities. Project construction is expected to start in late 2020 and be completed in late 2023.

1.2 Project Purpose and Need

1.2.1 Purpose

The purpose of the proposed project is to:

- Simplify and improve navigation, mobility, and traffic operations on Gilman Street between West Frontage Road and 2nd Street through the I-80 interchange
- Reduce congestion, vehicle queues, and traffic, bicycle, and pedestrian conflicts

Figure 1-1: Project Vicinity

Figure 1-2: Project Location

- Improve local and regional bicycle and pedestrian facilities through the I-80/ Gilman Street interchange
- Improve safety at the I-80/Gilman Street interchange

Project Goal

A goal of the proposed project is to improve and enhance the Gilman Street entry corridor into West Berkeley.

1.2.2 Need

I-80 is a 10-lane freeway that extends through Berkeley. Gilman Street is classified as a major arterial with a posted speed limit of 25 miles per hour (mph) and is designated as a truck route. Vehicular traffic on Gilman Street is comprised of commuter, local, and commercial truck traffic. Traffic controls along Gilman Street include pavement markings, with channelization, which is the separation of different traffic movements, at the 6th, 8th, and 9th Street intersections only. Gilman Street is a four-lane major arterial with 11-foot-wide lanes and 6-foot-wide shoulders that passes underneath I-80. An arterial roadway is a high-capacity urban roadway. The I-80/Gilman Street interchange is a four-lane arterial roadway (Gilman Street) with two lanes in the east-west direction that are intersected with four I-80 on- and off-ramps. Traffic controls on all approaches to Gilman Street consist of stop signs and pavement markings. These conditions, along with an overall increase in vehicle traffic, have created poor and confusing operations in the interchange area.

Other improvements have been identified, including completing a link in the local (Gilman Street) and regional (San Francisco Bay Trail [Bay Trail]) bikeway system and improved pedestrian crossings in the project study area. Currently, there are no clearly identified routes or facilities for pedestrians and bicyclists to safely access recreational facilities west of I-80. There is also a gap between the Class II facility along Gilman Street and the Class I Bay Trail facility immediately west of I-80, creating potential conflicts between vehicles and bicyclists.

1.2.2.1 Capacity, Transportation Demand, and Safety

Capacity

The segment of I-80 from the San Francisco-Oakland Bay Bridge Toll Plaza to the Carquinez Bridge through the Gilman Street interchange is considered the most congested freeway segment in the San Francisco Bay Area. The existing multi-leg stop sign-controlled intersections at the interchange cannot efficiently and safely clear

traffic movements. Major delays occur within the I-80/Gilman Street interchange area due to the comingling of local traffic with commute and peak-hour traffic from the adjacent interstate facilities.

Level of Service (LOS) is a rating of congestion and varies on a scale from LOS A to LOS F, where LOS A represents stable flow and very slight delay, and LOS E represents unstable flow, poor progression, and long cycle lengths. At LOS F, an intersection is considered over capacity and operates at forced-flow, jammed conditions.

The AM and PM peak-hour LOS for each study intersection was determined using Synchro, a traffic analysis software program, and the procedures from the 2000 Highway Capacity Manual Operational Methodology. As part of this methodology, the average delay per vehicle is used to determine the intersection LOS. The AM peak hour is from 8:00 to 9:00 a.m., and the PM peak hour is from 5:00 to 6:00 p.m. The results of this analysis are presented in Table 1-1. All of the signalized and all-way-stop intersections operate at LOS D or better, while most of the two-way-stop control intersections operate at LOS E or F during at least one peak hour due to the high traffic volumes on Gilman Street and delay on the worst approach.

Table 1-1: Existing Intersection Level of Service

Intersection	AM Peak		PM Peak	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
Gilman Street at West Frontage Road	>50.0	F	>50.0	F
Gilman Street at westbound I-80 ramps	>50.0	F	>50.0	F
Gilman Street at eastbound I-80 ramps	18.9	C	>50.0	F
Gilman Street at Eastshore Highway	>50.0	F	>50.0	F
Gilman Street at 2nd Street	26.8	D	41.1	E
Gilman Street at 4th Street	74.2	F	>50.0	F
Note: Delay in seconds per vehicle.				

Source: Traffic Operations Analysis Report, 2017.

Under existing conditions, a significant amount of traffic exits the freeway at the Gilman Street off-ramp during the AM peak hour and uses the frontage road between Gilman Street and University Avenue to be ahead of the queue (i.e., queue jumping). This pattern is projected to continue and grow with increases in traffic demands along I-80. As a result, the queue-jumping demand is projected to be higher than the existing conditions, and the intersections are projected to operate at LOS F in the future. There

are no plans to restrict queue jumping because restrictions would cause ramp traffic to back up onto the mainline.

Additionally, Union Pacific Railroad (UPRR) tracks cross Gilman Street at 3rd Street. Increased freight and commuter rail traffic through this area impedes local traffic circulation, causing delays at the Gilman Street and 3rd Street at-grade crossing.

The *West Berkeley Circulation Master Plan Report* (2009) also identified the intersection of Gilman Street and the I-80 westbound on-/off-ramp operating at unacceptable conditions (i.e., LOS E or F) during weekday morning peak-period conditions (7:00 to 9:00 a.m.). Under weekday evening peak period conditions (4:00 to 6:00 p.m.), this same intersection, along with the Gilman Street and 2nd Street intersection, operated at unacceptable conditions (i.e., greater than or equal to LOS D).

Transportation Demand

The I-80/Gilman Street interchange has been an area of concern for the City of Berkeley for several years due to heavy congestion, substantial delays, and traffic safety. Future conditions for the study area were studied in the *West Berkeley Circulation Master Plan Report* (2009). This study used future land use assumptions for West Berkeley and compared them to other projections for the same area, including the regional Association of Bay Area Government's (ABAG) projections (2007) and the Alameda County Congestion Management Agency's travel demand model (2007). The study identified 1,747 new morning peak vehicle trips would be generated within West Berkeley by 2030, along with 1,983 evening peak vehicle trips.

Safety

According to data in the approved *Traffic Operations Analysis Report* (2017), accident data (from years 2011–2013) showed that 33 accidents were recorded on the I-80/Gilman Street interchange on- and off-ramps, which is a 27 percent increase over the previous 3-year period (Caltrans Traffic Accident Surveillance and Analysis System, 2014). In terms of ramp accident rates at the I-80/Gilman Street interchange, the westbound I-80 off-ramp to Gilman Street experienced higher accident rates than the statewide ramp accident average. A total of 2.09 accidents per million vehicles was recorded for this off-ramp location, which is double the statewide average of 1.01 accidents per million vehicles.

Additionally, the existing westbound Class II bike lane along Gilman Street ends approximately 85 feet east of 2nd Street, forcing bicyclists to navigate multiple

intersections westward towards Golden Gate Fields, while providing no dedicated or marked bicycle route. This also results in a gap between the Class II facility along Gilman Street and the Class I Bay Trail Facility immediately west of I-80, creating potential conflicts between vehicles and bicyclists. Between September 2001 and September 2006, there were two collisions involving bicycles at the intersection of Gilman Street and Frontage Road (*West Berkeley Circulation Master Plan Report*, 2009).

There are no dedicated on-street bicycle facilities on Gilman Street at the I-80 undercrossing. Additionally, the sidewalk along the southern part of the I-80/Gilman Street interchange ends at the I-80 westbound ramps, without a crosswalk or signage directing pedestrians that the sidewalk will end. Currently, there are no clearly identified routes or facilities for pedestrians and bicyclists to safely access recreational facilities west of I-80.

1.2.2.2 Roadway Deficiencies

Specific geometric deficiencies for the project study area include:

- Nonstandard spacing between I-80 ramp intersections and frontage road intersections
- Excessive left-turn vehicle queue lengths on Gilman Street at I-80 westbound due to the absence of a dedicated left-turn pocket, resulting in conflicts and delays to through vehicles
- Complex vehicle navigation through multiple points of conflict
- Stop sign-controlled intersections

An *Existing Conditions Report* prepared by Caltrans in 2014 identified three primary operational deficiencies for the interchange: freeway and ramp operational deficiencies; local roadway and intersection operational deficiencies; and constraints caused by the 3rd Street/Gilman Street at-grade UPRR crossing. The report also identified three causes of these deficiencies: congested freeway conditions, which lead to motorists leaving the mainline facility at the Gilman Street exit to travel on the frontage road and Eastshore Highway; inefficient and complex roadway and intersection configurations; and proximity of the at-grade railroad crossing to the interchange area.

The 2014 *Existing Conditions Report* included an analysis of existing regional freeway and ramp operations, including freeway facilities along I-80 between the Buchanan Street interchange to the north and the University Avenue interchange to the south of

the Gilman Street interchange. The analysis found that all eastbound I-80 mainline segments within the study area operate at an unacceptable LOS F during the weekday evening peak hours and weekend peak hours. For the westbound direction of travel, the I-80 mainline segments operate at an unacceptable LOS F during the weekday morning peak. Continued deterioration of LOS for the I-80/Gilman Street interchange would result in more vehicles leaving the mainline during peak hours to utilize the frontage roads, thereby increasing congestion along local roads in the interchange area. The *Existing Conditions Report* also determined that local roadways and intersections in the study area possess unique operational deficiencies, primarily because the existing Gilman Street intersection uses stop sign control on all but the northbound and southbound approaches. This, combined with the significant volume of vehicles entering I-80 from the stop sign-controlled approaches, creates unnecessary delays.

Conflict points are defined as the point at which a roadway user (i.e., vehicle, pedestrian, or bicyclist) can cross, merge, or diverge with another roadway user (Maricopa Association of Governments, 2015). The number of conflict points for the stop sign-controlled movements (all approaches to Gilman Street) in the interchange area is undesirably high (defined here as more than five approaches [Caltrans, 2014]). A higher number of conflict points has been found to lead to greater potential confusion for motorists using the facility. For example, in the area of Gilman Street and Eastshore Highway, there are multiple intersection approaches that carry all vehicle types, as well as pedestrians and bicyclists, which contribute to a high number of conflict points in the area.

In addition, per the Caltrans *Highway Design Manual* (2014), unsignalized intersections controlled by “Stop” or “Yield” signs generally become a candidate for signalization when traffic backups begin to develop on the cross street(s) or when gaps in traffic are insufficient for drivers to yield to crossing pedestrians, as occurs at the I-80/Gilman Street interchange. Furthermore, high traffic volume and geometric deficiencies associated with this interchange create vehicle queue spillback from the I-80/Gilman Street ramp intersections onto the freeway off-ramps, creating additional congestion on the mainline freeway.

Per the *2018 Caltrans California State Rail Plan* (2017), there are 15 to 19 round-trip passenger trains per day that pass through the Gilman Street and 3rd Street intersection. Projected freight traffic is expected to increase to 36 to 50 trains per day by the year 2040 This would cause further increases in delays along Gilman Street from passing trains.

1.2.2.3 Legislation

The project would be funded by federal and local/regional sources, with the major funding being provided by Alameda CTC via Sales Tax Measure BB, which voters passed in November 2014. The measure implements a 30-year Transportation Expenditure Plan by renewing an existing 0.5 percent transportation sales tax approved in 2000 and increasing that tax by 0.5 percent for a full 1.0 percent. The 30-year Transportation Expenditure Plan is managed by Alameda CTC, which has proposed $7.8 billion in spending to improve and maintain transportation infrastructure and systems in Alameda County. This amount includes $24 million for design and construction of the I-80/Gilman Street interchange improvements, with additional funding from the Federal Highway Administration (FHWA) and the City of Berkeley.

1.2.2.4 Independent Utility and Logical Termini

FWHA defines logical termini as rational end points for a transportation improvement and rational end points for a review of environmental impacts for the transportation improvement. The proposed project possesses logical termini because the project focuses on improvements to the I-80/Gilman Street interchange, and the project limits include the intersection and intersection approaches.

Independent utility is an FWHA requirement that highway projects are usable and a reasonable expenditure even if no additional transportation improvements in the area are made. FHWA states that "as long as a project will serve a significant function by itself (i.e., it has independent utility), there is no requirement to include separate but related projects in the same analysis." The proposed project has independent utility in that the proposed intersection improvements are enough to ensure that no additional investment would be required because of project completion.

1.3 Project Description

This section describes the proposed action and the project alternatives developed to meet the identified purpose and need of the project, while avoiding or minimizing environmental impacts. The two alternatives include the Build Alternative – Roundabout Alternative and the No Build Alternative.

The project is located in Alameda County at the I-80/Gilman Street interchange in the cities of Berkeley and Albany (PM 6.38 to 6.95). Within the limits of the proposed project, I-80 is a conventional 10-lane freeway with 12-foot-wide lanes and 11-foot-wide shoulders. Gilman Street is a four-lane major arterial with 11-foot-wide lanes and

6-foot-wide shoulders that passes underneath I-80. The I-80/Gilman Street interchange is a four-lane arterial roadway (Gilman Street), with two lanes in the east/west direction that are intersected with four I-80 on- and off-ramps. The purpose of the project is to simplify and improve navigation, mobility, and traffic operations; reduce congestion, vehicle queues, and conflicts; improve local and regional bicycle connections and pedestrian facilities; and improve safety at the I-80/Gilman Street interchange. Current conditions, along with an overall increase in vehicle traffic, have created poor, confusing, and unsafe operations in the interchange area for vehicles, pedestrians, and bicyclists.

1.4 Alternatives

Two project alternatives are proposed for consideration, as described below. The Build Alternative – Roundabout Alternative, was developed with extensive public and agency input (Chapter 4) to meet the identified purpose and need of the project, while avoiding or minimizing environmental impacts. The second alternative is the No Build Alternative. The alternatives will be evaluated based on project cost, including life-cycle costs; vehicle miles traveled and other traffic data; and impacts to the environment, such as community and land use impacts, cultural resources, floodplains, wetlands, greenhouse gas (GHG) emissions, and special-status species.

1.4.1 Build Alternative – Roundabout Alternative

The Build Alternative includes the reconfiguration of I-80 ramps and intersections at Gilman Street (see Figure 1-3). The existing nonsignalized intersection configuration with stop-controlled ramp termini would be replaced with two hybrid single-lane roundabouts with multilane portions on Gilman Street at the I-80 ramp terminals. The I-80 ramps and frontage road intersections at each ramp intersection would be combined to form a single roundabout intersection on each side of I-80. Gilman Street would be reconstructed on the west from the parking lots at Tom Bates Regional Sports Complex along the western portion of Gilman Street to the eastern side of the 4th Street intersection. Work would also include reconstruction of West Frontage Road and Eastshore Highway within the project limits. In addition, the northern and southern legs of the eastern roundabout would be reduced from two lanes to one lane entering the roundabout. The southbound and northbound movements onto Eastshore Highway would instead be made via 2nd Street to Page Street or 2nd Street to Harrison Street.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	80	6.38/6.95		--

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER R. S. PIMENTEL No. C46102 Exp. 12-31-20 CIVIL STATE OF CALIFORNIA

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REVISED BY | DATE REVISED
CALCULATED-DESIGNED BY | CHECKED BY
CONSULTANT FUNCTIONAL SUPERVISOR: RODNEY PIMENTEL
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

LAYOUT
SCALE: 1" = 150'

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Figure 1-3: Build Alternative – Roundabout Alternative

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Improvements associated with installation of the roundabouts would extend approximately 280 feet south on West Frontage Road from the Gilman Street interchange and approximately 250 feet north and 1,010 feet south on Eastshore Highway from the Gilman Street interchange. Work associated with reconfiguration of the eastbound I-80 off-ramp and on-ramp would extend approximately 820 feet south and 280 feet north of the interchange. Work associated with reconfiguration of the westbound I-80 off-ramp and on-ramp would extend approximately 370 feet north and 230 feet south of the interchange. There are no proposed improvements to the freeway mainline.

The western roundabout intersection would consist of four approaching legs: eastbound and westbound Gilman Street, West Frontage Road, and I-80 westbound off-ramp. There would be four exiting legs on the western roundabout: westbound Gilman Street, southbound West Frontage Road, westbound I-80 Gilman on-ramp, and eastbound Gilman Street. The eastern roundabout intersection would include five approaching legs: I-80 eastbound off-ramp, northbound and southbound Eastshore Highway, and eastbound and westbound Gilman Street. There would be three exiting legs on the eastern roundabout: eastbound on-ramp, and westbound and eastbound exits on Gilman Street. A left-turn pocket would be provided on Gilman Street for vehicles traveling eastbound turning onto northbound 2nd Street. Left turns would be restricted from westbound Gilman Street turning onto southbound 2nd Street.

Improvements on 2nd Street north of Gilman Street would include reduced crossing distances, new striping, signing, new pavement, additional landscaping, and new light poles. South of Gilman Street, improvements on 2nd Street would include a bulb-out on the southeast corner of the intersection, which is a curb extension that reduces the pedestrian crossing distance, and converting the road to a single southbound lane, while the space would be used as a designated parking/loading zone for businesses.

All modified roadways, including ramps, frontage roads, and arterials, would be improved. Improvements would include mill and overlay of pavement, striping, relocation of drainage inlets, lighting, and signage.

Several operational improvements would be incorporated into the project. A metering signal would be installed on the northbound leg of the western roundabout to limit the volume of traffic that is bypassing the freeway using West Frontage Road. A ramp meter, ramp signal, or metering light is a device, usually a basic traffic light or a two-section signal light (red and green only, no yellow) together with a signal controller,

that regulates the flow of traffic entering freeways according to current traffic conditions. A queue cutting signal would be placed on the eastbound leg of the UPRR crossing at 3rd Street to prevent traffic from extending across the UPRR tracks. A queue cutting signal is a traffic control signal that prevents waiting lines of vehicles from backing up across tracks at a road or highway-rail grade crossing and is activated for one direction of travel, either an approaching train, queue detection, or coordination with adjacent traffic signals.

As shown in Table 1-2, under the Build Alternative during the AM peak hour, the West Frontage Road and westbound I-80 ramp intersections are projected to continue to operate at LOS F, similar to the No Build Alternative. The average delay is projected to be reduced significantly at the intersections under the Build Alternative compared to the No Build Alternative. The LOS at the eastbound I-80 ramps and Eastshore Highway intersections is projected to improve from LOS F to LOS C during both peak hours, compared to the No Build Alternative.

Table 1-2: 2040 Build Alternative Intersection Level of Service

Intersection	AM Peak		PM Peak	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
Gilman Street at West Frontage Road	123.2	F	34.1	C
Gilman Street at westbound I-80 ramps				
Gilman Street at eastbound I-80 ramps	11.4	C	23.0	C
Gilman Street at Eastshore Highway				
Gilman Street at 2nd Street	38.0	E	>50.0	F
Gilman Street at 4th Street	7.9	A	8.3	A
Delay in seconds per vehicle.				

Source: Traffic Operations Analysis Report, 2017.

The West Frontage Road and westbound I-80 ramp intersections are projected to operate at LOS F during the AM peak hour under the 2040 Build Alternative due to the heavy queue-jumping demand using West Frontage Road as an alternative to I-80 in the peak direction of travel.

Pedestrian and Bicycle Facilities

A shared-use Class I path for pedestrians and bicyclists consisting of a 10-foot-wide travel way with a 2-foot-wide shoulder would be constructed on the south side of Gilman Street from 2nd Street to the eastern roundabout. The shared-use path would extend south along Eastshore Highway, where it would then connect to a proposed

pedestrian and bicycle overcrossing. The overcrossing would be constructed over I-80, merging into the existing Bay Trail that runs parallel to West Frontage Road. The at-grade shared-use path would continue on the south side of Gilman Street under I-80 and terminate at the Bay Trail on the west side of the interchange. The pedestrian and bicycle facilities were developed with input from community members (Section 4.4, Public Participation).

The pedestrian and bicycle overcrossing would be similar to the existing pedestrian and bicycle overcrossing over I-80 at University Avenue. The structure would be located south of Gilman Street and have a minimum of three spans with a maximum span length of approximately 230 feet over I-80. The foundations for the pedestrian bridge would be located on 2-foot-diameter cast-in-drilled-hole piles 120 feet below the existing ground surface. There would be two staircases incorporated into the overcrossing, one on each side of I-80. They would be approximately 45 feet long with a height of 25 feet to connect to the overcrossing. There would also be retaining walls on the east and west side of the overcrossing; they would be approximately 6 feet tall at the highest point and taper down to zero. The maximum depth of the retaining wall piles is expected to be 50 feet below ground surface.

Improvements would be made to provide bicycle connectivity from 4th Street to Harrison Street to 5th Street between the Codornices Creek Path and the two-way cycle track on Gilman Street. These improvements would consist of painted shared-lane markings, also known as sharrows, on the pavement throughout this corridor. Bicycle signage and pedestrian-scale lighting would be constructed as part of the improvements.

Approximately 125 feet of new curb, gutter, and sidewalk would be constructed beginning at the corner of Harrison Street and 4th Street and ending half way down the block towards 5th Street. Parallel parking would be added along this new section of curb and sidewalk. The bus stop located at the corner of 4th Street and Gilman Street would be removed.

The Build Alternative includes a two-way cycle track on the south side of Gilman Street between the eastern I-80/Gilman Street ramps and 4th Street. The two-way cycle track is separated from vehicle traffic with a minimum 3-foot-wide striped buffer and a parking lane in some locations. A segmented 6-inch-high curbed median would be constructed within the 3-foot-wide buffer to create a vertical separation. The addition of the two-way cycle track would require installation of a traffic signal at the

intersection of 4th Street and Gilman Street. The northern curb line on Gilman Street would also be shifted 2 to 5 feet north. Along Eastshore Highway, the sidewalk, curb, and gutter would be replaced between Page Street and Gilman Street.

West of the I-80/Gilman Street interchange, the existing Bay Trail would be extended approximately 660 feet west along the south side of Gilman Street from its current terminus at the intersection of West Frontage Road and Gilman Street to just beyond Berkeley city limits. The proposed Bay Trail extension would be 14 feet wide. On-street parking would be reduced by approximately 18 spaces at the west end of Gilman Street as a result of the new trail extension.

Additional pedestrian and bicycle improvements include upgrading the 3rd Street/ UPRR crossing at Gilman Street to accommodate the cycle track. Improvements would include relocation of the railroad crossing gate and flashing beacons, addition of a bicycle signal, installation of medians, and improvement of striping and signage. All improvements were developed with UPRR input (Section 4.4.3, Stakeholder Coordination) and would be approved by UPRR and the California Public Utilities Commission.

Utilities, Landscaping, and Drainage

Existing Pacific Gas & Electric (PG&E) overhead electric lines along Gilman Street, West Frontage Road, and Eastshore Highway would be relocated as part of the Build Alternative and would be coordinated with ongoing consultation with PG&E (Section 4.4.3, Stakeholder Coordination). Some of these overhead lines may be placed underground. Minor drainage modifications would also be required to conform to the new roundabout alignment, and drainage improvements associated with the two-way cycle track along Gilman Street would also be required. Utility relocations and new drainage systems may require trenching to a depth of approximately 6 feet. New light pole foundations and ramp metering poles would be 2 feet in diameter and would range from 5 to 13 feet deep near the roundabout.

A separation device would be installed underground along Gilman Street to separate trash, mercury, and polychlorinated biphenyls (PCBs). A tidal flap gate would be installed at the existing headwall of the 60-inch reinforced concrete pipe at the western terminus of Gilman Street. Replacement of the existing headwall and associated rip rap will include in-water work. Work below the mean high water mark would be required. Dewatering or a coffer dam may also be required.

An existing East Bay Municipal Utility District (EBMUD) recycled water transmission line would be relocated and extended as part of the project. Approximately 1,100 feet of a new 12-inch recycled water transmission pipeline within Eastshore Highway from Page Street to Gilman Street and approximately 1,050 feet of pipeline within Gilman Street from 2nd Street to the Buchanan Street extension are part of the Build Alternative. The maximum excavations for the pipe trench would be approximately 24 inches wide by 60 inches deep. Approximately 1,100 feet of an existing 10-inch EBMUD recycled water pipeline located within Caltrans right-of-way along the eastbound Gilman Street off-ramp shoulder would be abandoned in place or removed. A new City of Berkeley sewer line would be installed underneath Gilman Street beginning at a point east of the interchange and ending on the west side of I-80 at the approximate entrance to the Tom Bates Regional Sports Complex parking lots.

Existing vegetation is sparse in the project footprint and consists of ornamental plantings or ruderal vegetation. The Build Alternative would remove existing landscaping and trees on the sidewalk along Eastshore Highway from Page Street to Gilman Street. In addition, trees and/or shrubs would be removed at the I-80 off-ramps, westbound I-80 on-ramp, and along the Bay Trail. Opportunities for new landscaping would be available in the surrounding areas outside of the roundabouts. Replacement plantings would occur near the areas of impact where feasible, as well as within the project limits. Aesthetic treatment of the roundabout would consider hardscape treatments and the possibility of planting. Final determination would occur during the design phase of the project.

Golden Gate Fields Access

The existing driveway entrance to Golden Gate Fields stables is located immediately adjacent to the westbound I-80 off-ramp at the end of the curb return on Gilman Street. Construction of the roundabout would expand the ramp intersection to the north and would require relocation of the access gate to Golden Gate Fields stables.

Alternate entrance and exit gate options to access Golden Gate Fields stables were evaluated and discussed with Golden Gate Fields management in a series of meetings (Section 4.4.3, Stakeholder Coordination).

The Build Alternative would relocate the entrance and exit gate to the Gilman Street Extension. The existing gate would be connected to Golden Gate Fields Access Road allowing for the existing security shed to remain in place. The intersection of Gilman Street Extension with Golden Gate Fields Access Road would be improved, and Gilman

Street would be widened to the south to provide space for two 2-lane roads separated by a median. The Golden Gate Fields northeast (upper) parking lot would be resized and restriped to allow space for the Gilman Street Extension/Golden Gate Fields Access Road intersection. The existing security shed leading to the northeast and northwest (lower) parking lots would be moved north and reconstructed with new gates. The Golden Gate Fields northwest (lower) parking lot would be restriped to maximize the parking spaces. Both parking lots would be repaved and restriped, and lighting and landscaping elements would be added. Golden Gate Fields Access Road and the Gilman Street Extension would be repaved and restriped between Gilman Street and the northeast and northwest parking lots. Fifteen new parallel parking spaces would be striped along the Gilman Street access road. There would be no net loss of parking for Golden Gate Fields.

The Build Alternative is shown in Figure 1-3.

Property Acquisitions

The Build Alternative would require acquisition of portions of right-of-way from Golden Gate Fields and East Bay Regional Park District (EBRPD). Relocation of the driveway currently facing Gilman Street would be required from a private property located on the south side of Gilman Street and 2nd Street. Additionally, a permit to construct from Golden Gate Fields would be required to complete improvements on their property. Temporary construction easements would be required for construction equipment storage, staging, and laydown from EBRPD and various property owners along Gilman Street, 4th Street, Harrison Street, and 5th Street. Ongoing consultation and coordination with EBRPD is detailed in Section 4.2.9, East Bay Regional Park District.

Construction Activities

Construction work for the Build Alternative would be done primarily during daylight hours from 7:00 a.m. to 6:00 p.m.; however, there may be some work during night-time hours to avoid temporary roadway closures for tasks that could interfere with traffic or create safety hazards. Work hours along the internal access road within Golden Gate Fields property would only occur from 10:00 a.m. to 5:00 p.m., and night work would be restricted within or adjacent to Golden Gate Fields property. Examples of work activities throughout the project limits include striping operations, traffic control setup, installation of storm drain crossings, and asphalt pavement mill and overlay.

Anticipated temporary project impacts would include lane and ramp closures, detours, closure of existing bicycle or pedestrian facilities, and rerouting of transit service. A Transportation Management Plan (TMP) would be developed and implemented as part

of the project construction planning phase. The TMP would address potential impacts to circulation of all modes of travel (i.e., transit, bicycles, pedestrians, and private vehicles). Roadway and/or pedestrian access to all occupied businesses and respective parking lots would be maintained during project construction. The TMP would include an evaluation of potential detour impacts, and it would also include measures to minimize, avoid, and/or mitigate impacts to alternate routes, such as agreements with local agencies to provide enhanced infrastructure on arterial roads or intersections. The TMP would address coordination with local agencies for traffic personnel, especially for special event traffic through or near the construction zone.

Available staging areas include areas within the existing roadway and Caltrans right-of-way. Additional staging areas may be required west of the project on Gilman Street in one or two parking lots owned by EBRPD. These potential additional staging areas would be subject to additional permits and owner permissions to be secured by the contractor before the staging area could be used. Potential staging areas are shown in Figure 1-3.

The following types of equipment are anticipated to be used during construction: auger drill rig, backhoe, compactor, concrete pump, crane, dozer, excavator, front end loader, grader, heavy duty dump trucks, jackhammer, vibratory roller, and pavement breaker.

This project contains 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. These measures are addressed in more detail in the Environmental Consequences sections found in Chapter 2.

1.4.2 No Build Alternative

The No Build Alternative consists of the future conditions with transportation improvements only as currently planned and programmed for funding. The No Build Alternative provides a basis for comparing the build alternatives. Under NEPA, the No Build Alternative can be used as the baseline for comparing environmental impacts; under CEQA, the baseline for environmental impact analysis consists of the existing conditions (2015) at the time the environmental studies began.

Under the No Build Alternative, roadway improvements associated with the proposed project would not be constructed. There would be no change in existing traffic facilities at the I-80/Gilman Street interchange. Over time, traffic volumes would continue to

increase, resulting in more traffic congestion and delay. There would be no cost associated with this alternative.

As shown in Table 1-3, in 2040 the West Frontage Road, westbound I-80 ramps, and Eastshore Highway intersections operate at LOS F. The intersection of the I-80 eastbound ramps/Gilman Street operates at LOS C during both the AM and PM peak hours for the No Build Alternative. Under 2040 No Build conditions, it is projected that the westbound off-ramp traffic during the AM peak hour would experience significant delays at the off-ramp due to a limited number of gaps in the traffic on Gilman Street.

Table 1-3: 2040 No Build Intersection Level of Service

Intersection	AM Peak		PM Peak	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
Gilman Street at West Frontage Road	>50.0	F	>50.0	F
Gilman Street at westbound I-80 ramps	>50.0	F	>50.0	F
Gilman Street at eastbound I-80 ramps	24.7	C	27.6	C
Gilman Street at Eastshore Highway	>50.0	F	>50.0	F
Gilman Street at 2nd Street	38.0	E	>50.0	F
Gilman Street at 4th Street	7.9	A	8.3	A
Delay in seconds per vehicle.				

Source: Traffic Operations Analysis Report, 2017.

1.4.3 Identification of a Preferred Alternative

Following circulation of the Draft Initial Study/Environmental Assessment (IS/EA), careful evaluation of all comments submitted by the public, and in consideration of the whole record, the Project Development Team (PDT) selected the Build Alternative as the Preferred Alternative on April 8, 2019. The Build Alternative meets the purpose, needs, and goals of the project while the No Build Alternative does not.

1.4.4 Alternatives Considered but Eliminated from Further Discussion prior to the Draft Initial Study/Environmental Assessment

Additional alternatives have been studied and reviewed by project stakeholders during the Project Study Report phase, including a signalized intersection alternative, roundabout alternative with bypass ramps, alternate locations for pedestrian crossings, and alternate access to Golden Gate Fields.

Signalized Intersection Alternative

The Signalized Intersection Alternative was eliminated from further discussion because of engineering, right-of-way, and cost constraints. Under the Signalized Intersection Alternative, there would not have been sufficient space for left-turn pockets under the I-80 undercrossing, and it would have required removal and replacement of the structure. This would have caused significant traffic impacts and inconvenience for motorists. In addition, the cost of this alternative renders it infeasible.

Roundabout Alternative with Bypass Lanes

An additional Roundabout Alternative with bypass lanes was also eliminated from further discussion. This alternative would have been similar to the proposed Build Alternative, except for the addition of two bypass ramps under the Gilman Street undercrossing. The bypass ramps would have been constructed underneath the I-80 freeway structure between the abutment and columns to provide direct connection between the roundabouts and the I-80 eastbound and westbound on-ramps. This alternative was eliminated because of the constraints regarding sight distance, and lateral clearance to the abutments, limitations on turning radius and shoulder widths, restrictions for high-occupancy vehicle placement on on-ramps, and increased confusion for drivers entering and exiting the roundabout.

Pedestrian Crossings

During the scoping process, concerns were raised regarding the planned location of the pedestrian and bicycle overcrossing and the safety for bicyclists and pedestrians at various street crossings on the east side of Gilman Street. Several community groups requested that alternate pedestrian and bicycle overcrossings be studied north of the I-80/Gilman Street interchange instead of the proposed location south of Gilman Street. The northern overcrossing has been requested to serve people living north of Gilman Street that want to gain access to Tom Bates Regional Sports Complex and the Bay Trail west of I-80. As a result of feedback from community stakeholders, the project team conducted 18 pedestrian and bicycle overcrossing workshops with community members, community groups, Alameda CTC, and various representatives from the cities of Berkeley and Albany, the Berkeley Transportation Commission, and Caltrans to fully vet alternative alignments for the bicycle and pedestrian crossing.

Thirteen conceptual options were studied for the location of the overcrossing and connections to the bicycle and pedestrian network. The options considered were evaluated for the following criteria: maximum distance to exit the overcrossing, path length, roadway conflicts, environmental impacts, new right-of-way required, right-of-

way cost, construction cost, and schedule. Additional studies used to narrow down and evaluate options included an origin destination study, a review of existing bicycle and pedestrian counts from the University Avenue pedestrian and bicycle overcrossing and the Buchanan Street overcrossing, and a projection estimate of usage at the proposed Gilman Street pedestrian and bicycle overcrossing. Northern pedestrian and bicycle overcrossing options considered included variants of a northern horseshoe shape (a mirror image to the southern option), as well as extensions east along Codornices Creek to Harrison Park.

Although a northern overcrossing addressed the need for a safe passage for bicyclists and pedestrians to access Tom Bates Regional Sports Complex via an overcrossing over I-80, the environmental impacts, additional right-of-way, and increased construction costs would be greater than the southern overcrossing, and the northern options have been eliminated from further consideration. Participants in the overcrossing workshops determined that the southern overcrossing location, along with improvements to local streets to improve bicycle and pedestrian safety, addressed most of their needs and concerns.

Golden Gate Fields Access

Four alternate access options to Golden Gate Fields' stables were evaluated and discussed with the owner, Golden Gate Fields. The three eliminated options are discussed in this section. The eliminated alternatives included relocating the entrance 250 feet to the west along Gilman Street Extension, redesigning the intersection of Gilman Street and Gilman Street Extension to allow for truck U-turn movements, or creating an access directly into the roundabout. The first alternate access configuration would demolish and reconstruct barns elsewhere on the property and was removed from additional consideration based on the owner's request. The second alternative was removed from consideration due to right-of-way impacts to Tom Bates Regional Sports Complex. The last alternative, which allowed access directly between the roundabout and Golden Gate Fields via a driveway into the roundabout, was ultimately eliminated from further consideration by Caltrans because it was not in accordance with Caltrans Highway Design Manual Indexes 405.10(14) and 504.8, National Cooperative Highway Research Program Report 672, or Traffic Operation Directive Number 13-02. Eleven meetings have been held to date with Golden Gate Fields to address redesign of the entrance access to the stables from the western roundabout. This process included working collaboratively with Golden Gate Fields to design a solution for truck and traffic ingress and egress and to design the changes with no net loss of parking for Golden Gate Fields.

Transportation System Management and Transportation Demand Management

Transportation System Management (TSM) strategies increase the efficiency of existing facilities; they are actions that increase the number of vehicle trips a facility can carry without increasing the number of through lanes. Examples of TSM strategies include ramp metering, auxiliary lanes, turning lanes, reversible lanes, and traffic signal coordination. Transportation Demand Management (TDM) focuses on regional means of reducing the number of vehicle trips and vehicle miles traveled, as well as increasing vehicle occupancy. It facilitates higher vehicle occupancy or reduces traffic congestion by expanding the traveler's transportation options in terms of travel method, travel time, travel route, travel costs, and quality and convenience of the travel experience.

Although TSM and TDM measures alone could not satisfy the purpose and need of the project, the following TDM measure has been incorporated into the Build Alternative for this project: bicycle and pedestrian improvements including a cycle track and pedestrian and bicycle overcrossing. In addition, the following TSM measure has been incorporated into the project's Build Alternative: addition of a metering signal on West Frontage Road for northbound traffic entering the western roundabout. This meter would improve operations during the PM peak hour by limiting the amount of vehicles bypassing traffic on I 80 by using the eastbound on-ramp at Gilman Street.

1.5 Permits and Approvals Needed

Table 1-4 identifies regulatory permits and approvals required for project construction.

Table 1-4: Regulatory Permits and Approvals

Agency	Permit or Approval	Status
U. S. Army Corps of Engineers (USACE), San Francisco District	Verification of wetland/waters of the U.S. within the project footprint.	Wetland Delineation Report submitted on April 6, 2017. Revised report submitted on August 31, 2017. Approved Jurisdictional Determination was issued March 16, 2018. Addendum Wetland Delineation Report submitted July 16, 2018. Revised report submitted on November 1, 2018. The revised Approved Jurisdictional Determination was issued November 19, 2018.
USACE, San Francisco District	404 Clean Water Act (CWA) Nationwide Permit.	This permit will be obtained during the Design phase.

Table 1-4: Regulatory Permits and Approvals

Agency	Permit or Approval	Status
National Oceanic and Atmospheric Administration (NOAA)/National Marine Fisheries Services (NMFS)	Technical Assistance/Letter of Concurrence for a Not Likely to Adversely Affect Determination.	A Letter of Concurrence for a "may affect, but not likely to adversely affect" determination for four fish species: green sturgeon, steelhead – Central California Coast DPS, steelhead –Central Valley DPS, and chinook salmon – Sacramento River Winter Run ESU was received on May, 23 2019
San Francisco Bay Conservation and Development Commission (BCDC)	BCDC Permit for activities in BCDC jurisdiction (Bay and 100-foot Shoreline Band).	Permit application will be submitted during the Design phase.
State Water Resources Control Board (SWRCB)	Construction General Permit (CGP) for stormwater discharges – Caltrans; Section 402 Caltrans National Pollutant Discharge Elimination System (NPDES) Permit for greater than 1 acre (Order No.2012-0011-DWQ).	Obtain coverage under the General Permit by preparation and submittal of a Notice of Intent before start of construction.
Regional Water Quality Control Board (RWQCB)	401 Water Quality Certification.	This permit will be obtained during the Design phase.
Federal Highway Administration (FHWA)	Air Quality Conformity Determination.	Air quality conformity concurrence was received on March 15, 2019.
State Historic Preservation Officer (SHPO)	Concurrence with the project's historic property eligibility determinations and Finding of Effect.	SHPO concurred with the Finding of No Adverse Effect on May 30, 2019

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

As part of the scoping and environmental analysis carried out for the project, the following environmental issues were considered, but no adverse impacts were identified. As a result, there is no further discussion about these issues in this document.

- Wild and Scenic Rivers – There are no wild and scenic rivers within the study area.
- Growth – The first cut screening was conducted in accordance with the Caltrans Standard Environmental Reference Guidance for Preparers of Growth-Related, Indirect Impact Analyses. Based on the first cut screening, there would be no growth impacts due to the proposed project.
- Community Character and Cohesion – The project would not result in adverse impacts to community character and cohesion (*Community Impact Assessment*, August 2018). The Build Alternative would not change the character of the area because it is already an urban, industrial area that supports a major interstate and associated facilities. The Build Alternative would further improve the urban design of the Gilman Street entry corridor with visual improvements such as landscaping and lighting. The Build Alternative would benefit the neighborhoods and communities in Albany and West Berkeley by reducing congestion and travel time. The improvements, including the pedestrian and bicycle overcrossing, would provide a safer connection between the eastern and western sides of the study area and improve access to recreational facilities, which could help to further link these communities together, increasing community cohesion for the area. The Build Alternative would also enhance community cohesion with the addition of improved bicycle and pedestrian access. If at a future date, homeless individuals need to be relocated from the right-of-way, then established procedures will be followed. These procedures, which are usually carried out by Caltrans District Maintenance staff accompanied by State or local law enforcement, include providing a "Notice to Vacate," which provides an advance notice of the date on which belongings will be officially removed, information on where belongings will be stored and for how long, and information on where to access human and community services.
- Farmlands/Timberlands – No farmlands or timberlands are located adjacent to I-80 within the project vicinity.

- Plant Species – No special-status plant species were found during botanical surveys, and none are expected to occur (*Natural Environment Study* [NES], December 2018).
- Wildfire – The project is not within an area of high fire hazard according to the California Department of Forestry and Fire Protection.

2.1 Human Environment

2.1.1 Land Use

The following sections are summarized from the *Community Impact Assessment* (August 2018).

2.1.1.1 Existing and Future Land Use

Affected Environment

Local and regional land use plans, existing land use, development trends, and major projects are discussed in this section as the baseline conditions. The project study area is located within Alameda County, which is located on the eastern shore of San Francisco Bay. The county has an area of 739 square miles. The study area is located within the neighborhoods of West Berkeley (city of Berkeley) and Waterfront and Oceanview (city of Albany). The city of Emeryville is located to the south and outside of the project study area.

According to the *City of Berkeley General Plan* (West Berkeley Plan), the West Berkeley Plan area represents approximately 17 percent of Berkeley's 10.5 square miles of land area and 7.2 square miles of water. West Berkeley extends the length of the city in a strip near the city's western edge (adjacent to I-80) and is bordered to the north by Albany, on the west by the waterfront and the Berkeley Marina, on the south by Emeryville and Oakland, and on the east (east of San Pablo Avenue) by South Berkeley and Central Berkeley. Within the study area, land uses are heavy manufacturing, light manufacturing and wholesaling, other industrial, office based, residential, and live-work.

According to the *City of Albany General Plan* (Albany 2035 General Plan, 2016), the Waterfront is the planning area west of I-80 and includes McLaughlin Eastshore State Park and Golden Gate Fields. East of I-80 is the Oceanview neighborhood, which includes the University of California Berkeley family study housing, called University Village, and a commercial mixed-use area. North of Oceanview are the Solano Hills and Eastshore neighborhoods; west is the Dartmouth neighborhood. Golden Gate

Fields is in the project study area and is zoned as Commercial Recreation. Other land uses within the study area include parks, open space, and medium-density residential.

Existing land use conditions and planning designations in the study area are shown in Figure 2.1.1-1. Major employers in Berkeley and Albany include the University of California, Berkeley (UCB), Lawrence Berkeley National Laboratory, Golden Gate Fields, Target, Alta Bates Medical Center, Bayer Corporation, Pacific Steel Casting Company, and Berkeley Bowl. Additionally, many recreational facilities are in the study area, including the Bay Trail, Golden Gate Fields, Tom Bates Regional Sports Complex, Harrison Park, and Fielding Field.

Development Trends

Based on 2018 MTC and ABAG population, housing, and employment forecasts (*Community Impact Assessment,* 2018), Alameda County is expected to experience continued population growth over the next 35 years at a slightly higher rate than the region and above the average rate compared to other Bay Area counties. The projected population for Alameda County between 2015 and 2040 is projected to increase by 28.7 percent, while the projected population growth for the region is 27.1 percent during the same time period. Job growth in Alameda County is projected to increase at a lower rate, compared to the average rate in the region. The projected job growth for Alameda County between 2015 and 2040 is projected to increase by 14.2 percent, while the projected job growth for the region is 17.2 percent. Alameda County is expected to continue to see population and household growth due to job growth within and outside the county. In particular, job growth in Silicon Valley to the south, combined with high housing prices, is expected to lead to an increase in the number of commuters traveling within the San Francisco Bay Area.

As a result of this projected growth, Alameda County and its cities share challenges in providing an adequate supply and range of housing opportunities; developing economic and employment opportunities; locating housing and jobs in proximity to one another; and maintaining quality of life for residents.

Berkeley is experiencing low to moderate population growth, which is expected to continue in the future. From 2000 to 2010, Berkeley experienced a 3.5 percent increase in the number of residents living in the city. According to MTC and ABAG 2018 projections, Berkeley's population is projected to grow 17.9 percent to approximately 140,930 people between 2015 and 2040. At the same time, Albany is projected to have a modest 6.9 percent population growth to approximately 20,425 people from 2015 to 2040.

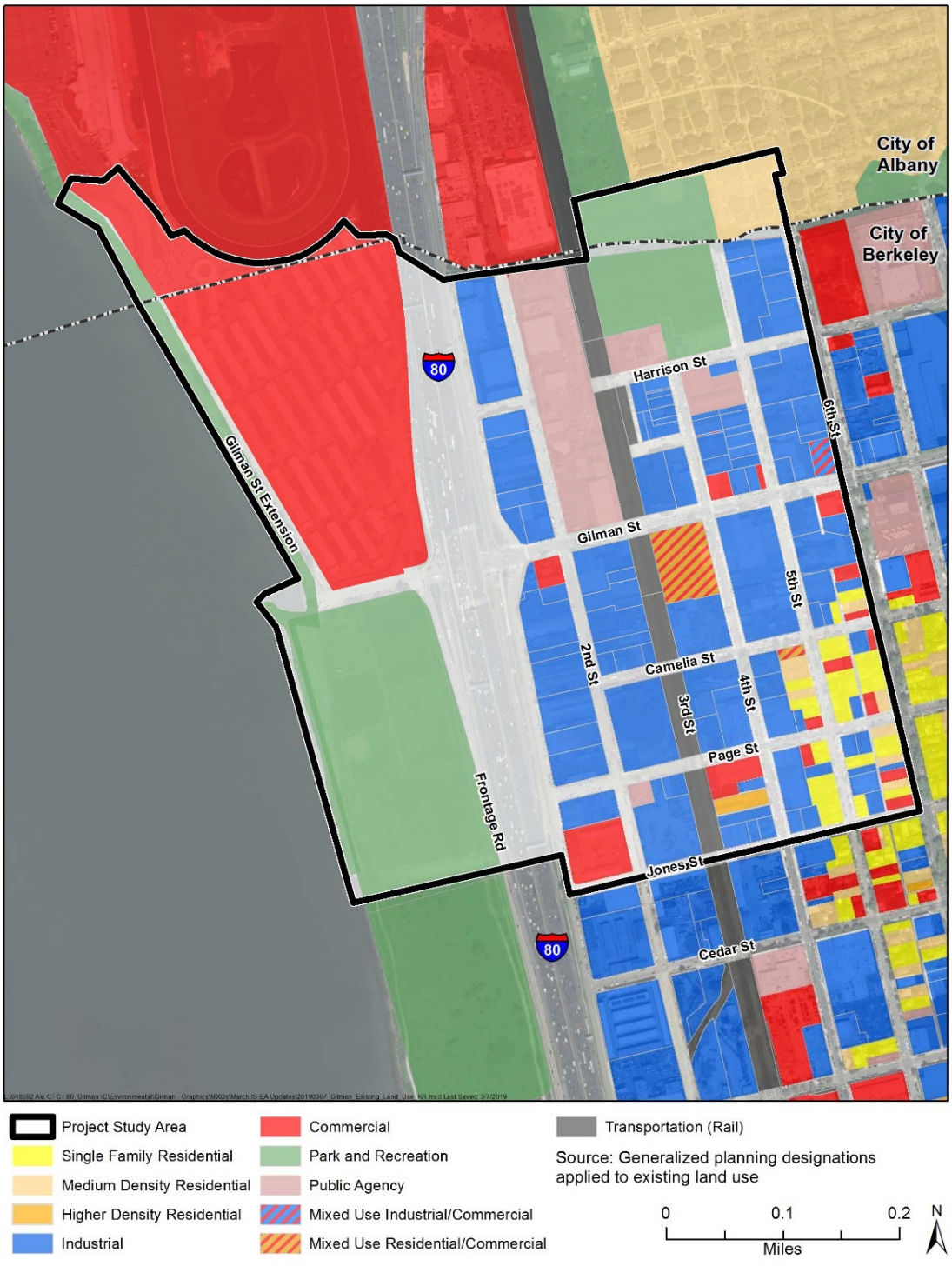


Figure 2.1.1-1: Existing Land Use

According to the 2015 Berkeley Housing Element, the city's age trends between 2000 and 2010 continued along their previous trajectory. Berkeley's population of those aged 55 and over rose from 19 to 23 percent, while those aged 18–24 rose from 22 to 27 percent. People aged 18–24 comprise the largest portion of the population in Berkeley, largely due to the presence of UCB.

Between 2010 and 2015, the total population and the number of households in Berkeley increased, but the average household size remained the same at 2.17 persons per household. In 2010, 41 percent of housing units were owner-occupied compared to 43 percent in 2000. Of all the households in Berkeley in 2010, 41 percent of them were deemed family households.

Development in Berkeley and Albany, like in other portions of the Bay Area, will continue to be driven by the ongoing need and demand for multi-residential properties. According to the 2015 Berkeley Housing Element, in 2012 almost half of all of Berkeley's housing stock was comprised of single-family units, and roughly 43 percent of Berkeley's housing units are owner-occupied. Of the multi-family units, an estimated 7,398 units are in buildings with 20 or more units. The limited supply of remaining residentially zoned vacant land will require the City of Berkeley to focus on infill development in the urban core and along major transportation corridors, including San Pablo Avenue and University Avenue.

Major Projects

Major recently completed, approved, and active projects within 1 mile of the study area are listed in Table 2.1.1-1.

Table 2.1.1-1: Major Projects within 1 Mile of the Study Area

Name	Jurisdiction (Location)	Proposed Uses	Status
Transportation Projects			
University Ave Overcrossing (Increase Vertical Clearance Project, EA 2K830)	City of Berkeley	This project would increase the vertical clearance at the I-80/University Avenue Overcrossing to current standard (16.5 feet) by either raising or replacing the existing structure. This would require raising or replacing the on- and off-ramps, as well as the overcrossing structure to match the new elevation. Four build alternatives are under consideration: Alternative 1 Raise Existing Structure, Alternative 2 Replace Existing Structure (Signalization of Eastbound	Proposed – Planning

Table 2.1.1-1: Major Projects within 1 Mile of the Study Area

Name	Jurisdiction (Location)	Proposed Uses	Status
		Intersections with Left-Turn Access), Alternative 3 Replace Existing Structure (Double Roundabout), and Alternative 4 Replace Existing Structure (Single Roundabout) (Hybrid 1).	
Interstate 80/ Ashby Avenue (SR-13) Interchange Improvements	City of Berkeley and City of Emeryville	The project would reconstruct the Ashby Avenue interchange, which is bordered by Frontage Road and the San Francisco Bay to the west, an industrial/ commercial/residential section of Emeryville to the southeast, and Berkeley's Aquatic Park to the northeast. This project would include: • A new bridge to replace existing bridges • A new interchange • Provision of bicycle and pedestrian access over I-80 at the Ashby Avenue interchange	Proposed – Project approval and environmental document to be completed in fall 2020
MBGR Replacement Project between University and Ashby in Berkeley (EA 4G230)	City of Berkeley	This project would replace sections of guard rail, temporary railing, and concrete barrier with new concrete barriers with chain link fences on I-80 between Potter Street on-ramp and University Avenue off-ramp.	Constructed
I-80 Safety Lighting & Median Barrier (EA 3J700)	Alameda County	The project would install a median concrete barrier to mitigate glare impact, double luminaire mast arm lighting, and high mast light poles to provide uniform luminosity on I-80 between the Ashby Avenue Overcrossing and the northern boundary of Alameda County.	Proposed – Project approved March 19, 2019
Park and Recreation Projects			
Aquatic Park Improvement Program	City of Berkeley	The project consists of a series of capital improvements to Aquatic Park that would improve the hydrology and water quality of the lagoons, wetland and upland habitat, and user amenities. Phase I addresses water quality and some of the habitat improvements. Phases 2 through 4 would further improve the upland habitat and provide user amenities.	Proposed – Planning and Design Phase (Draft Environmental Impact Report 2012, Final Environmental Impact Report under preparation)
Proposed Fieldhouse at Tom Bates Regional Sports Complex	City of Berkeley	The preliminary vision of the fieldhouse building consists of a restroom, a meeting room, and a storage area, with priority on ease of access from the fields, minimal impact to parking, and enhanced security.	Proposed – Planning and Design Phase

Table 2.1.1-1: Major Projects within 1 Mile of the Study Area

Name	Jurisdiction (Location)	Proposed Uses	Status
McLaughlin Eastshore State Park Brickyard Construction	City of Berkeley	Plans are in development for walking trails, picnic areas, restrooms, and parking.	Under Construction – Construction summer 2019, completion spring 2020
Berkeley Marina Capital Improvement Program	City of Berkeley	A series of projects are in progress at the Berkeley Waterfront. The University Avenue realignment and reconfiguration will improve the road that is the gateway to the Waterfront. Evaluations of the Berkeley Pier are in progress, studying options that would allow this resource to be reopened to the public. A new public restroom, windsurfing area, and landscaped parking lot are under construction at the South Cove Sailing Basin. The Bay Trail is being extended to the Adventure Playground.	Proposed, Planning, and Under Construction – Design and Construction
Albany Beach Restoration and Public Access Project	Cities of Albany and Berkeley	The project involves construction of a 4,983-foot-long (0.94-mile) segment of the Bay Trail between the termini of Buchanan and Gilman streets; expansion of a recreational beach; and improvement of associated park facilities. The project is currently in Phases 2 and 3, which are expected to be completed in 2018. Phase 2 is focused on improving the Albany Beach area. Phase 3 is focused on extending the Bay Trail between Buchanan and Gilman streets west of Golden Gate Fields.	Under Construction – Phase 1 (Albany Neck improvements) completed. Phases 2 and 3 scheduled to be completed in 2019
Residential Projects			
1461-1463 Fifth Street	City of Berkeley	New townhomes.	Built – Completed
600 Addison Street	City of Berkeley	The project applicant is requesting approval of a master use permit to allow redevelopment of the project site with up to 475,000 gross square feet of research and development uses and office uses with associated parking, circulation, utility, and landscaping improvements. In addition, the project is requesting the conversion of approximately 8,000 square feet of protected warehouse space that was previously removed from the site.	Proposed – Notice of Preparation review ended November 27, 2017

Table 2.1.1-1: Major Projects within 1 Mile of the Study Area

Name	Jurisdiction (Location)	Proposed Uses	Status
Multi-Use Development Projects			
1900 Fourth Street	City of Berkeley	Redevelopment of the site with a mix of residential and commercial uses totaling 207,590 gross square feet, as well as associated parking and circulation (148,200 gross square feet), open space and landscaping (16,090 square feet), and utility improvements. Approximately 118,370 square feet of residential uses (135 dwelling units) would be located on the second level and above; commercial uses would total approximately 33,080 gross square feet and would be located on the ground level.	Proposed – Draft Environmental Impact Report (end of review March 2017); Second application for 1900 Fourth Street (ZP2018-0052) submitted March 8, 2018.
1320 Ninth Street	City of Berkeley	Create a laboratory/manufacturing facility within existing warehouse.	Proposed – Permit Issued
1285 Eastshore Highway	City of Berkeley	Installation of new Verizon cell tower.	Built – Completed
2100 San Pablo Avenue Residential Care Facility for the Elderly	City of Berkeley	The mixed-use project involves demolishing the existing two single-story commercial buildings, and constructing 75,064 square feet, including 96 residential units (67 studio suits, 20 one-bedroom suites, and 9 two-bedroom suites), group dining and activity rooms, admission offices, staff lounge, wellness and meditation rooms, caregiver stations, a lobby/great room, and a cafeteria. Outdoor space would include a center courtyard measuring 2,174 square feet and outdoor decks on each floor measuring 5,049 total square feet. The proposed commercial component of the project would be on the ground floor fronting San Pablo Avenue. Construction would occur over approximately 18 to 22 months.	Proposed – Negative Declaration, review ended November 13, 2017
1740 San Pablo Avenue Mixed-Use Project	City of Berkeley	The project would demolish the existing buildings on the project site and construct a new five-story mixed-use building. The proposed building would have the following characteristics: 5 stories and 59.5 feet in height, 48 dwelling units, 3 live work units, and an approximately 800-square-foot cafe, 42,073 square feet of gross floor area, a parking garage with 53 parking spaces, including 6 electronic vehicle charging ready spaces, and 48 bicycle spaces.	Proposed – Negative Declaration (January 2018)

Table 2.1.1-1: Major Projects within 1 Mile of the Study Area

Name	Jurisdiction (Location)	Proposed Uses	Status
University Village Retail Mixed-Use Project, 1080 Monroe Avenue	City of Albany	The 6.3-acre project site in University Village is located to the northwest and southwest of the Monroe Street/San Pablo Avenue intersection. The project includes a 27,500-square-foot grocery store, 18,000 square feet of retail space, a 175-unit senior housing project, and associated improvements.	Built – Completed

Sources: City of Berkeley Planning Department, 2016 and 2018; ceqanet.com, 2016 and 2018; City of Albany Planning Department, 2018; City of Berkeley Parks Recreation and Waterfront Department, 2018; East Bay Regional Park District, 2018 and 2019; Caltrans 2018; Alameda CTC 2018, BCDC 2018.

Environmental Consequences

Project-Level Impacts

No Build Alternative

The No Build Alternative would not convert any existing land uses to transportation uses, nor would it have direct effects on land uses in the study area. Furthermore, the location, characteristics, and uses of existing land uses generally would not change.

Build Alternative

The Build Alternative would require the acquisition of property, as discussed further in Section 2.1.2.2, Relocations and Real Property Acquisitions. The Build Alternative would convert 0.08 acre of property frontages of commercial land to transportation use for the western roundabout interchange; 0.15 acre of parkland along Gilman Street Extension to the new Bay Trail extension and utility use; and 0.3 acre of parkland along West Frontage Road to transportation use for the pedestrian and bicycle overcrossing. Overall, this conversion of land would be minimal (0.023 percent of commercial land and 0.2 percent of parkland within Berkeley) compared to the total amount of land in the study area (184 acres) and within Alameda County (739 square miles). In addition, these changes in land use towards transportation-related use may prove beneficial by providing infrastructure for surrounding land uses, improved access to businesses and recreational land uses, and linkages between West Berkeley, Albany, and Emeryville.

The Build Alternative is not expected to result in a shift in land use patterns or change land uses beyond the minimal partial acquisitions needed to construct the proposed roundabouts, which were designed with stakeholder input from both Golden Gate

Fields and EBRPD (Chapter 4, Comments and Coordination). The Build Alternative would not have an adverse effect on existing or future land uses.

Construction Impacts

No Build Alternative

The No Build Alternative would not temporarily acquire any existing property, nor would it affect land uses in the study area. Furthermore, the location, characteristics, and uses of existing transportation facilities would not change.

Build Alternative

The Build Alternative would require temporary construction easements for construction activities, equipment storage, staging, and access as discussed further in Section 2.1.2.1, Relocations and Real Property Acquisition. The Build Alternative would temporarily acquire 10.52 acres of land for these easements. Most of this land (8.15 acres) would be on areas along the Bay frontage, including landscaped areas within Golden Gate Fields, along Gilman Street Extension. Existing Caltrans right-of-way located near on- and off-ramps and under freeway roadways would be utilized as temporary construction easements and would not result in land use impacts. Parking within Tom Bates Regional Sports Complex would be temporarily used for construction staging (both a paved and striped surface lot and an unpaved gravel lot may be used). Approximately half of the parking spaces would remain available for park users. These potential additional staging areas would be subject to additional permits and owner permissions to be secured by the contractor before the staging area could be used. Parking impacts are discussed in Section 2.1.4, Traffic and Transportation/ Pedestrians and Bicycles.

Avoidance, Minimization, and/or Mitigation Measures

The project alignment has been designed to fit within the existing right-of-way where feasible. In addition, the measures identified in Section 2.1.2.1, Relocations and Real Property Acquisitions, Avoidance, Minimization, and/or Mitigation Measures, also apply. Additional avoidance and minimization measures are not required.

2.1.1.2 Consistency with State, 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 numerous planning documents, as described in the following sections. In addition, several other location or element-specific plans are considered important planning tools and are briefly summarized below.

Metropolitan Transportation Commission and Association of Bay Area Governments Plan Bay Area 2040. MTC and ABAG's *Plan Bay Area 2040*, adopted in 2017, is a long-range integrated transportation and land-use/housing strategy through 2040 for the San Francisco Bay Area. *Plan Bay Area* is the nine-county region's long-range plan to meet the requirements of California's landmark 2008 Senate Bill (SB) 375, which calls on each of California's 18 metropolitan areas to develop a Sustainable Communities Strategy to accommodate future population growth and reduce GHG emissions from cars and light trucks.

City of Berkeley General Plan. The *City of Berkeley General Plan* is a comprehensive, long-range statement of policies for the development and preservation of Berkeley that was adopted in 2003. The General Plan is a statement of community priorities and values to be used to guide public decision making in future years and is a compilation of goals, objectives, policies, and actions designed to manage change within Berkeley. The General Plan is designed to work in concert with the City of Berkeley's more detailed Area Plans, such as *The West Berkeley Plan.* The General Plan's goals are implemented through decisions and actions consistent with the objectives, policies, and actions of each of the nine Plan Elements. The goals and associated policies and actions are intended to work together to establish and maintain Berkeley as a sustainable community that promotes social equity, environmental quality, and economic prosperity.

The West Berkeley Plan. The land use concept of *The West Berkeley Plan* (1993) is designed specifically to support the economic, environmental, transportation, urban design/historic preservation, and housing goals of *The West Berkeley Plan.* This plan restructured West Berkeley's land use/zoning districts to support appropriate economic development. *The West Berkeley Plan's* land use concept is designed to support the balanced economic development approach of multiple business sectors within the area by targeting different locations for different uses. There are seven distinct land use districts within *The West Berkeley Plan* area: mixed use/light industrial, manufacturing, mixed manufacturing, mixed use/residential, commercial, residential, and live work. The Transportation Element presents a strategy for maintaining and improving the efficiency and environmental soundness of transportation in West Berkeley. The Physical Form Element identifies West Berkeley's entry corridors and how they could be improved to establish a locality's identity.

Berkeley Pedestrian Master Plan. Adopted in June 2010, the *Berkeley Pedestrian Master Plan* establishes specific goals and recommendations to ensure that walking in Berkeley is safe, attractive, easy, and convenient for people of all ages and abilities. Berkeley has a strong tradition of pedestrian travel; according to the U.S. Census Bureau, 2012 American Community Survey, approximately 17 percent of Berkeley adults walk to work daily compared to the national, state, and Alameda County averages of approximately 3 percent.

As well as identifying citywide infrastructure improvement projects and improvements at specific intersections, the *Berkeley Pedestrian Master Plan* recommends changes to the City of Berkeley's zoning and design review to enhance the pedestrian environment, provides design standards that integrate innovative best practices for improved pedestrian experience, and calls for public education campaigns and increased law enforcement. Consistent with the plan, City of Berkeley staff in the Public Works and Police Departments have joined forces, along with Alameda County Safe Routes to Schools, over the last 2 years to conduct pedestrian safety and enforcement activities.

Berkeley Bicycle Plan. The vision of the 2017 *Berkeley Bicycle Plan* is to make Berkeley a model bicycle-friendly city where bicycling is a safe, attractive, easy, and convenient form of transportation for people of all ages and abilities. Because bicycling is nonpolluting and energy efficient, it is the preferred mode for many individuals, ranging from cash-strapped students to environmentally conscious families. Implementing the bicycling improvements identified in the Berkeley Bicycle Plan should boost the number of people using a bicycle for work trips and utilitarian trips. Berkeley has the fourth highest percentage of bicycle commuters (8.5 percent in 2014) of any city in the United States, with goals to increase it even further.

Berkeley Climate Action Plan. The *Climate Action Plan* is a response to 2006 ballot Measure G, which set the City of Berkeley's emissions reduction target to 80 percent reduction below 2000 levels by 2050. The plan, adopted by the Berkeley City Council in 2009, has an interim target to reduce community-wide GHG emissions to 33 percent below 2000 levels by 2020. The plan includes recommended emissions reduction goals, policies, and actions for the community. These include visions for public transit, walking, cycling, and other sustainable mobility modes as the primary means of transportation for Berkeley residents and visitors, electric vehicles, and zero waste to landfills.

Eastshore State Park General Plan. McLaughlin Eastshore State Park extends 8.5 miles along the East Bay shoreline from the Bay Bridge to Richmond. It includes

1,854 acres of uplands and tidelands along the waterfronts of Oakland, Emeryville, Berkeley, Albany, and Richmond. McLaughlin Eastshore State Park parallels the most heavily traveled corridor in the East Bay, making it a highly visible, highly accessible area of parkland.

EBRPD, acting as agent for the State, used funds from EBRPD's 1988 Measure AA and state park bonds to acquire the property and clean up contaminated areas at a cost of more than $33 million. The *Eastshore State Park General Plan* identifies the future preservation, conservation, and recreation uses and improvements for the park.

Albany 2035 General Plan, Transportation Element. The Transportation Element is part of the City of Albany's comprehensive, long-range statement of polices to protect and enhance the qualities of Albany ("Urban Village by the Bay"), adopted in 2016. The Transportation Element is a mandatory element of the Albany General Plan, required by Section 65302 of the California Government Code. The Transportation Element addresses mobility in Albany, including different modes of travel and transportation issues. Policies cover issues such as safety, access, parking, mode choice, and congestion.

San Francisco Bay Conservation and Development Commission's San Francisco Bay Plan (Bay Plan). The McAteer-Petris Act of 1965 created the San Francisco Bay Conservation and Development Commission (BCDC) and mandated BCDC prepare a plan and develop policies to guide future uses of the Bay and shoreline. The Bay Plan was completed and adopted by BCDC in 1968. It includes policies regarding Bay uses and Bay fill, and it addresses issues including shoreline development, parks and recreation, transportation, airport siting, and wildlife refuges. The Bay Plan also identifies priority use areas on and around the Bay.

Environmental Consequences

Project-Level Impacts

No Build Alternative

The No Build Alternative would not support achievement of the goals described in Table 2.1.1-2 because congestion and delay would continue to worsen, and pedestrian and bicycle facilities would not be constructed.

Build Alternative

Planning goals and policies of the county affected by the proposed project are described in Table 2.1.1-2. The table also presents planning goals and policies included in regional and area transportation plans.

Table 2.1.1-2: Consistency with State, Regional, and Local Plans and Programs

Actions/Goals/Policies	Build Alternative	No Build Alternative
Metropolitan Transportation Commission and Association of Bay Area Governments Plan Bay Area 2040		
Transportation Investment Strategy 2, Modernize: Expand capacity on crowded Bay Area Rapid Transit (BART) lines, improve speeds on heavily used bus lines, add safe bicycle facilities on busy roads, install new technologies to smooth traffic flow and redesign interchanges to handle greater traffic volumes.	**Consistent.** The Build Alternative would add safe bicycle facilities in the study area, smooth traffic flow, and redesign interchanges to improve efficiency of the I-80 on- and off-ramps, as well as Gilman Street, by reducing congestion and delay.	**Not Consistent.** Under the No Build Alternative, the I-80 on- and off-ramps, as well as Gilman Street, would not undergo any improvements. Delay would continue to worsen, as would the efficiency of the ramps, and there would be no installation of safe bicycle facilities.
City of Berkeley General Plan		
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 implementation of a pedestrian and bicycle overcrossing, which provides a safer way for pedestrians and bicyclists to travel through the I-80/Gilman Street interchange. It also includes a two-way cycle track between 2nd and 4th streets and an extension of the Bay Trail.	**Not Consistent.** The No Build Alternative does not include any improvements to pedestrian or bicycle facilities in the study area.
Policy LU-34 Industrial Protections: Protect industrial uses in West Berkeley.	**Consistent.** The Build Alternative would not affect existing industrial land uses in West Berkeley.	**Consistent.** The No Build Alternative would not affect existing industrial land uses in West Berkeley.
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 implementation of a pedestrian and bicycle overcrossing, which provides a safer way for pedestrians and bicyclists to travel through the I-80/Gilman Street interchange. It also includes a two-way cycle track between 2nd and 4th streets, lighting and other improvements to the path under the I-80 undercrossing, and an extension of the Bay Trail.	**Not Consistent.** The No Build Alternative does not include any improvements to pedestrian or bicycle facilities in the study area.

Table 2.1.1-2: Consistency with State, Regional, and Local Plans and Programs

Actions/Goals/Policies	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.	**Consistent.** The Build Alternative includes a roundabout at the I-80/Gilman Street on- and off-ramps.	**Not Consistent.** Under the No Build Alternative, roundabouts would not be implemented at the I-80/Gilman Street 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. **Action: 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 roundabout at the I-80/Gilman Street on- and off-ramps to improve mobility and the flow of traffic, which also helps reduce air quality impacts from idling vehicles. The Build Alternative also includes a pedestrian and bicycle overcrossing, which provides a safer way for pedestrians and bicyclists to travel through the I-80/Gilman Street interchange, a two-way cycle track between 2nd and 4th streets, and an extension of the Bay Trail. These pedestrian and bicycle improvements improve pedestrian and bicycle access in the area.	**Not Consistent.** Under the No Build Alternative, roundabouts would not be implemented at the I-80/Gilman Street 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.
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 pedestrian and bicycle overcrossing, which provides a safer way for pedestrians and bicyclists to travel through the I-80/Gilman Street interchange, a two-way cycle track between 2nd and 4th streets, and an extension of the Bay Trail. These pedestrian and bicycle improvements improve access to Tom Bates Regional Sports Complex, owned by EBRPD, and to the 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.

Table 2.1.1-2: Consistency with State, Regional, and Local Plans and Programs

Actions/Goals/Policies	Build Alternative	No Build Alternative
The West Berkeley Plan		
Environmental Quality Goal 5: Enhance air quality in West Berkeley.	**Consistent.** The Build Alternative would reduce congestion, delay, and the occurrence of idling vehicles, all of which contribute to increased air quality emissions. By reducing these, the Build Alternative would enhance air quality in the study area.	**Not Consistent.** Under the No Build Alternative, congestion and delay would continue to worsen, which would lead to additional idling vehicles and, over time, deteriorating air quality.
Transportation Goal 1: Improve traffic flow and air quality by reducing reliance on single-occupant automobiles, by encouraging use of alternative means of transportation.	**Consistent.** As part of the Build Alternative, double roundabouts would be implemented to reduce congestion and delay, which would enhance air quality in the study area. In addition, to encourage alternative means of transportation, the Build Alternative includes a pedestrian and bicycle overcrossing, which provides a safer way for pedestrians and bicyclists to travel through the I-80/Gilman Street interchange, a two-way cycle track between 2nd and 4th streets, and an extension of the Bay Trail.	**Not Consistent.** Under the No Build Alternative, congestion and delay would continue to worsen, which would lead to additional idling vehicles and, over time, deteriorating air quality. In addition, no pedestrian or bicycle facilities would be implemented.
Transportation Goal 3: Improve the circulation system where necessary, particularly around Ashby Avenue.	**Consistent.** The Build Alternative includes a roundabout at the I-80/Gilman Street on- and off-ramps to improve mobility and the flow of traffic.	**Not Consistent.** Under the No Build Alternative, roundabouts would not be implemented at the I-80/Gilman Street interchange, and congestion and delay would continue to worsen.
Transportation Goal 6: Improve pedestrian and bicycle access in and around West Berkeley.	**Consistent.** The Build Alternative includes implementation of a pedestrian and bicycle overcrossing, which provides a safer way for pedestrians and bicyclists to travel through the I-80/Gilman Street interchange. It also includes a two-way cycle track between 2nd and 4th streets and an extension of the Bay Trail. Sidewalk improvements, shared-use path, shortened intersection crossings, and pedestrian-friendly signal improvements would be included throughout the project limits.	**Not Consistent.** The No Build Alternative does not include any improvements to pedestrian or bicycle facilities in the study area.

Table 2.1.1-2: Consistency with State, Regional, and Local Plans and Programs

Actions/Goals/Policies	Build Alternative	No Build Alternative
Physical Form Goal 2: Improve major entry corridors throughout West Berkeley.	**Consistent.** The Build Alternative would simplify the complicated entry into the Industrial and Manufacturing Districts of West Berkeley. Additional improvements, such as uniform landscaping and relocation of utilities, would improve the overall image of Gilman Street.	**Not Consistent.** The No Build Alternative would not improve the Gilman Street Entry Corridor.
Berkeley Pedestrian Master Plan		
Goal 1: Plan, build, and maintain pedestrian-supportive infrastructure.	**Consistent.** The Build Alternative includes a pedestrian and bicycle overcrossing, which provides a safer way for pedestrians to travel through the I-80/Gilman Street interchange. Sidewalk improvements, shared-use path, shortened intersection crossings, and pedestrian-friendly signal improvements would be included throughout the project limits.	**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 pedestrian and bicycle overcrossing, intersections, and sidewalks would be designed to be American with Disabilities Act (ADA) compliant, which would improve access for the disabled community.	**Not Consistent.** Under the No Build Alternative, no pedestrian facilities would be implemented, which would not improve access for the disabled community.
Policy 2.2 Pedestrian Safety and Accessibility: Provide safe and convenient pedestrian crossings throughout the city.	**Consistent.** The Build Alternative includes a pedestrian and bicycle overcrossing, which provides a safer way for pedestrians to travel through the I-80/Gilman Street interchange. Sidewalk improvements, shared-use path, shortened intersection crossings, and pedestrian-friendly signal improvements would be included throughout the project limits.	**Not Consistent.** Under the No Build Alternative, no additional pedestrian facilities would be implemented. Currently, the study area lacks ADA curb ramps and other pedestrian safety features.

Table 2.1.1-2: Consistency with State, Regional, and Local Plans and Programs

Actions/Goals/Policies	Build Alternative	No Build Alternative
Policy 2.3 Intersection with Severe or High Collision Rates: Reduce pedestrian and bicycle collisions, injuries, and fatalities.	**Consistent.** Under the Build Alternative, a pedestrian and bicycle overcrossing would be implemented, which provides a safer way for pedestrians to travel through the I-80/Gilman Street interchange. Sidewalk improvements, shared-use path, shortened intersection crossings, and pedestrian-friendly signal improvements would be included throughout the project limits. 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 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 pedestrian and bicycle overcrossing, which provides a safer way for bicyclists to travel through the I-80/Gilman Street interchange. It also includes a two-way cycle track between 2nd and 4th streets, redesigned low-stress crossings at 2nd, 3rd, and 4th streets, low-stress crossings between Codornices Creek area and the Gilman Street cycle track, and an extension of the Bay Trail.	**Not Consistent.** The No Build Alternative does not include any improvements to bicycle facilities in the study area. The existing high-stress intersections would not be improved.
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.

Table 2.1.1-2: Consistency with State, Regional, and Local Plans and Programs

Actions/Goals/Policies	Build Alternative	No Build Alternative
Berkeley Climate Action Plan		
Policy 5A: Continue to expand and improve Berkeley's bicycle and pedestrian infrastructure.	**Consistent.** The Build Alternative includes implementation of a pedestrian and bicycle overcrossing, which provides a safer way for pedestrians and bicyclists to travel through the I-80/Gilman Street interchange. It also includes a two-way cycle track between 2nd and 4th streets and an extension of the Bay Trail. Sidewalk improvements, shared-use path, shortened intersection crossings, and pedestrian-friendly signal improvements would be included throughout the project limits.	**Not Consistent.** The No Build Alternative does not include any improvements to pedestrian or bicycle facilities in the study area.
Albany 2035 General Plan, Transportation Element		
Action T-3.C, Bicycle and Pedestrian Access to the Waterfront: Pursue the long-term development of a grade-separated bicycle and pedestrian crossing of the UPRR and I-80 to better connect Albany to its waterfront. Such a project could be collaboratively funded by multiple jurisdictions. Also, work with the City of Berkeley and Caltrans to facilitate access to the waterfront via Gilman Street.	**Consistent:** The Build Alternative includes implementation of a pedestrian and bicycle overcrossing, which provides a safer way for bicyclists and pedestrians to travel through the I-80/Gilman Street interchange. The overcrossing and the bicycle and pedestrian improvements at grade provide improved access to the waterfront via Gilman Street.	**Not Consistent.** The No Build Alternative does not include any improvements to bicycle and pedestrian access to the waterfront via Gilman Street.
Policy T-3.8: Bicycle and Pedestrian Connectivity: Improve the connectivity of Albany's pedestrian and bicycle networks by removing obstacles to pedestrian travel and linking major pathways, such as the Ohlone Greenway and the Bay Trail, to each other and to community facilities.	**Consistent:** The Build Alternative includes implementation of a pedestrian and bicycle overcrossing, which provides a safer way for bicyclists and pedestrians to travel through the I-80/Gilman Street interchange. The overcrossing and the bicycle and pedestrian improvements at grade provide improved access to the waterfront via Gilman Street. The Build Alternative also improves and extends the Bay Trail and completes a link in the trail, which improves connections between Albany and Berkeley.	**Not Consistent.** The No Build Alternative does not include any improvements to bicycle and pedestrian access to the waterfront via Gilman Street. The No Build Alternative does not improve access to the Bay Trail or improve connections between Albany and Berkeley.

Table 2.1.1-2: Consistency with State, Regional, and Local Plans and Programs

Actions/Goals/Policies	Build Alternative	No Build Alternative
Policy T-5.10, UC Village Circulation: Provide a safe, pedestrian-oriented circulation system within UC Village that emphasizes walking, bicycling, and transit use; decreases internal vehicle traffic, accommodates recreational trips, reinforces a sense of community, and seamlessly integrates with Albany's transportation system.	**Consistent:** The Build Alternative supports the pedestrian- and bicycle-oriented circulation plan for UC Village by connecting UC Village to the Gilman cycle track via 5th Street, Harrison Street, and 4th Street, with new painted shared lane markings (sharrows) for bicyclists and curb/sidewalk improvements for pedestrian and other nonmotorized vehicles.	**Not Consistent:** The No Build Alternative does not include any improvements to bicycle and pedestrian circulation plans for UC Village.
San Francisco Bay Conservation and Development Commission San Francisco Bay Plan		
Transportation Policy 5: Transportation projects on the Bay shoreline and bridges over the Bay or certain waterways should include pedestrian and bicycle paths that will either be a part of the Bay Trail or connect the Bay Trail with other regional and community trails. Transportation projects should be designed to maintain and enhance visual and physical access to the Bay and along the Bay shoreline.	**Consistent:** The Build Alternative includes pedestrian and bicycle paths that would be part of the Bay Trail and connect with other regional and community trails. The Build Alternative would create new access to the Bay and along the Bay shoreline.	**Not Applicable:** The No Build Alternative would not include pedestrian and bicycle connectivity improvements to the Bay Trail or other regional and community trails.
Public Access Policy 5: Public access should be sited, designed, managed, and maintained to avoid significant adverse impacts from sea level rise and shoreline flooding.	**Consistent:** The Build Alternative would create new access for bicyclists, pedestrians, and other nonmotorized vehicles by extending the Bay Trail south from the Berkeley-Albany border to Gilman Street and West Frontage Road. The Build Alternative incorporates project elements designed to minimize impacts from shoreline flooding.	**Not Consistent:** The No Build Alternative would not extend the Bay Trail or increase access for bicyclists, pedestrians, and other nonmotorized vehicles in the study area. This area would continue to be vulnerable to sea level rise and shoreline flooding.

Table 2.1.1-2: Consistency with State, Regional, and Local Plans and Programs

Actions/Goals/Policies	Build Alternative	No Build Alternative
Public Access Policy 9: Access to and along the waterfront should be provided by walkways, trails, or other appropriate means and connect to the nearest public thoroughfare where convenient parking or public transportation may be available. Diverse and interesting public access experiences should be provided, which would encourage users to remain in the designated access areas to avoid or minimize potential adverse effects on wildlife and their habitat.	**Consistent:** The Build Alternative would extend the Bay Trail, which would provide access to San Francisco Bay resources for bicyclists, pedestrians, and other nonmotorized vehicles. The new trail would provide a diverse and interesting public access route to the San Francisco Bay and encourage users to continue along the Bay Trail by completing a link in the trail system.	**Not Consistent:** The No Build Alternative would not extend the Bay Trail or increase access to bicyclists, pedestrians, and other nonmotorized vehicles. The No Build Alternative would not close a gap in the Bay Trail that would encourage users to continue riding along the Bay shore.
Public Access Policy 10: Roads near the edge of the water should be designed as scenic parkways for slow-moving, principally recreational traffic. The roadway and right-of-way design should maintain and enhance visual access for the traveler, discourage through traffic, and provide for safe, separated, and improved physical access to and along the shore. Public transit use and connections to the shoreline should be encouraged where appropriate.	**Consistent:** The Build Alternative would redesign the Gilman Street Extension adjacent to the Bay to maintain access for automobile and truck traffic entering Golden Gate Fields at the service entrance, while enhancing public access to the Bay shoreline.	**Consistent:** The No Build Alternative does not alter public access near the edge of the water.

Table 2.1.1-2: Consistency with State, Regional, and Local Plans and Programs

Actions/Goals/Policies	Build Alternative	No Build Alternative
Public Access Policy 11: Federal, state, regional, and local jurisdictions, special districts, and the Commission should cooperate to provide appropriately sited, designed and managed public access, especially to link the entire series of shoreline parks, regional trail systems (such as the San Francisco Bay Trail) and existing public access areas to the extent feasible without additional Bay filling and without significant adverse effects on Bay natural resources. State, regional, and local agencies that approve projects should assure that provisions for public access to and along the shoreline are included as conditions of approval and that the access is consistent with the Commission's requirements and guidelines.	**Consistent:** The Build Alternative extends the Bay Trail and would close a gap existing sections of the Bay Trail, while also linking the Albany Bulb and Tom Bates Regional Sports Complex shoreline parks without creating additional fill or significant impact to the Bay's natural resources.	**Not Consistent:** The No Build Alternative does not close a gap in the regional trail system or add linkages between shoreline parks.
Recreation Policy 5: Bay resources in waterfront parks and, where appropriate, wildlife refuges should be described with interpretive signs. Where feasible and appropriate, waterfront parks and wildlife refuges should provide diverse environmental education programs, facilities and community service opportunities, such as classrooms and interpretive and volunteer programs.	**Consistent:** The Build Alternative would include interpretive signs along the extension of the Bay Trail consistent with BCDC policy.	**Not Consistent:** The No Build Alternative would not extend the Bay Trail or provide interpretive signage.

Table 2.1.1-2: Consistency with State, Regional, and Local Plans and Programs

Actions/Goals/Policies	Build Alternative	No Build Alternative
Eastshore State Park General Plan		
CIRC-2: Design a circulation system that separates vehicular from nonvehicular traffic as much as possible in order to enhance nonvehicular modes and reduce potential conflicts.	**Consistent.** The Build Alternative includes implementation of a pedestrian and bicycle overcrossing, which separates vehicular from nonvehicular traffic and provides a safer way for bicyclists and pedestrians to travel through the I-80/Gilman Street interchange. It also includes a two-way cycle track between 2nd and 4th streets and an extension of the Bay Trail, which would be physically separated from traffic. These improvements aim to reduce the number of potential conflicts between vehicular and nonvehicular traffic.	**Not Consistent.** The No Build Alternative does not include any improvements to bicycle or pedestrian facilities in the study area. Vehicular and nonvehicular traffic would not be further separated, and the number of conflicts would not be reduced.
CIRC-9: In order to improve access to and through the park project, support neighboring jurisdictions in their efforts to expedite the completion of the Bay Trail as set forth in ABAG's Bay Trail Master Plan.	**Consistent.** The Build Alternative includes an extension of the Bay Trail and completes a link in the trail.	**Not Consistent.** Under the No Build Alternative, the Bay Trail would not be extended.

As shown in Table 2.1.1-2, the Build Alternative is consistent with planning goals and policies in local and regional plans and studies because the project aims to reduce congestion, improve safety, and encourage alternative transportation modes (pedestrian and bicycle). Agency permits, consultation, and coordination are discussed in Section 1.5, Permits and Approvals Needed, and Section 4.2, Consultation and Coordination with Public Agencies.

Construction Impacts

No Build Alternative

No construction impacts on consistency with State, regional, and local plans and programs would occur under the No Build Alternative.

Build Alternative

Construction impacts of the Build Alternative are not detailed in state, regional, and local land use plans and programs. Construction impacts would be consistent with state

and local construction policies, such as Caltrans' Standard Specifications (2015). The Build Alternative would be consistent with all construction regulations and would acquire the necessary permits for construction. Construction impacts of the Build Alternative related to land use policy consistencies would be the same as described above under project-level impacts. The Build Alternative would be consistent with the stated objectives of these jurisdictions.

Avoidance, Minimization, and/or Mitigation Measures

The project alignment for the Build Alternative has been adjusted to fit within existing right-of-way where feasible, which helps ensure consistency with State, regional, and local plans. No other avoidance, minimization, or mitigation measures are required.

2.1.1.3 Coastal Zone Management Act

Regulatory Setting

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

BCDC is the coastal zone management agency for San Francisco Bay and retains oversight and planning responsibilities for the development and conservation of coastal resources within and along San Francisco Bay. The State regulatory authority for BCDC is the McAteer-Petris Act and the Suisun Marsh Protection Act.

BCDC regulates and establishes policies for Bay fill, use of the Bay and shoreline area, and public access to and along the Bay. BCDC jurisdiction includes the open water, marshes, and mudflats of the greater San Francisco Bay; portions of certain creeks, rivers, sloughs, and other tributaries subject to tidal action that flow into San Francisco Bay; and salt ponds, managed wetlands, and a shoreline band that extends inland for 100 feet from the San Francisco Bay shoreline. For a project within any portion of BCDC jurisdiction, a permit from BCDC may be required.

Affected Environment

The western portion of the project study area extends into BCDC jurisdiction, which includes all areas within 100 feet of the San Francisco Bay shoreline, including the

Gilman Street Extension, and portions of the Tom Bates Regional Sports Complex. Resources identified in the Bay Plan in or near the project study area include I-80 designated as a Scenic Drive, San Francisco Bay, the Bay Trail, and Tom Bates Regional Sports Complex. Tom Bates Regional Sports Complex is designated under the Bay Plan as a waterfront park/beach priority use area (see Figure 2.1.1-2).

Environmental Consequences

Project-Level Impacts

No Build Alternative

Under the No Build Alternative, no improvements at the I-80/Gilman Street interchange would occur; therefore, there would be no impacts to the coastal zone.

Build Alternative

The Build Alternative includes improvements within BCDC jurisdiction. Consistency with BCDC's Bay Plan policies and applicable findings can be found in Table 2.1.1-2. Consultation and coordination with BCDC is detailed in Section 4.2.3, San Francisco Bay Conservation and Development Commission. Visual impacts within BCDC jurisdiction are described in Section 2.1.5, Visual/Aesthetics. Sediment removal and fill activities within San Francisco Bay BCDC jurisdiction are described in Section 2.3.2, Wetlands and Other Waters. The Build Alternative would eliminate 18 informal on-street parking spaces on the Gilman Street Extension where the new Bay Trail extension would be constructed. The decrease in parking spaces would be made up for by the increase in access to San Francisco Bay and its shoreline for bicyclists, pedestrians, and other nonmotorized transportation that would use the new Bay Trail extension. Removal of the 18 informal on-street parking spaces would also eliminate potential obstructions to the Bay view that occurs when cars are parked in those spaces.

The proximity of the study area to San Francisco Bay and the elevation of the project site would make the area susceptible to inundation from future sea level rise. According to City of Berkeley's *2014 Local Hazard Mitigation Plan,* West Berkeley is low lying and potentially vulnerable to sea level rise, especially when rising seas are compounded with severe storms.

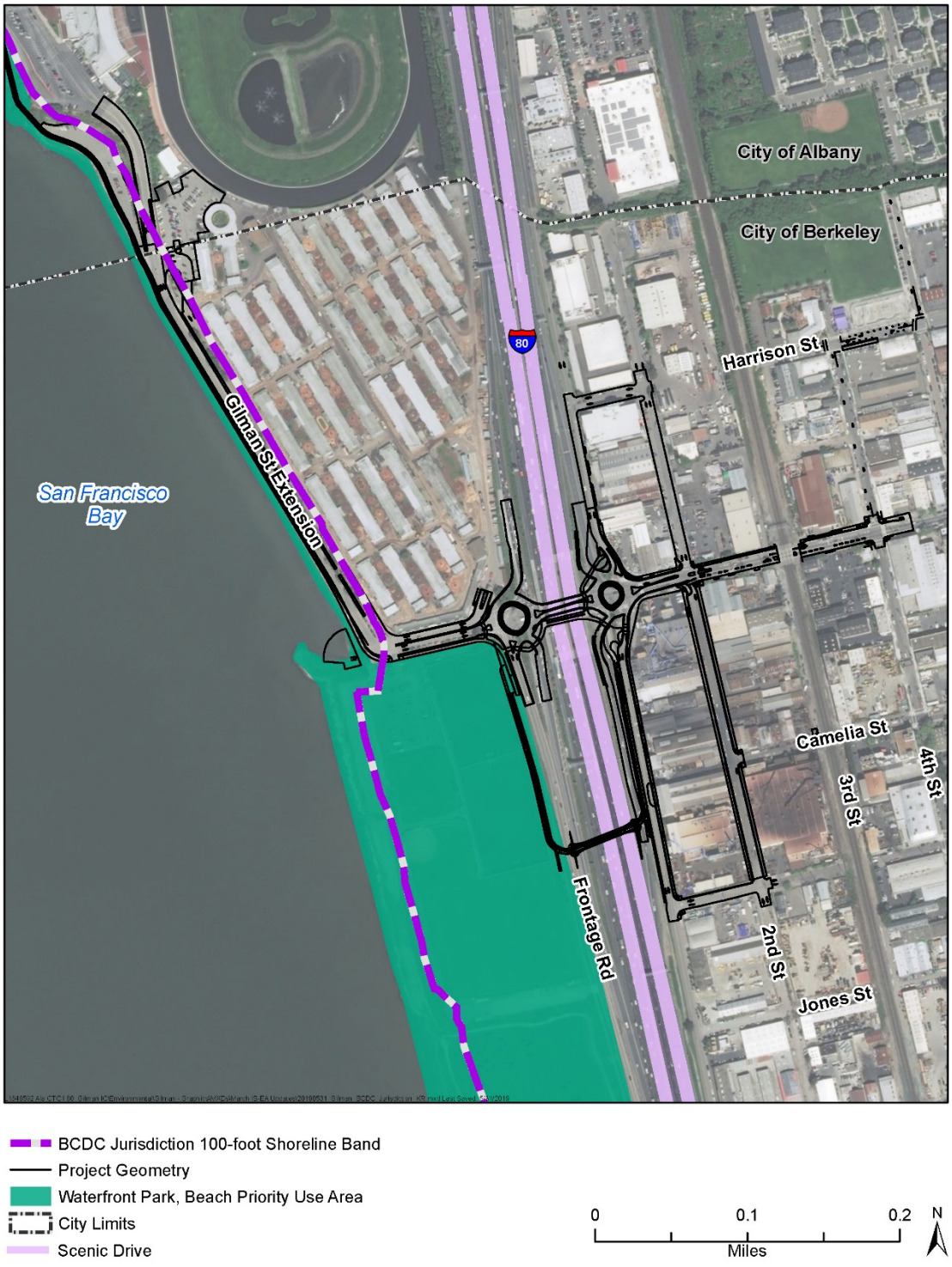


Figure 2.1.1-2: BCDC Jurisdiction and Bay Plan Designations

Sea level rise at the project site was estimated using projections from the 2018 *State of California Sea-Level Rise Guidance* document (California Ocean Protection Council). Per this guidance, the projected sea level rise depth is anticipated to be 1.0 foot by the year 2040. There is a local low point at a drain inlet on the southwestern edge of the westbound roundabout with an elevation of approximately 10.4 feet and another local low point at a drain inlet on Gilman Street Extension right before the ingress/egress point to Golden Gate Fields with an approximate elevation of 9.0 feet. The area around these low points would be susceptible to impacts from sea level rise during the 100-year Water Surface Elevation due to backflow through the drainage system or from overland tidal inundation. A tidal flap gate is proposed at the Gilman Street outfall to prevent tidal backflow from entering the study area. More information about the tidal flap gate is discussed in Section 4.2 of the *Location Hydraulic Study* (2018) and its addendum report. In addition, the road surface elevations and the storm drain inlet elevations around the 2nd Street and Gilman Street intersection, the Gilman Street Extension, and the Golden Gate Fields northwest (lower) and northeast (upper) parking lots range from 9.0 to 15.0 feet. These areas are susceptible to backflow through the storm drain system or overland tidal inundation when accounting for sea level rise.

Construction Impacts

No Build Alternative

Under the No Build Alternative, no improvements at the I-80/Gilman Street interchange would occur; therefore, there would be no impacts to San Francisco Bay and its shoreline nor from sea level rise.

Build Alternative

Construction activities for the Build Alternative, including staging areas and construction access, would have temporary impacts on public access to the shoreline of San Francisco Bay. There would be no temporary or permanent construction impacts to the designated scenic drive, I-80. Construction activities within public roadways, as well as the existing Bay Trail, may temporarily limit vehicular and pedestrian access to the waterfront at the western terminus of Gilman Street and along Gilman Street Extension. Construction activities would result in closure of the Bay Trail for limited periods of time (see Section 2.1.1.4, Parks and Recreation). There would also be a permanent reduction in the number of vehicular parking spaces near the San Francisco Bay shoreline. Although there would be temporary and permanent impacts on public access to San Francisco Bay, the project would permanently increase multimodal access to the shoreline of San Francisco Bay. The project would extend the Bay Trail

from its current terminus at the intersection of West Frontage Road and Gilman Street to the west toward San Francisco Bay, then to the north along Gilman Street Extension to just beyond the Berkeley city limits. Additionally, a pedestrian and bicycle overcrossing would be constructed over I-80 to connect a shared-use path along Eastshore Highway with the Bay Trail along West Frontage Road, resulting in temporary closures of the Bay Trail. Tom Bates Regional Sports Complex, a Waterfront Park/Beach priority use area under the Bay Plan, would experience temporary impacts through the use of a temporary construction easement in one or two of its parking lots, as discussed in Section 2.1.1, Land Use, and Section 2.1.4, Traffic and Transportation/Pedestrian and Bicycle Facilities. These potential additional staging areas would be subject to additional permits and owner permissions to be secured by the contractor before the staging area could be used.

Sea level rise is a long-term concern; it would not affect construction activities for the Build Alternative.

Avoidance, Minimization, and/or Mitigation Measures

Caltrans will implement the avoidance and minimization measures identified in other sections of this environmental document, along with Caltrans standard Best Management Practices (BMPs), to avoid impacts to Bay resources.

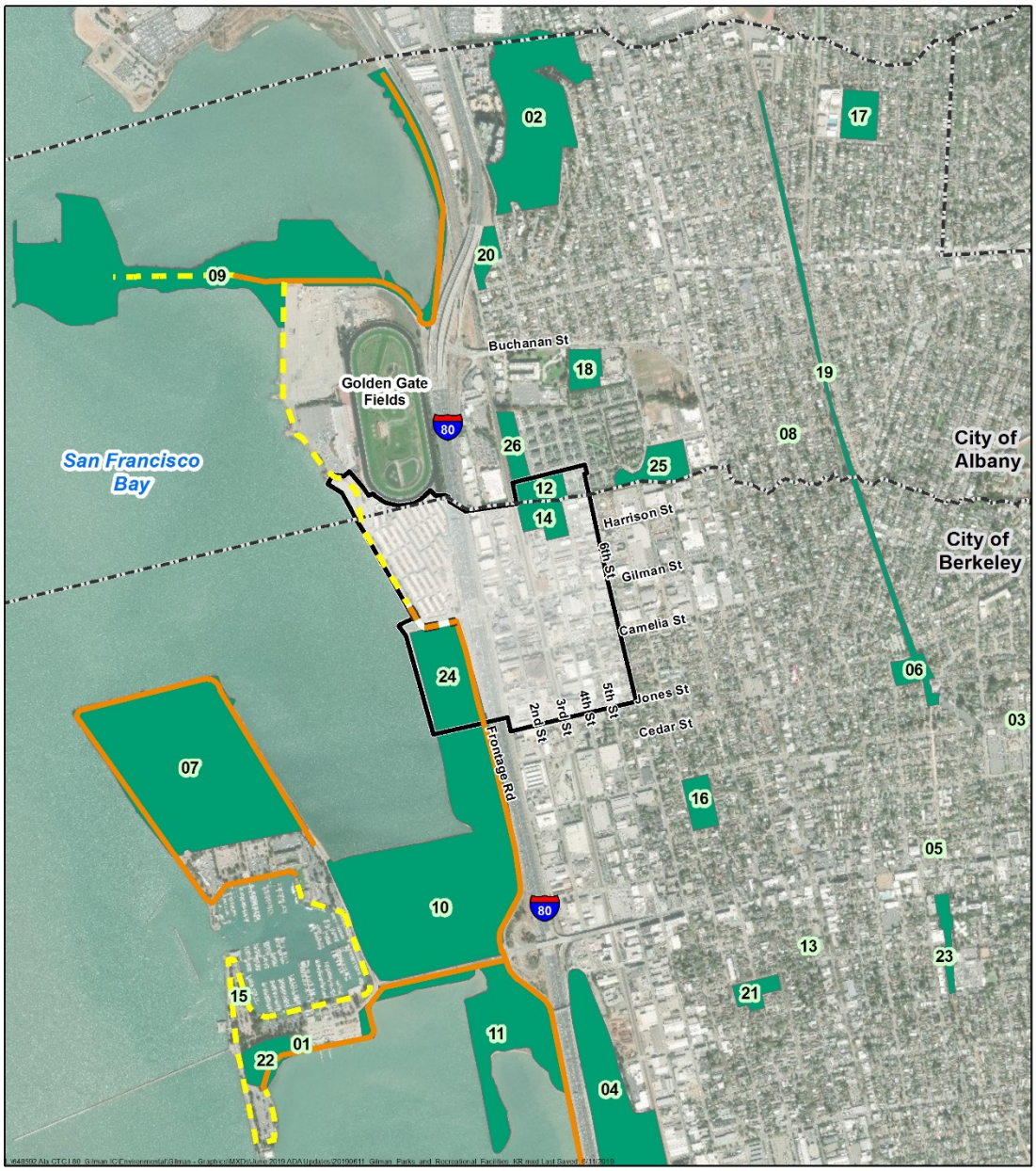
2.1.1.4 Parks and Recreational Facilities

Regulatory Setting

This project will affect facilities that are protected by the Park Preservation Act (California Public Resources Code [PRC] Sections 5400-5409). The Park Preservation Act 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

The closest city parks to the project site are Tom Bates Regional Sports Complex, located at 400 Gilman Street; Harrison Park, which includes Berkeley Skate Park and Gabe Catalfo Fields, located at 1104 4th Street; and Fielding Field, which is located in Albany to the north of Harrison Park, as shown in Figure 2.1.1-3. Tom Bates Regional Sports Complex is a 16-acre site with grass and artificial turf fields. Harrison Park and Gabe Catalfo Fields is a 5.6-acre site with sports fields, skate park, and field house with



01, Adventure Playground
02, Albany Hill Park
03, BART - Short Street Park / North
04, Berkeley Aquatic Park
05, Berkeley Way Mini Park
06, Cedar Rose Park
07, Cesar Chavez State Park
08, Children's Tot Lot
09, Eastshore State Park
10, Eastshore State Park
11, Eastshore State Park
12, Fielding Field
13, George Florence Park
14, Harrison Park
15, Horseshoe Park
16, James Kenney Rec Center Park
17, Memorial Park
18, Oceanview Park & Albany Teen Center
19, Ohlone Greenway
20, Peggy Thomsen Pierce Street Park
21, Rosa Parks School Park
22, Shorebird Park
23, Strawberry Creek Park
24, Tom Bates Regional Sports Comple
25, University Park
26, University Village Community Garde

Existing SF Bay Trail
Proposed Trail
Proposed Trail (by others)
City Limits
Study Area
Park or Recreation Facility

0 0.25 0.5 Miles N

Figure 2.1.1-3: Parks and Recreational Facilities

public meeting room. Fielding Fields is a 4.2-acre site with baseball and soccer fields. The Bay Trail runs through the western portion of the study area and currently terminates at the I-80/Gilman Street interchange. Additionally, there are more than 8 miles of shoreline trails at Eastshore State Park, which includes Tom Bates Regional Sports Complex and also trails located north and south of the project study area. Several parks are located within 1 mile of the project study area, including James Kenney Park and Recreation Center, which is located southeast of the project site on 8th Street, and Berkeley Aquatic Park, which is south of the project site on Bolivar Way.

Tom Bates Regional Sports Complex, Harrison Park, Fielding Field, and the Bay Trail are protected under the Park Preservation Act. Caltrans' Division of Right-of-Way and Land Surveys will coordinate with EBRPD to provide compensation required under the Park Preservation Act.

Tom Bates Regional Sports Complex and the Bay Trail have been identified as Section 4(f) resources, and a *de minimis* impact analysis is included in Appendix A.

Environmental Consequences

Project-Level Impacts

No Build Alternative

There would be no impacts to parks and recreational facilities under the No Build Alternative.

Build Alternative

Under the Build Alternative, access would be improved in the area, which would benefit the users of parks and recreational facilities, particularly Tom Bates Regional Sports Complex, Harrison Park, Fielding Field, and the Bay Trail. The Build Alternative would require acquisition of 0.45 acre of Tom Bates Regional Sports Complex for the project. This portion of land would be acquired from EBRPD by the City of Berkeley to construct the pedestrian and bicycle overcrossing, extend the Bay Trail, and install a separation device underground along Gilman Street to separate trash, mercury, and PCBs. Right-of-way impacts are discussed in Section 2.1.2.1, Relocations and Real Property Acquisitions. The land for the pedestrian and bicycle overcrossing is vacant and is not currently used by EBRPD or Tom Bates Regional Sports Complex. Consultation and coordination with EBRPD is detailed in Section 4.2.9, East Bay Regional Park District. Tom Bates Regional Sports Complex would be accessible at all

times during project construction and operation. The access benefits that would accrue from construction of the overcrossing would outweigh the impact of land acquisition.

The proposed Bay Trail extension would extend the Bay Trail approximately 660 feet west along the south side of Gilman Street from its current terminus at the intersection of West Frontage Road and Gilman Street to just beyond the Berkeley city limits. On-street parking would be reduced by 18 informal spaces at the end of Gilman Street as a result of the new trail extension. These parking spaces are adjacent to the Tom Bates Regional Sports Complex. The new bicycle and pedestrian facilities would improve connectivity along the Bay Trail and increase safety.

Construction Impacts

No Build Alternative

There would be no construction impacts to parks and recreational facilities under the No Build Alternative.

Build Alternative

The Build Alternative would require temporary acquisition of 1.27 acres of land from Tom Bates Regional Sports Complex for four temporary construction easements (see Figure 2.1.2-3). The easements would be in the parking lots and would not affect any features of the park. These potential additional staging areas would be subject to additional permits and owner permissions to be secured by the contractor before the staging area could be used. Approximately half of the parking spaces would remain available for park users. Caltrans and Alameda CTC would coordinate with the City of Berkeley Parks, Recreation, and Waterfront Department, who operates Tom Bates Regional Sports Complex, to minimize event scheduling impacts.

Construction of the pedestrian and bicycle overcrossing would result in closures of 800 feet of the Bay Trail for limited periods of time. Sporadic closures would be required during construction and could occur day or night depending on construction activities. A signed detour within the project footprint would be constructed to maintain public access and allow full ingress/egress to Tom Bates Regional Sports Complex and the Bay Trail.

Avoidance, Minimization, and/or Mitigation Measures

The following avoidance and minimization measures will be implemented to reduce impacts to parks and recreational facilities:

AMM COM-1: Caltrans and Alameda CTC will coordinate as needed with the City of Berkeley Office of Parks, Recreation, and Waterfront (510-981-6700) as the operators of Tom Bates Regional Sports Complex to minimize event scheduling impacts due to the reduction of parking from potential staging areas during construction.

2.1.2 Community Impacts

This section discusses impacts to the community as a result of implementation of the proposed project. The analysis is based on the results of the *Community Impact Assessment* (August 2018) prepared for the project. The community impacts section is divided into two subsections: Relocations and Real Property Acquisition; and Environmental Justice.

2.1.2.1 Relocations and Real Property Acquisitions

Regulatory Setting

Caltrans' Relocation Assistance Program 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 Relocation Assistance Program is to ensure that persons displaced as a result of a transportation project are treated fairly, consistently, and equitably so that such persons will not suffer disproportionate injuries as a result of projects designed for the benefit of the public as a whole.

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

Affected Environment

The project is located in the cities of Berkeley and Albany within Alameda County. The study area is made up primarily of industrial and manufacturing businesses, with some government/institutional businesses, commercial businesses, and recreational facilities. Some of the businesses and recreational facilities include Tom Bates Regional Sports Complex, Golden Gate Fields, Berkeley Forge & Tool, and Pacific Steel Casting. There are also some government/institutional businesses in the study area, including the Berkeley Solid Waste Management Office, Berkeley Recycling Center, and the Berkeley Transfer Station. Commercial businesses in the study area include Budget Car Rental, Public Storage, The North Face Outlet, New Pieces Quilt Shop, Teak Me Home Furniture, Don's Tire Service, and U-Haul.

Environmental Consequences

Project-Level Impacts

No Build Alternative

No permanent property acquisitions or relocations would occur under the No Build Alternative.

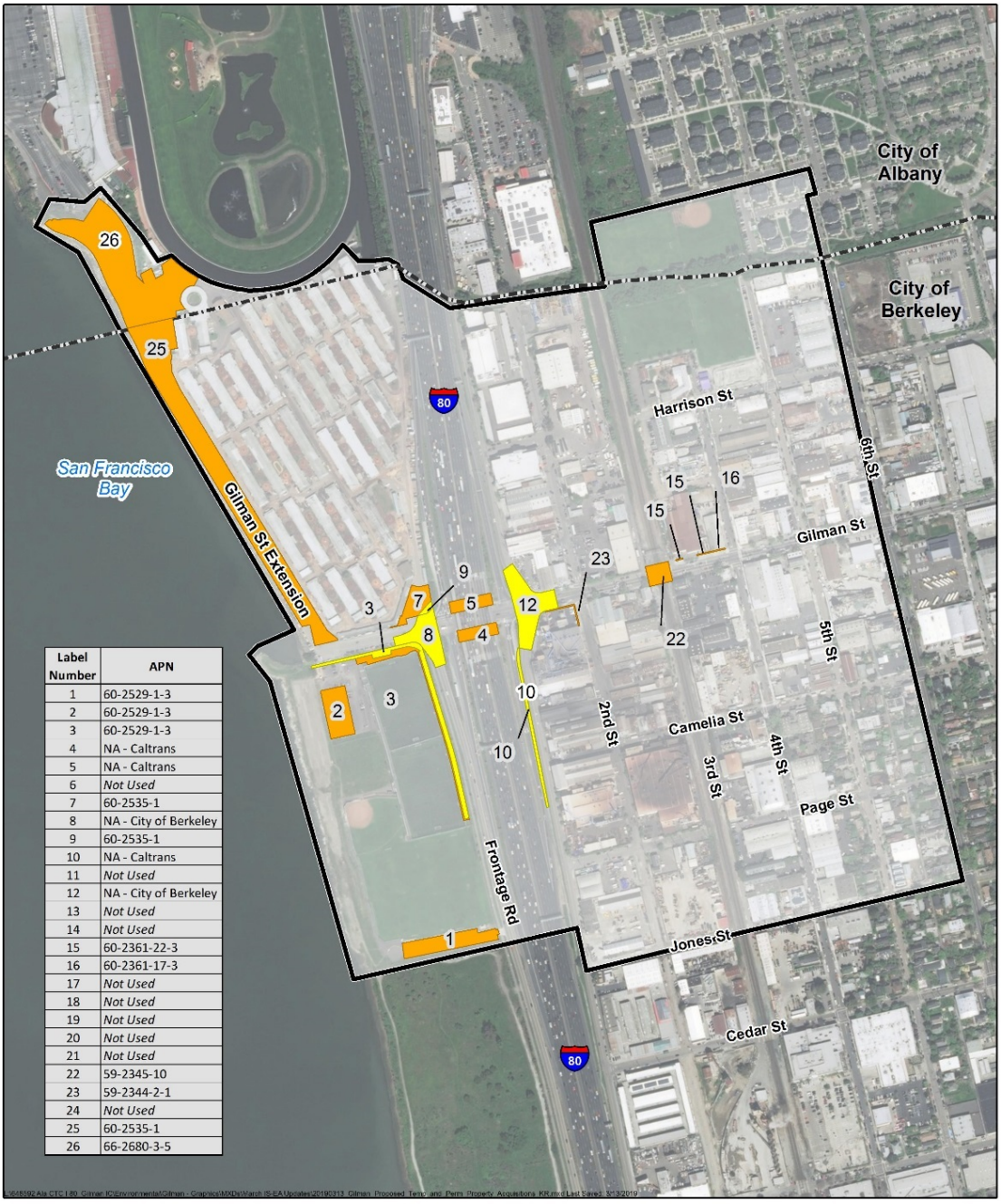
Build Alternative

The Build Alternative does 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 study area.

The Build Alternative would require partial acquisitions along property frontages in the project study area. Permanent partial property acquisitions are shown in Figure 2.1.2-1 and identified in Table 2.1.2-1. Temporary construction easements are further discussed in the next section. Additionally, Caltrans would relinquish 0.19 acre of property to the City of Berkeley for the eastern approach of the pedestrian and bicycle overcrossing, which is included in Table 2.1.2-1.

Table 2.1.2-1: Proposed Partial Property Acquisitions

APN	Location	Type of Property	Total (acres)
60-2535-1	Golden Gate Fields	Commercial	0.03
N/A	City of Berkeley	Transportation	0.52
N/A	City of Berkeley	Transportation	0.80
Total to Caltrans			**1.35**
60-2529-1-3	EBRPD, Tom Bates Regional Sports Complex	Recreation	0.50
N/A	Caltrans	Transportation	0.19
Total to City of Berkeley			**0.69**
Total New Right-of-Way			**2.04**



Label Number	APN
1	60-2529-1-3
2	60-2529-1-3
3	60-2529-1-3
4	NA - Caltrans
5	NA - Caltrans
6	*Not Used*
7	60-2535-1
8	NA - City of Berkeley
9	60-2535-1
10	NA - Caltrans
11	*Not Used*
12	NA - City of Berkeley
13	*Not Used*
14	*Not Used*
15	60-2361-22-3
16	60-2361-17-3
17	*Not Used*
18	*Not Used*
19	*Not Used*
20	*Not Used*
21	*Not Used*
22	59-2345-10
23	59-2344-2-1
24	*Not Used*
25	60-2535-1
26	66-2680-3-5

Figure 2.1.2-1: Proposed Temporary and Permanent Property Acquisitions

Partial acquisitions of industrial commercial and recreational properties would be required under the Build Alternative. This would entail permanently acquiring small portions along property from Golden Gate Fields, the City, and EBRPD. These acquisitions would not affect operations of the property because they do not include the acquisition of any structures or buildings necessary for operation. Coordination with Golden Gate Fields is detailed in Section 4.4.3, Stakeholder Coordination. Coordination with EBRPD is detailed in Section 4.2.9, East Bay Regional Park District.

The proposed improvements for the Build Alternative would require reconstruction of the entrance/exit to Golden Gate Fields located on Gilman Street north of West Frontage Road for which a small area of private right-of-way, approximately 0.03 acre, would be required. Caltrans would purchase this land from Golden Gate Fields.

The Build Alternative would combine the frontage road intersections currently owned by the City of Berkeley with Caltrans' ramp intersections into roundabout intersections. It is anticipated that Caltrans would maintain a minimum of 50 feet of access control over the roundabout intersections. These roundabout intersections would lie entirely within Caltrans right-of-way after completion of the project; therefore, Caltrans would require approximately 1.32 acres of additional public right-of-way from the City of Berkeley.

The Build Alternative includes construction of a pedestrian and bicycle overcrossing along the south side of the Gilman Street interchange. Caltrans would own and maintain the overcrossing approaches, and the bridge deck would be maintained by the City of Berkeley. Currently, the eastern approach is owned by Caltrans, and the western approach is owned by EBRPD. It is assumed that approximately 0.19 acre of additional public right-of-way would be required from Caltrans, and 0.50 acre of right-of-way would be required from EBRPD.

Construction Impacts

No Build Alternative

No property acquisitions or relocations would occur under the No Build Alternative; therefore, no construction impacts would occur.

Build Alternative

Temporary construction easements would be required under the Build Alternative from some of the adjacent parcels to construct the project. These temporary acquisitions are identified in Figure 2.1.2-1 and Table 2.1.2-2. All temporary construction easements would be from property frontages; no buildings or structures would be acquired. The

driveway located on Gilman Street for APN 59-2344-2-1 would be permanently closed. Access would be maintained to the property from a driveway located on 2nd Street. Driveways, sidewalks, and curb and gutter may be reconstructed at various locations along Gilman Street. Exact locations would be further defined during the design phase. Temporary construction easements would be required for construction equipment storage and laydown from Tom Bates Regional Sports Complex, which would temporarily reduce the number of parking spaces available for patrons. Approximately half of the parking spaces would remain available for park users. These potential additional staging areas would be subject to additional permits and owner permissions to be secured by the contractor before the staging area could be used. To minimize impacts to patrons, Caltrans and Alameda CTC will coordinate with the operators of Tom Bates Regional Sports Complex to minimize event scheduling conflicts.

Table 2.1.2-2: Proposed Temporary Construction Easements

APN	Type of Property	Total (acres)
60-2529-1-3	Recreation (Tom Bates Regional Sports Complex)	0.56
60-2529-1-3	Recreation (Tom Bates Regional Sports Complex)	0.50
60-2529-1-3	Recreation (Tom Bates Regional Sports Complex)	0.23
N/A	Transportation (Caltrans)	0.20
N/A	Transportation (Caltrans)	0.21
60-2535-1	Commercial (Golden Gate Fields)	0.28
60-2535-1	Commercial (Golden Gate Fields)	2.80
66-2680-3-5	Commercial (Golden Gate Fields)	3.21
60-2361-22-3	Industrial	0.007
60-2361-17-3	Commercial	0.01
59-2345-10	Transportation (UPRR)	0.19
59-2344-2-1	Commercial	0.02
Total		**8.217**

Note: Document protocol is to use numerical precision to two decimal places; however, in some instances numerical precision is expanded to three decimal places to accurately reflect the proposed property impact.

Project Features

Property acquisition will be conducted in compliance with Title VI of the Civil Rights Act (42 United States Code [U.S.C.] 2000d, *et seq.*), the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (as amended), and Title 49 CFR Part 24. Compensation for property to be acquired would be based on fair market value and would be part of the right-of-way acquisition phase. The following

project feature will be implemented for the Build Alternative to minimize the effects of property acquisition on property owners:

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

Avoidance, Minimization, and/or Mitigation Measures

Under the Build Alternative, no avoidance, minimization, and/or mitigation measures are required because project impacts would be minimal with implementation of the project feature identified above.

2.1.2.2 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 2018, this was $25,100 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 project. Caltrans' 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

The presence of low-income and minority populations was determined using U.S. Census Bureau population and housing data. Demographic data were obtained for the socioeconomic study area, as identified in Table 2.1.2-3. The study area for population and housing is defined as Census Tracts 4204 and 4220, as shown with blue shading in Figure 2.1.2-2. Census data for the census tracts were compared to the local cities and countywide demographics to help determine where disproportionate impacts on low-income and minority residents may occur. Minority individuals, as defined by the Council on Environmental Quality, include members of the following population groups: American Indian or Alaskan Native; Asian or Pacific Islander; Black; or

Hispanic. FHWA guidance defines environmental justice populations as any readily identifiable minority and/or low-income persons who live in geographic proximity and geographically dispersed persons of those groups, who could be affected by the project. There would be a potential for environmental justice impacts if the population in an affected area met or exceeded either of the following criteria:

- The affected area contained 50 percent or more minority or low-income population; or
- The percentage of minority or low-income population in the affected area was more than 10 percentage points greater than the average in the city and/or county in which the affected area is located.

Table 2.1.2-3: Minority and Low-Income Populations in Study Area

Geographic Area	Percent Minority	Percent Low-Income	Median Household Income
Tract 4204	72.2	27	$42,061
Tract 4220	56.7	33.2	$51,283
Study Area*	66.6	29.0	$45,554**
Albany	50.7	10.7	$78,769
Berkeley	45.3	20.0	$65,283
Alameda County	65.9	12.9	$73,775

* Census Tracts 4204 and 4220, depicted in blue shading in Figure 2.1.2-1, represent the project study area for environmental justice.

** Weighted mean of median incomes for Census Tracts 4204 and 4220.

Source: U.S. Census 2010; American Community Survey, 2014.

Because Albany and Alameda County have percentages of minority population over 50 percent, the comparison would be using the first criteria. Berkeley's percentage of minority population is 45.3 percent, and the comparison value would be 10 percentage points greater than 45.3 percent, which is 55.3 percent. However, this is greater than 50 percent, so the comparison value would be 50 percent for both cities and Alameda County, following the first criteria.

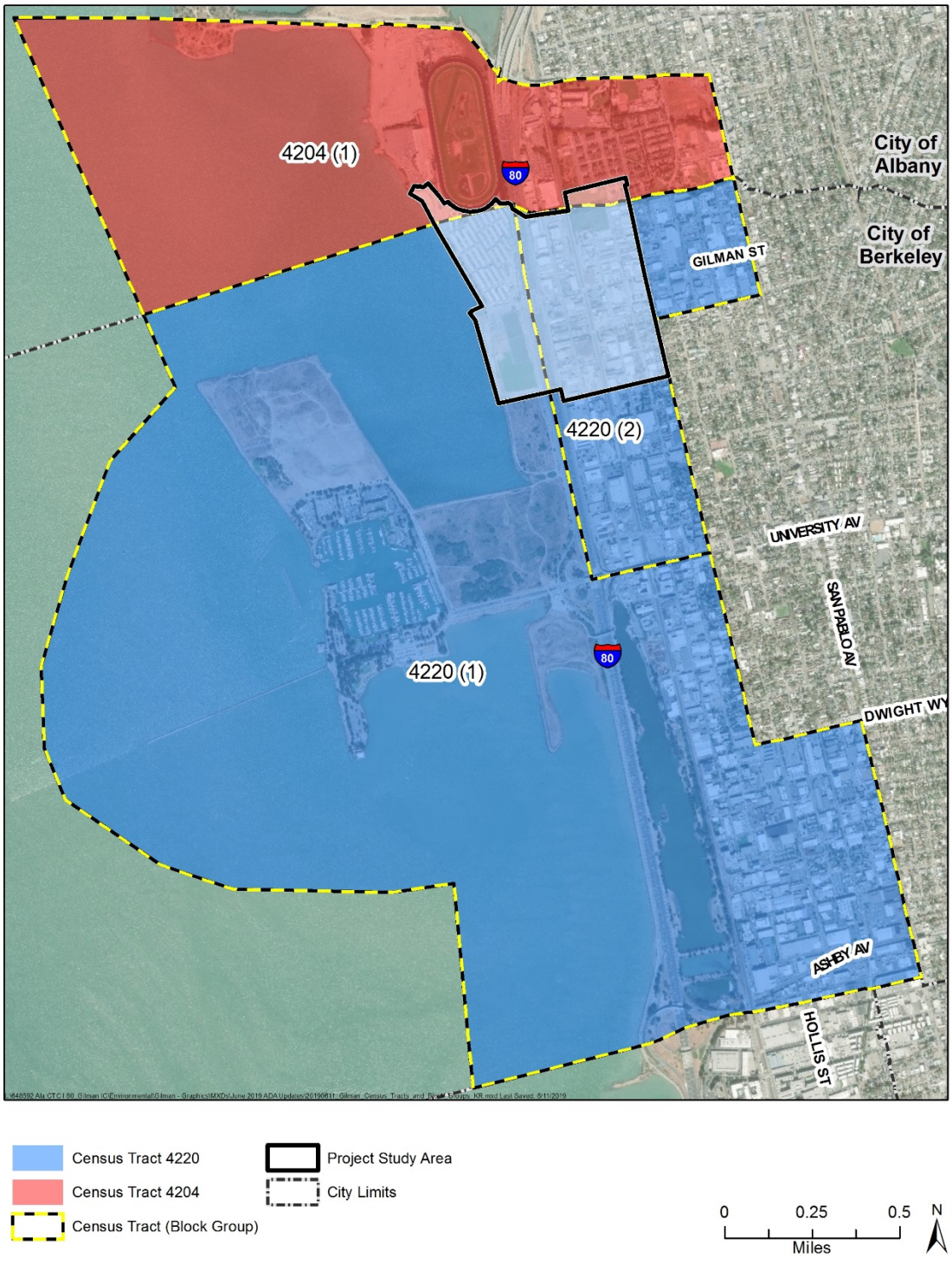


Figure 2.1.2-2: Study Area Census Tracts and Block Groups

The comparison value for percent low-income is calculated using the percent low-income for the cities and county in Table 2.1.2-3 and adding 10 percentage points. For Alameda County, the comparison value is 22.9 percent; for Albany, the comparison value is 20.7 percent; and for Berkeley, the comparison value is 30.0 percent.

The affected area for this project is Census Tracts 4204 and 4220. Table 2.1.2-10 summarizes the combined percentages of minority populations and low-income populations within this socioeconomic study area compared to their respective city and county. Additional detailed demographic composition breakdowns are summarized in Table 2.1.2-4.

The study area has a minority population of 66.6 percent, which is higher than that of Albany (51.0 percent) and Berkeley (40.0 percent), and similar to that of Alameda County (65.9 percent). The median household income in the study area ($45,554) was lower than Albany ($78,769), Berkeley ($65,283), and Alameda County ($73,775). In addition, the study area has a low-income population of 29.0 percent, which is higher than the percentage of low-income individuals in Albany (10.7 percent), Berkeley (20.0 percent), and Alameda County (12.9 percent). Because of the high percentage of minority and low-income individuals in the study area, it is considered an environmental justice community.

The percentage of heads of households that are 65 years and over in the study area is approximately 7 percent (or 144 people). This population is located within Census Tract 4220, in Berkeley, with no householders 65 years and over located in Census Tract 4204, in Albany. Of these householders, 34 percent had annual incomes in 2016 of less than $20,000.

In the study area, 25 percent of workers 16 years of age and over take public transportation to work, while 6 percent walk, 4 percent bicycle, and 53 percent have car, truck, or van transportation (Table 2.1.2-5). The remainder either worked from home or have transportation that is by taxicab, motorcycle, or other means. The percentage of workers 16 years and over that take public transportation to work is higher than the study area percentage in Census Tract 4204, in Albany, at 34.3 percent. In the study area, 7 percent of workers 16 years and over have no access to a vehicle. In Census Tract 4204, the rate is 11 percent. In Berkeley, the rate is higher, at 15 percent.

Table 2.1.2-4: Population and Ethnic Composition of the Study Area

Category	Tract 4204*		Tract 4220*		Study Area		Albany		Berkeley		Alameda County	
	Number of Residents	%	Number of Residents	%	Number of Residents	%	Number of Residents	%	Number of Residents	%	Number of Residents	%
2000 Total Population	1,721	100	1,333	100	3,054	100	16,444	100	102,743	100	1,443,741	100
2010 Total Population	3,124	100	1,756	100	4,880	100	18,539	100	112,580	100	1,510,271	100
Population Growth Rate (2000-2010)	1,403	81.5	423	24.1	1,826	59.8	2,095	12.7	9,837	8.7	66,530	4.4
2010 Median Age	29.2		39.6		32.9**		37		31		36.6	
19 Years and Under	944	30.2	326	18.6	1,270	26.0	4,900	26.4	23,341	20.7	383,662	25.4
20 to 64 Years	2,161	69.2	1,282	73.0	3,443	70.6	11,792	63.6	76,063	67.6	958,863	63.4
65 Years and Over	19	0.6	148	8.4	167	3.4	1847	10.0	13,176	11.7	167,746	11.1
Ethnicity and Race												
White	870	27.8	761	43.3	1631.0	33.4	9,136	49.3	61,539	54.7	514,559	34.1
Black or African-American	118	3.8	491	28.0	609.0	12.5	621	3.3	10,896	9.7	184,126	12.2
American Indian and Alaska Native	27	0.9	3	0.17	30.0	0.6	44	0.2	228	0.20	4,189	0.28
Asian	1,513	48.4	170	9.7	1683.0	34.5	5,754	31.0	21,499	19.1	390,524	25.8
Native Hawaiian and Other Pacific Islander	16	0.5	5	0.28	21.0	0.4	32	0.2	170	0.15	11,931	0.79
Some Other Race	20	0.6	12	0.68	32.0	0.7	105	0.6	503	0.44	4,191	0.27
Two or More Races	136	4.4	92	5.2	228.0	4.7	956	5.2	5,536	4.9	60,862	4.0
Hispanic	424	13.6	222	12.6	646.0	13.2	1,891	10.2	12,209	10.8	339,889	22.5
Total Minority	2,254	72.2	995	56.7	3,249	66.6	9,403	50.7	51,041	45.3	995,712	65.9

* Census Tracts 4204 and 4220, depicted in blue in Figure 2.1.2-1, represents the project study area for socioeconomic analysis, including population and housing, economic conditions, and environmental justice.

** Weighted mean of 2010 median age for Census Tracts 4204 and 4220.

Source: U.S. Census Bureau, 2010.

Table 2.1.2-5: Transportation Mode and Vehicle Information for Workers 16 Years and Over

Geography	Workers 16 years and over (population)	Means of Transportation to Work						No Vehicle Available (%)
		Car, Truck, or Van (%)	Public Transportation (excluding Taxicab) (%)	Walk (%)	Bicycle (%)	Taxicab, Motorcycle, or Other Means (%)	Work at Home (%)	
Alameda County	736,979	72.6	14.2	3.6	2.1	1.5	6	4.7
Census Tract 4204	1,055	48.6	34.3	2.6	6	4.5	4.1	11
Census Tract 4220	1,011	57.5	14.9	9.6	1.4	2.6	14	2.4
Albany city, California	9,013	52.7	25.5	5.4	6.1	1.5	8.9	4.3
Berkeley city, California	59,130	39.1	22.9	17.3	8.2	1.6	10.9	14.7
Study Area	2,066	53	25	6	4	4	9	7

Source: US Census American Community Survey, 2012-2016.

In the study area, 19.8 percent of the population 5 years and over speak English less than "very well" (Table 2.1.2-6). This percentage is higher than the percentage for Albany, Berkeley, and Alameda County. Spanish speakers that speak English less than "very well" make up 3.9 percent of the total population, while Chinese speakers are 6.6 percent, Korean speakers are 3.0 percent, and speakers of other Asian and Pacific Island languages are 3.5 percent.

Table 2.1.2-6: Language Spoken at Home for the Population 5 Years and Over

Geography	Total Population	Speak English Less than "Very Well"	Speak English Less than "Very Well" (%)	Spanish Speakers that Speak English Less than "Very Well" (%)	Chinese Speakers that Speak English Less than "Very Well" (%)	Korean Speakers that Speak English Less than "Very Well" (%)	Other Asian and Pacific Island Languages Speakers that Speak English Less than "Very Well" (%)
Alameda County	1,507,645	269,097	17.8	7.2	4.9	0.4	1.1
Census Tract 4204	2,701	833	30.8	5.8	11.0	4.9	5.1
Census Tract 4220	1,773	53	3.0	1.1	0.0	0.2	0.9
Albany city	17,920	2,561	14.3	2.5	5.7	1.4	1.9
Berkeley city	114,121	7,192	6.3	1.6	2.1	0.3	0.7
Study Area	4,474	886	19.8	3.9	6.6	3.0	3.5

Source: US Census American Community Survey 2012-2016.

Environmental Consequences

EO 12898 requires each federal agency (or its designee) to take the appropriate and necessary steps to identify and address "disproportionately high and adverse" effects of federal projects on the health and environment of minority and low-income populations to the greatest extent practicable and permitted by law. This analysis determines if any disproportionately high and adverse effects from the Build Alternative or No Build Alternative would be predominantly borne by minority or low-income populations, or would be appreciably more severe or greater in magnitude to minority or low-income populations compared to the effects on non-minority or non-low-income populations.

The analysis below examines the ways in which impacts associated with the Build Alternative, including the No Build Alternative, may affect minority and low-income populations, and a determination is then made whether the alternative results in disproportionately high and adverse effects.

Project-Level Impacts

No Build Alternative

Given the absence of new transportation infrastructure, certain impacts would be less substantial than the effects described below for the Build Alternative; however, certain adverse effects on minority or low-income populations in the study area would arise as a result of transportation needs left unmet by the No Build Alternative. These effects would include direct impacts and indirect effects that are typically caused by traffic congestion and impaired mobility, longer travel times, and increased air pollution and noise. The economic and transportation benefits associated with implementation of the project would also not be realized. Under the No Build Alternative, there would be some adverse impacts to pedestrian and bicycle circulation from continued congestion along local streets, especially along Gilman Street. The proposed improvements for pedestrian and bicyclists in the area would not be constructed, thereby maintaining the unsafe conditions in the study area. This would impact regional pedestrian and bicyclists, as well as residents within the study area that are bicyclists and pedestrians. Because these effects would not be concentrated in any particular location, minority and low-income and non-minority and non-low-income populations would be similarly affected. Therefore, impacts associated with the No Build Alternative would not be predominantly borne by a minority or low-income population, nor would these impacts appear to be appreciably more severe or greater in magnitude than those experienced by non-minority or non-low-income populations.

Build Alternative

Although the effects of the project would occur in an area having a large percentage of minority and low-income populations, these effects cannot reasonably be considered disproportionately high and adverse under the circumstances. The census tracts in the project study area are composed of a large percentage of minority and low-income populations; however, the Build Alternative constitutes a relatively small area of the census tracts. Most of the residents within the census tracts through which the project would traverse are located outside of the study area and are not likely to be directly affected by the proposed Build Alternative. Most housing units within the study area are located outside of the project footprint (shown in Figure 1-2). Housing within the study area includes the family student housing in University Village, in Albany; a mixed-use (residential/commercial) development on Gilman Street between 3rd Street and 4th Street; and a neighborhood of single-family residences, medium-density residences, and a mixed-use (residential/commercial) building clustered around 5th Street and Page Street (see Figure 2.1.1-1). There would be no permanent project-level impacts to public transit or commercial services. Finally, as discussed in the *Community Impact Assessment* (2018), there would be no effects on neighborhood integrity and community cohesion.

The Build Alternative would not require the relocation of any businesses or residences; only small partial acquisitions would be required. These partial acquisitions would not affect the function or operations of the affected property, and existing access to I-80 and Gilman Street would be maintained. Access to community services and resources would not be degraded. A disproportionate impact would not occur due to the property acquisitions required under the Build Alternative. Other resource areas with potential impacts include noise, visual, and air quality. The effects of increased noise and changes in visual character are not confined to limited areas but rather dispersed over the length of the project and are not in themselves expected to affect the overall character of the environmental justice population areas. Additionally, any potential visual and noise impacts would be minimized with avoidance and minimization measures described in Section 2.1.5, Visual/Aesthetics, and Section 2.2.7, Noise. Impacts from other resource areas are not expected to result in impacts on the community, including minority and low-income populations.

As it would for other community members who are not members of the minority or low-income population groups, the Build Alternative would also provide benefits for the minority and low-income populations within the study area. Goals of the project are to reduce congestion, provide operational enhancements, improve safety and

access, and enhance pedestrian and bicycle facilities. These elements were developed with extensive community outreach and public participation (Section 4.4, Public Participation). The Build Alternative would include improvements to bicycle and pedestrian facilities. These benefits would be shared among all of the study area populations.

Therefore, with implementation of avoidance and minimization measures, adverse impacts associated with the Build Alternative would not be predominantly borne by a minority or low-income population, nor would these impacts be appreciably more severe or greater in magnitude than those experienced by non-minority or non-low-income populations.

Construction Impacts

No Build Alternative

There would be no construction with the No Build Alternative; therefore, there would be no construction or temporary impacts.

Build Alternative

Potential impacts to noise and air quality would be temporary during the construction period, and they would be minimized with the avoidance and minimization measures described in Section 2.2.6, Air Quality, and Section 2.2.7, Noise.

Acceptable levels of service for traffic operations would be maintained during construction, and access to freeway on- and off-ramps would be maintained at all times. All lane closures would be approved by Caltrans prior to implementation. Closures and traffic detours may be needed for construction of the pedestrian and bicycle overcrossing structure, and they would be limited to off-peak hours. Access to the Bay Trail would be maintained at all times, except when minor detours are needed.

Avoidance, Minimization, and/or Mitigation Measures

Based on the above discussion and analysis, the Build Alternative would not cause disproportionately high and adverse effects on any minority or low-income populations in accordance with the provisions of EO 12898. No further environmental justice analysis is required. Although the project would not cause disproportionately high and adverse effects on any minority or low-income populations, the following minimization measure (see also Section 4.4.6, Outreach Plan for Environmental Justice) and other measures proposed for this project would minimize impacts on all of the local communities, including low-income and minority populations.

AMM COM-2: A Public Outreach Plan for environmental justice populations will be developed to identify specific methods of communication. Effective communication methods include distributing flyers within the study area, at The Hub (1901 Fairview Street, Berkeley), and at community centers, houses of worship, and grocery stores, and posting information on vehicles, bus stops, and other locations frequented by low-income and minority populations.

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2.1.3 Utilities/Emergency Services

Affected Environment

The following information is based on the *Community Impact Assessment* (August 2018).

Emergency and Protective Services

The Berkeley Police Department, located at 2100 Martin Luther King Jr. Way, serves the study area. The Berkeley Police Department provides service to approximately 102,743 residents over 10.16 square miles. The Berkeley Police Department currently has approximately 170 sworn officers and 100 civilian staff. The staffing ratio is 1.8 officers per 1,000 residents, and the total personnel staffing ratio is 2.7 personnel per 1,000 residents. The project site is located within Beat Area 4. The boundaries of Beat Area 4 include the Berkeley/Albany border to the north, Delaware Street to the south, California Street to the east, and San Francisco Bay to the west. The Albany Police Department, located at 1000 San Pablo Avenue, also serves the study area.

The Berkeley Fire Department headquarters is located at 2100 Martin Luther King Jr. Way and is composed of seven fire stations, one drill tower, and administrative offices. The project study area is located in Fire Prevention District E6. The Albany Fire Department, located at 1000 San Pablo Avenue, also serves the study area.

The Berkeley Fire Department also is responsible for emergency medical services and ambulance service in Berkeley. The fire department staffs and maintains three ambulances around the clock. Each ambulance is staffed with two firefighters who are also trained paramedics. The Berkeley Fire Department also has agreements with neighboring fire departments (Albany, Piedmont, Alameda) and American Medical Response, who can respond during high-volume periods should the need arise. According to the Berkeley Fire Department, existing staffing and equipment levels at the fire stations are adequate to accommodate the current demand for fire protection services.

Utilities

There are numerous utility lines within the study area, including overhead electrical and transmission lines; and underground electrical, gas, sanitary sewer, water, television/cable, telephone, and storm drains.

Water Service

EBMUD provides water service for Berkeley residents and businesses, including the project study area. EBMUD's water supply begins at the Mokelumne River watershed in the Sierra Nevada and extends 90 miles to the East Bay.

Wastewater Treatment

The City of Berkeley's collection system includes approximately 254 miles of City of Berkeley-owned sanitary sewers, 7,200 manholes and other sewer structures, 7 sewage pump stations, and approximately 31,600 service laterals. The City of Berkeley is responsible for maintenance and repair of the lower portion of the service laterals (located within public right-of-way) from the property line cleanout to the connection to the City of Berkeley's sewer main. The collection system serving the UCB campus, located within Berkeley, is owned and maintained by the University but discharges to the City of Berkeley's sewer system, as do the sewer systems serving the Lawrence Berkeley National Laboratory and Golden Gate Fields. The City of Berkeley's system also receives wastewater from small adjacent areas of the City of Albany, City of Oakland, and the Stege Sanitary District (Kensington) (City of Berkeley, 2014).

Wastewater generated in the City of Berkeley's collection system is conveyed to the EBMUD wastewater interceptor system and is treated at EBMUD's Main Wastewater Treatment Plant located near the eastern terminus of the San Francisco-Oakland Bay Bridge.

Solid Waste Disposal and Recycling

The City of Berkeley is one of the few cities in northern California to operate its own refuse collection system. The City of Berkeley has the exclusive responsibility to collect garbage from all premises in Berkeley. It operates collection programs for residential and commercial establishments, government facilities, and schools. The City of Berkeley also owns and operates the Transfer Station, which is located on 2nd Street north of Gilman Street. At the Transfer Station, collected refuse is transferred to long-haul trucks for delivery to a disposal site. Currently, the City of Berkeley has a contract with Republic Services to dispose waste at the Vasco Road Landfill in eastern Alameda County (City of Berkeley, 2004).

Recycling collection and processing programs in Berkeley are primarily operated by three entities: the City of Berkeley Public Works Department, Solid Waste Management Division, which operates the commercial recycling collection program;

the Ecology Center, which, under contract with the City of Berkeley, operates the residential curbside program; and the Community Conservation Centers, which, also under contract with the City of Berkeley, operates the buy-back and drop-off programs and processes materials collected by the City of Berkeley and the Ecology Center at the 2nd Street and Gilman Street site. Other recycling in Berkeley occurs through the actions and efforts of residents, businesses, and franchised commercial waste collectors (City of Berkeley, 2004).

The City of Berkeley's Solid Waste Management Division operates the organics collection programs, which collect green waste from residences and food waste from commercial establishments. Grover Landscape Services is under contract with the City of Berkeley to transport and compost organic materials, which are consolidated at the Transfer Station (City of Berkeley, 2004).

Other Utilities

PG&E provides gas and electricity services in the study area. AT&T maintains the local telephone service, and Comcast is the main cable service provider.

Environmental Consequences

Project-Level Impacts

No Build Alternative

There would be no impacts to utilities or emergency services and facilities under the No Build Alternative.

Build Alternative

Under the Build Alternative, no public services or facilities would be displaced. Some of the local changes in circulation would affect travel patterns to and from these facilities. The long-term effect of the proposed project would be to reduce congestion and thereby enhance mobility within the study area. This would be especially true for emergency service providers, who would greatly benefit from reduced congestion at the I-80/Gilman Street interchange because response times could be reduced.

Under the Build Alternative, there would be sufficient space for an emergency vehicle to pass other vehicles queued to enter the roundabout. According to FHWA's *Roundabouts: An Informational Guide,* drivers should be educated about how to properly respond when an emergency vehicle is approaching the roundabout to

minimize potential delays to emergency response (NCHRP, 2010). The guide includes the following advice for drivers:

> *"Do not enter a roundabout when an emergency vehicle is approaching on another leg. This will allow traffic within the roundabout to clear in front of the emergency vehicle. When an emergency vehicle is approaching, be sure to proceed beyond the splitter island of your approach leg to ensure the emergency vehicle has adequate room to turn and exit the roundabout at any approach."*

To minimize delays to emergency response, PF COM-3 discussed below has been included as part of the Build Alternative. With implementation of this feature, potential impacts to emergency services would be minimized. Additionally, AMM COM-3 discussed in Section 2.1.4, Traffic and Transportation/Pedestrian and Bicycle Facilities, would minimize impacts to emergency services.

Existing PG&E overhead electric lines along Gilman Street, West Frontage Road, and Eastshore Highway would be relocated under the Build Alternative. Coordination with PG&E is described in Section 4.4.3, Stakeholder Coordination. Some of these overhead lines may be placed underground. Minor drainage modifications would also be required to conform to the new roundabout alignment. Utility relocations and new drainage systems may require trenching to a depth of approximately 6 feet. Light pole foundations would be 2 feet in diameter and would range from 5 to 13 feet deep near the roundabout.

An existing EBMUD recycled water transmission line would be relocated and extended as part of the project. Coordination with EBMUD is described in Section 4.4.3, Stakeholder Coordination. Approximately 1,100 feet of a new 12-inch recycled water transmission pipeline within Eastshore Highway from Page Street to Gilman Street and approximately 1,050 feet of pipeline within Gilman Street from 2nd Street to the Buchanan Street extension are part of the Build Alternative. The maximum excavations for the pipe trench would be approximately 24 inches by 60 inches deep. Approximately 1,100 feet of an existing 10-inch EBMUD recycled water pipeline located within Caltrans right-of-way along the eastbound Gilman Street off-ramp shoulder would be abandoned in place or removed. A new City of Berkeley sewer line would be installed underneath Gilman Street beginning at a point east of the interchange and ending on the west side of I-80 at the approximate entrance to the Tom Bates Regional Sports Complex parking lots.

A separation device would be installed underground along Gilman Street to separate trash, mercury, and PCBs. Installation of the separation device would require trenching up to a depth of 14 feet. The conversion of 2nd Street to one way would change access to the City of Berkeley-owned Transfer Station on 2nd Street. Vehicles wanting to access the Transfer Station from the south would need to travel north on 4th Street, west on Gilman Street, and then north on 2nd Street.

Construction Impacts

No Build Alternative

There would be no construction with the No Build Alternative; therefore, no construction impacts would occur.

Build Alternative

Project construction would be staged to maintain through traffic at the I-80/Gilman Street interchange, although temporary lane closures and traffic rerouting would occur. These lane closures and traffic rerouting could interfere with emergency service providers; however, the impact can be minimized with the measures discussed in PF COM-3 below and AMM COM-3 discussed in Section 2.1.4, Traffic and Transportation/Pedestrian and Bicycle Facilities.

Construction of the Build Alternative could result in temporary impacts to utilities, such as an increase in utility demand and solid waste volume. Access to the City of Berkeley-owned Transfer Station on 2nd Street would remain open during construction. Caltrans and the City of Berkeley would coordinate with all utility providers during the design phase of the project so that effective design treatments and construction procedures are incorporated to avoid adverse impacts to existing utilities during construction and to ensure work is in accordance with the appropriate requirements and criteria. Design, construction, and inspection of utilities relocated for the project would be done in accordance with Caltrans requirements.

Nonetheless, the potential exists for construction activities to encounter unexpected utilities within the area of roadway improvements. In addition, utility relocations may require short-term, limited interruptions of service. Any short-term, limited service interruptions of known utilities would be scheduled well in advance and appropriate notification provided to users. It is expected that the local community would not be adversely affected by temporary service interruptions during construction.

Project Features

The following project features would be implemented as part of the Build Alternative:

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. If previously unknown underground utilities are encountered, Caltrans will coordinate with the utility provider to develop plans to address the utility conflict, protect the utility if needed, and limit service interruptions. Any short-term, limited service interruptions of known utilities will be scheduled well in advance, and appropriate notification will be provided to users.

PF COM-3: Caltrans will coordinate with emergency service providers and through the public information program to avoid emergency service delays by ensuring that all providers are aware well in advance of lane closures. Proactive public information systems, such as changeable message signs, would notify travelers of pending construction activities. A TMP will also be developed as part of the project to address traffic impacts from staged construction, lane closures, and specific traffic handling concerns such as emergency access during project construction.

Avoidance, Minimization, and/or Mitigation Measures

The project features described above will help reduce potential impacts to public services and facilities. In addition to these features, Avoidance and Minimization Measure AMM COM-3 in Section 2.1.4, Traffic and Transportation/Pedestrian and Bicycle Facilities will help reduce potential impacts to utilities and emergency services.

2.1.4 Traffic and Transportation/Pedestrian and Bicycle Facilities

Regulatory Setting

Caltrans, as assigned by 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 CFR 652). It further directs that the special needs of the elderly and the disabled must be considered in all federal-aid projects that include pedestrian facilities. When current or anticipated pedestrian and/or bicycle traffic presents a potential conflict with motor vehicle traffic, every effort must be made to minimize the detrimental effects on all highway users who share the facility.

In July 1999, the U.S. Department of Transportation (USDOT) issued an Accessibility Policy Statement pledging a fully accessible multimodal transportation system. Accessibility in federally assisted programs is governed by the USDOT regulations (49 CFR 27) implementing Section 504 of the Rehabilitation Act (29 U.S.C. 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 study area, including the roadway network, transit services, and bicycle and pedestrian facilities, as discussed in the *Community Impact Assessment* (August 2018) and the *Traffic Operations Analysis Report* (June 2017).

Access, Circulation, and Parking

Interstate Route

I-80 is a primary transcontinental freeway serving drivers and goods movement between the San Francisco Bay Area, northern California, ports and transshipment facilities, transcontinental highway networks, the Midwest, Canada, and the eastern United States. It is the principal east-west route through northern California and the sole freeway crossing of the Sierra Nevada range. According to Caltrans (2014), within the study area, I-80 is a 10-lane freeway with average annual daily traffic in 2014 from approximately 267,000 at the southern project limit near Gilman Street to approximately 274,000 at the northern limit near Gilman Street.

Arterial Roads

Gilman Street connects I-80 to the west and runs eastward into Berkeley (Figure 1-3). West of 3rd Street, Gilman Street has two lanes in each direction, while east of 3rd Street, Gilman Street has one lane in each direction with on-street parking. Both configurations provide curb-to-curb distances of approximately 50 feet. Land uses along Gilman Street are primarily manufacturing and industrial, and the current speed limit is 35 mph.

Collector Roads

Eastshore Highway runs parallel to I-80 along the western portion of the study area. This roadway serves as an access road to several commercial businesses and collector streets in the study area. Its location west of the railroad tracks can create obstruction for east/west access to and from the rest of the study area. Direct access to Eastshore Highway is located at the eastbound I-80 off-ramp. At this intersection with Hearst Avenue, the roadway becomes a one-way, northbound-only street; southbound traffic is forced to turn east. Eastshore Highway has one lane in each direction and a current speed limit of 25 mph.

2nd Street runs parallel to I-80, one block east of the I-80/Gilman Street interchange. North of Gilman Street, on 2nd Street, the City of Berkeley owns and operates the Transfer Station, a local recycling center.

4th Street runs parallel to I-80, three blocks east of the I-80/Gilman Street interchange. The street is part of the proposed route linking pedestrians and bicyclists commuting from the University Village area in Albany to the Tom Bates Regional Sports Complex and other Bay front recreational areas.

5th Street runs parallel to I-80, four blocks east of the I-80/Gilman Street interchange. The street is part of the proposed route linking pedestrians and bicyclists commuting from the University Village area in Albany to the Tom Bates Regional Sports Complex and other Bay front recreational areas.

Harrison Street runs parallel to Gilman Street and dead ends from the east at 3rd Street and the UPRR. The street is part of the proposed route linking pedestrians and bicyclists commuting from the University Village area in Albany to the Tom Bates Regional Sports Complex and other Bay front recreational areas.

Gilman Street Extension continues west from Gilman Street and veers north running between Golden Gate Fields and San Francisco Bay. This street is a private street owned by Golden Gate Fields with a public easement for Bay front access.

Rail Service

The UPRR tracks are an important non-highway circulation element in West Berkeley. They serve primarily as a freight route, but they also support passenger train traffic running north to Oregon and Washington, east to Chicago, and south to southern California. There are 15 to 19 round-trip passenger trains per day that pass through the Gilman Street and 3rd Street intersection and projected freight traffic of 36 to 50 trains per day by the year 2040. In addition to long-haul trains, there are several short-haul services to Sacramento that traverse through the study area.

The railroad restricts access in the northern part of West Berkeley, with University Avenue, Hearst Avenue, Virginia Street, Cedar Street, Camelia Street, and Gilman Street being the only streets that cross the tracks. In addition, there are several mostly abandoned rail spurs that once served individual plants and industries in the area.

Parking

Due to the industrial nature of the study area, much of the needed parking for employees is supplied by the businesses in the area. Additional street parking is available along adjacent streets in the area, including 2nd Street, Camelia Street, Gilman Street, Eastshore Highway, and 3rd Street, adjacent to the UPRR tracks. There is sufficient on-street parking, much of it unmetered, within the project study area. According to the 2009 Transportation Demand Management Report, there are few areas in West Berkeley other than the 4th Street commercial district where on-street parking is metered. The lack of metered parking in West Berkeley, including the project study area, is because demand for parking has not yet reached levels that typically exceed supply.

Tom Bates Regional Sports Complex has approximately 185 onsite parking spaces. Golden Gate Fields has two private parking lots (northwest and northeast lots on Figure 1-3) within the study area. Existing parking on Gilman Street Extension, west of I-80 and along San Francisco Bay, consists of informal on-street parking outside the travel lane and includes approximately 88 informal parking spaces. See Section 2.1.1.3, Coastal Zone, for details about parking and Bay front access and Bay front recreation areas.

Traffic Operations

Major delays occur within the I-80/Gilman Street interchange area due to the comingling of local traffic with commute and peak-hour traffic from the adjacent interstate facilities.

LOS is a rating of congestion and varies on a scale from LOS A to LOS F, where LOS A represents stable flow and very slight delay, and LOS E represents unstable flow, poor progression, and long cycle lengths. At LOS F, an intersection is considered over capacity and operates at forced-flow, jammed conditions.

A total of 13 study intersections are included in the study network. The study intersections and associated traffic controls are as follows:

- West Frontage Road/Gilman Street (two-way stop)
- I-80 Westbound Off-Ramp/Gilman Street (one-way stop)
- I-80 Eastbound Off-Ramp/Gilman Street (one-way stop)
- Eastshore Highway/Gilman Street (two-way stop)
- 2nd Street/Gilman Street (one-way stop)
- 4th Street/Gilman Street (two-way stop)
- 6th Street/Gilman Street (signalized)
- 8th Street/Gilman Street (signalized)
- 9th Street/Gilman Street (signalized)
- 10th Street/Gilman Street (two-way stop)
- San Pablo Avenue/Gilman Street (two-way stop)
- Eastshore Highway/Harrison Street (two-way stop)
- 2nd Street/Harrison Street (two-way stop)

The AM and PM peak-hour LOS for each study intersection was determined using Synchro and the procedures from the 2000 Highway Capacity Manual Operational Methodology, described in the *Traffic Operations Analysis Report* (2017). As part of this methodology, the average delay per vehicle is used to determine the intersection LOS. The AM peak hour is from 8:00 to 9:00 a.m., and the PM peak hour is from 5:00 to 6:00 p.m. The results of this analysis are presented in Table 2.1.4-1. All of the signalized and all-way-stop intersections operate at LOS D or better, while most of the two-way-stop control intersections operate at LOS E or F during at least one peak hour due to the high traffic volumes on Gilman Street and delay on the worst approach.

Table 2.1.4-1: Intersection Existing Level-of-Services

ID	Intersection	Control Type (Existing)	AM Peak		PM Peak	
			Delay [a] (sec/veh)	LOS[b]	Delay [a] (sec/veh)	LOS[b]
1	Gilman Street at West Frontage Road	TWSC [c]	>50.0	**F**	>50.0	**F**
2	Gilman Street at westbound I-80 ramps	TWSC [c]	>50.0	**F**	>50.0	**F**
3	Gilman Street at eastbound I-80 ramps	TWSC [c]	18.9	C	>50.0	**F**
4	Gilman Street at Eastshore Highway	TWSC [c]	>50.0	**F**	>50.0	**F**
5	Gilman Street at 2nd Street	TWSC [c]	26.8	D	41.1	**E**
6	Gilman Street at 4th Street	TWSC [c]	74.2	**F**	>50.0	**F**
7	Gilman Street at 6th Street	Signal	15.3	B	23.7	C
8	Gilman Street at 8th Street	Signal	8.3	A	7.6	A
9	Gilman Street at 9th Street	Signal	8.8	A	9.8	A
10	Gilman Street at 10th Street	TWSC [c]	27.7	D	49.8	**E**
11	Gilman Street at San Pablo Avenue	Signal	31.6	C	35.6	D
12	Eastshore Highway at Harrison Street	AWSC [d]	12.3	B	8.2	A
13	2nd Street at Harrison Street	AWSC [d]	6.9	A	6.8	A

Notes:

[a] Delay in seconds per vehicle. For signalized and all-way-stop control intersections, overall (intersection) delay reported. For two-way stop-control intersections, the worst approach is reported.

[b] LOS – Level of Service.

[c] TWSC – Two-way-stop-control. Delay and LOS of the worst approach are reported.

[d] AWSC – All-way-stop-control.

Source: Traffic Operations Analysis Report, 2017.

Westbound directions are the peak directions during the AM peak period, whereas both eastbound and westbound directions are the peak directions during the PM peak period. During the AM peak period, the queue on the I-80 westbound off-ramp spills back to the mainline. No significant queues were observed on the I-80 eastbound on- and off-ramps and westbound on-ramps. During the PM peak period, heavy queues were observed at all of the study intersections on westbound Gilman Street between San Pablo Avenue and the I-80 ramps.

Transit

The Alameda-Contra Costa Transit District (AC Transit) is the third-largest public bus system in California, serving 13 cities (including Berkeley), as well as adjacent

unincorporated areas of Alameda and Contra Costa counties. AC Transit operates several urban collector, express, and urban local bus feeder routes in the study area, as well as express bus routes to and from San Francisco. The closest major bus/transit terminal to the project study area is the North Berkeley Bay Area Rapid Transit (BART) station located at 1750 Sacramento Street, approximately 1.4 miles from the project study area. Specific AC Transit lines within the study area are described below.

H Line. This limited-stop, weekday bus line originates in Richmond north of Berkeley, enters the study area on Gilman Street coming from San Pablo Avenue and Gilman Street, accesses I-80 at Gilman Street, and terminates in San Francisco at the Transbay Terminal. There is a bus stop at Gilman Street and 6th Street in the westbound direction, and a stop at Gilman Street and 4th Street in the eastbound direction. Morning trips to San Francisco begin at 6:10 a.m. from Barrett Avenue and San Pablo in Richmond, with trips every 20 minutes and the last trip departing at 8:15 a.m. (8 trips total). Afternoon trips begin at 4:15 p.m. departing the Transbay Terminal every 20 to 30 minutes, with the last trip departing at 7:20 p.m. (9 trips total).

Z Line. This limited-stop, weekday bus line originates in San Francisco at the Transbay Terminal and terminates in Albany, north of Berkeley, with five stops en route to Albany. The bus line follows southbound on San Pablo Avenue, turns west on Gilman Street, and then south on 6th Street. There is an eastbound bus stop at Gilman Street and 7th Street and a westbound stop at Gilman Street and 6th Street. Morning trips to Albany depart the Transbay Terminal at 7:26 a.m. and 8:26 a.m. (2 trips total). Afternoon trips depart at 4:45 p.m. and 5:45 p.m. from San Pablo Avenue and Marin Avenue in Albany, arriving in San Francisco at 5:30 p.m. and 6:30 p.m. (2 trips total).

Bicycle and Pedestrian Facilities

Bicycle Facilities

The City of Berkeley Transportation Division manages implementation of the City of Berkeley's Bicycle Plan (2000, 2005, 2017). According to the 2000 Plan, its purpose is to make Berkeley a model bicycle-friendly city where bicycling is a safe, attractive, easy, and convenient form of transportation and recreation for people of all ages and bicycling abilities. The Plans build on each other and include goals, policies, and recommendations for bikeways, bicycle parking, promotion programs, and safety education programs.

The existing bicycle network in Berkeley is comprised of Class I, II, and III bike paths located throughout the city, including Gilman Street and 6th Street south of Gilman

Street (Class II) and the Bay Trail (Class I). These classes are defined below and shown for the study area in Figure 2.1.4-1.

1. Class I bikeways (bike paths), which provide a separated right-of-way for the exclusive use of bicycles, pedestrians, and other nonmotorized uses.
2. Class II bikeways (bike lanes), which provide a striped lane for one-way travel on a street or highway.
3. Class III bikeways (bike routes), which provide for shared use with motor vehicle traffic, and may include shared lane markings (sharrows).
4. Class IV bikeways (cycle track), which is a separated/protected bikeway that is on-street but is physically separated from motor vehicle traffic by a vertical element or barrier.

However, due to limitations with the City of Berkeley's existing roadway infrastructure (e.g., narrow street widths, adjacent development), the 2005 Bicycle Plan focused on a fourth type of bikeway, the Bicycle Boulevards, which became part of the integrated bicycle network.

A bicycle boulevard is defined by the City of Berkeley as a low-speed, low-volume street that has been optimized for bicycle traffic. These bicycle boulevards discourage cut-through motor vehicle traffic but allow local motor vehicle traffic. They are designed to provide better conditions for bicycles while maintaining the neighborhood character and necessary emergency vehicle access, and they are intended to serve as Berkeley's primary bikeways or "bike arterials." The existing bikeway network includes a bicycle boulevard east of the study area: the 9th Street Bicycle Boulevard. This bicycle boulevard follows 9th Street south of the study area, moves to 8th Street one block south of Gilman Street, and crosses Gilman Street at 8th Street, continuing north.

The City of Berkeley has seven bicycle boulevards that serve as the backbone of the proposed bikeway network, which would provide safe, direct, and convenient routes across Berkeley:

- Addison Street
- Derby Street/Parker Street
- Fulton Street
- Harmon Street/65th Street
- Kains Avenue
- Mabel Street
- Rose Street/Camelia Street
- Woolsey Street

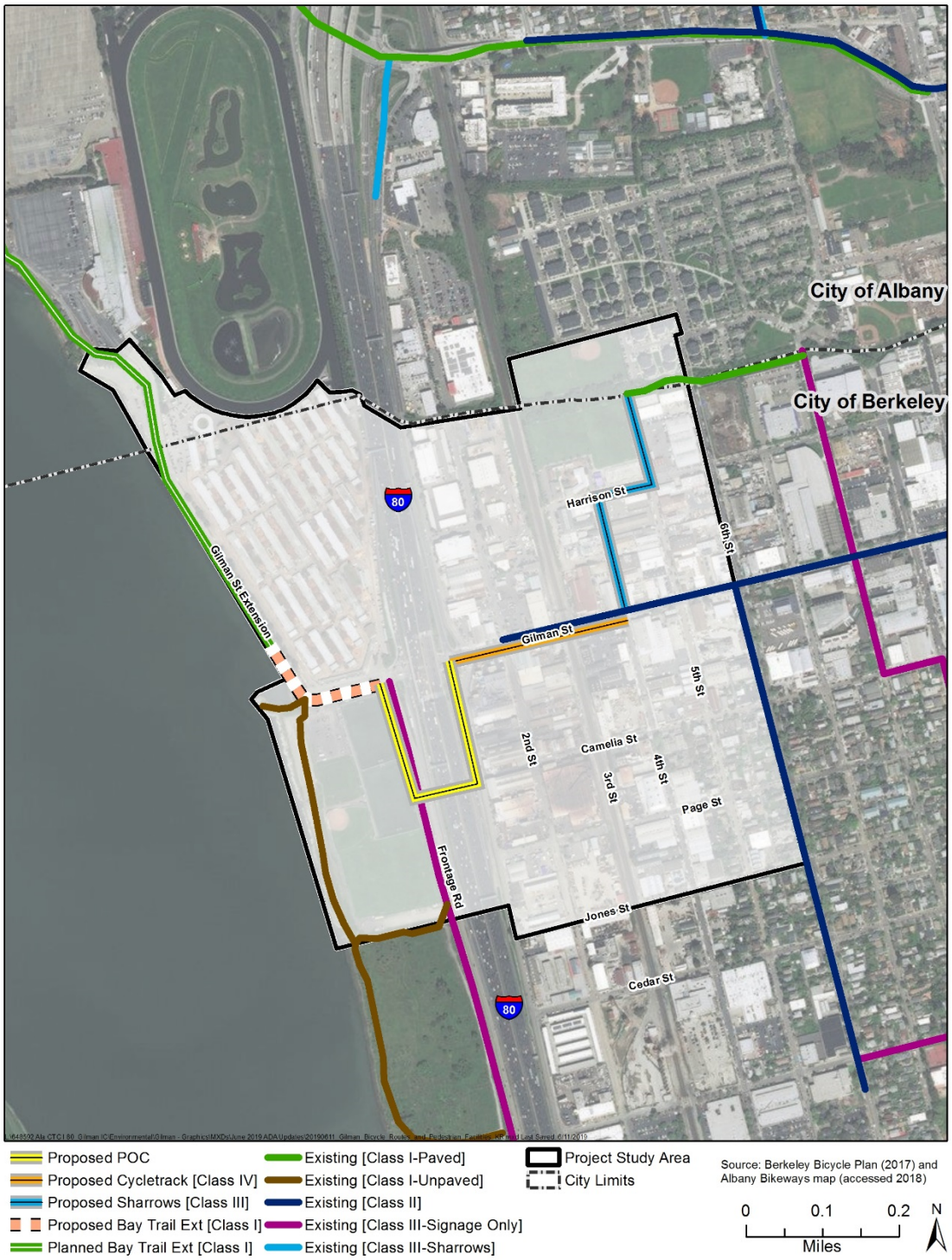


Figure 2.1.4-1: Bicycle Routes and Pedestrian Facilities

The closest proposed bicycle boulevards to the project study area include Kains Avenue and Rose Street/Camelia Street. Below are descriptions of the existing and proposed bicycle boulevards near the study area.

Virginia Street Bicycle Boulevard (existing)

The Virginia Street Bicycle Boulevard extends between the 4th Street Shopping District and Northside. It travels its entire length on Virginia Street. The boulevard begins on the east end of Euclid Avenue, three blocks north of the entrance to UCB. At 5th Street, the boulevard ends, and bicyclists are directed along 5th Street. This boulevard provides a connection to the I-80/University Avenue Bicycle-Pedestrian Bridge and Aquatic Park.

9th Street Bicycle Boulevard (existing)

The 9th Street Bicycle Boulevard travels from Albany, north of Gilman Street to Emeryville through West Berkeley. At the north end, it begins on 8th Street at the entrance to UC Village. It continues three blocks to Camelia Street, where it jogs one block east to 9th Street. The boulevard continues on 9th Street to Heinz Avenue at the southern city border.

Kains Avenue (proposed)

The Kains Avenue Bicycle Boulevard would extend north from the Virginia Street Bicycle Boulevard and provide a connection into the city of Albany's bikeway network east of San Pablo Avenue.

Rose Street/Camelia Street (proposed)

The Rose Street/Camelia Street Bicycle Boulevard would be an east-west corridor following Camelia Street, Cornell Avenue, Rose Street and Walnut Street. It would link the residential and retail areas of the Gilman District with Cedar-Rose Park, Jefferson Elementary, Martin Luther King, Jr. Middle School, Live Oak Park, and Oxford Elementary. This bikeway would connect with the 9th Street, California Street, and Milvia Street Bicycle Boulevards, as well as the Ohlone Greenway.

Pedestrian Facilities

Within Berkeley, sidewalks and pathways provide residents with a pedestrian network. The City of Berkeley's residents place a high value on maintaining and enhancing a pedestrian-friendly environment. The *Pedestrian Master Plan* (2010) guides the development and enhancement of the pedestrian environment within Berkeley. The plan includes recommendations for design guidelines that will raise the caliber of the

existing pedestrian environment, enticing people to walk more for shorter trips, enhancing the environment for people with disabilities and children walking to school, and leading to an overall increase in the number of pedestrian trips. The plan focuses on enhancing pedestrian safety in crosswalks and along streets, and it provides an opportunity for improving quality of life for residents by creating a more sustainable environment through the reduction of traffic, noise, and energy consumption. The *Berkeley General Plan* sets the framework for the physical development of the city.

Berkeley has approximately 400 miles of sidewalks, including sidewalks on both sides of each street. According to geographic information system data collected for the 2010 *Pedestrian Master Plan*, sidewalks are present in all but approximately 40 miles of the potential pedestrian network in Berkeley. Almost the entire city has sidewalks except for two sections: the residential areas in the north Berkeley hills and sections of northwest Berkeley's industrial area, which includes the study area.

The project study area is located within the northwest Berkeley pedestrian network (see Figure 2.1.4-1), which is bounded by San Pablo Avenue, Cedar Street, 6th Street, and Gilman Street. Due to the area's past and present industrial nature, the study area has many missing sidewalk segments, especially along Gilman Street. As industrial land is redeveloped, sidewalks adjacent to those properties are added or improved. While no plan exists to systematically complete the pedestrian network in this northwest network area, the City of Berkeley's Public Works Department is developing a plan to install ADA-compliant pedestrian facilities in the area.

The Bay Trail is the only pedestrian pathway located in the project study area. The Bay Trail is the result of a regional effort to provide a continuous multiuse path around San Francisco and San Pablo bays. The goal of the trail network is to provide public access to the bay's shore, in addition to augmenting facilities for recreation and commuting. The 7.3-mile-long Bay Trail segment in Berkeley is located west of I-80 along West Frontage Road. The trail enters Berkeley from Emeryville and ends at Gilman Street. The Berkeley segment of the Bay Trail can be accessed via the I-80/University Avenue pedestrian and bicycle bridge. The City of Berkeley is designing a spur trail segment that would extend from the I-80/University Avenue pedestrian and bicycle bridge to the facilities of the Berkeley Marina. EBRPD is also working on a proposed 2-mile-long segment at the north end of the Bay Trail, which is needed to close the gap between Gilman Street and the Albany Bulb, and around Golden Gate Fields. The proposed project would extend the Bay Trail from Gilman Street and West Frontage Road to just

beyond the Berkeley city limit and would connect to the EBRPD Bay Trail project, which extends the Bay Trail south from the Albany Bulb.

Environmental Consequences

Project-Level Impacts

No Build Alternative

Access, Circulation, and Parking

Under the No Build Alternative, circulation and access would continue to worsen in the study area due to increasing congestion. No private or public parking spaces would be removed under the No Build Alternative.

Traffic Operations

Results of the analysis presented in the *Traffic Operations Analysis Report* (June 2017) demonstrate that congestion in the I-80/Gilman Street interchange area causes substantial numbers of vehicles to divert to local arterial streets, which in turn results in congestion on the local street system and compromises local access and circulation. This condition is expected to worsen as travel demand through the study area increases over time. Under the No Build Alternative, roadway improvements associated with the proposed project would not be constructed. There would be no change in existing traffic facilities at the I-80/Gilman Street interchange, and the proposed intersection improvements along Gilman Street would not be made. There would be no cost associated with this alternative.

As shown in Table 2.1.4-2, in 2020 the West Frontage Road, westbound I-80 ramps, and Eastshore Highway intersections operate at LOS F in the AM and PM peak hours. The intersection of the I-80 eastbound ramps/Gilman Street operates at LOS D during the AM peak hour and at LOS F during the PM peak hour for the No Build Alternative in 2020. The remaining intersections in the study area operate at LOS D or better under the No Build Alternative with the exception of the 10th Street intersection, which operates at LOS F.

Under 2040 No Build conditions, the West Frontage Road, westbound I-80 ramps, and Eastshore Highway intersections operate at LOS F in the AM and PM peak hours. The intersection of the I-80 eastbound ramps/Gilman Street operates at LOS C in the AM and PM peak hours. Under 2040 No Build conditions, it is projected that the westbound off-ramp traffic during the AM peak hour would experience significant delays at the off-ramp due to a limited number of gaps in the traffic on Gilman Street.

Table 2.1.4-2: Intersection Level of Service, Opening Year (2020) and Future (2040) – No Build Alternative

ID	Intersections	Control Type	AM Peak Hour				PM Peak Hour			
			2020		2040		2020		2040	
			Delay[a] (sec/veh)	LOS[b]	Delay[a] (sec/veh)	LOS[b]	Delay[a] (sec/veh)	LOS[b]	Delay[a] (sec/veh)	LOS[b]
1	Gilman Street at West Frontage Road	TWSC [c]	>50.0	**F**	>50.0	**F**	>50.0	**F**	>50.0	**F**
2	Gilman Street at westbound I-80 ramps	TWSC [c]	>50.0	**F**	>50.0	**F**	>50.0	**F**	>50.0	**F**
3	Gilman Street at eastbound I-80 ramps	TWSC [c]	27.3	D	24.7	C	>50.0	**F**	>50.0	**F**
4	Gilman Street at Eastshore Highway	TWSC [c]	>50.0	**F**	>50.0	**F**	>50.0	**F**	>50.0	**F**
5	Gilman Street at 2nd Street	TWSC [c]	32.2	D	38.0	**E**	>50.0	**F**	>50.0	**F**
6	Gilman Street at 4th Street	Signal	7.8	A	7.9	A	9.7	A	8.3	A
7	Gilman Street at 6th Street	Signal	15.6	B	14.5	B	25.5	C	32.5	C
8	Gilman Street at 8th Street	Signal	9.1	A	28.1	C	8.2	A	14.3	B
9	Gilman Street at 9th Street	Signal	9.0	A	9.9	A	10.5	B	13.0	B
10	Gilman Street at 10th Street	TWSC [c]	27.7	D	>50.0	**F**	>50.0	**F**	>50.0	**F**
11	Gilman Street at San Pablo Avenue	Signal	41.2	D	>50.0	**F**	42.6	D	>50.0	**F**
12	Eastshore Highway at Harrison Street	AWSC [d]	12.2	B	12.3	B	8.4	A	9.7	A
13	2nd Street at Harrison Street	AWSC [d]	6.9	A	7.0	A	7.0	A	6.9	A

Notes:

[a] Delay in seconds per vehicle. For signalized and all-way stop control intersections, over-all (intersection) delay reported. For two-way-stop-control intersections, the worst approach is reported.

[b] LOS – Level of Service.

[c] TWSC – Two-way-stop-control. Delay and LOS of the worst approach are reported.

[d] AWSC – All-way-stop-control.

Source: Traffic Operations Analysis Report, 2017.

Transit

The No Build Alternative assumes no major construction in the I-80/Gilman Street interchange area other than planned and programmed improvements as part of the SMART Program, along with continued routine maintenance. By 2035, without capacity or operational enhancements to the I-80/Gilman Street interchange, capacity, congestion, and travel time through this area would worsen considerably. Buses and carpools would be subjected to very congested travel conditions.

Pedestrian and Bicycle Facilities

Under the No Build Alternative, there would be some adverse impacts to pedestrian and bicycle circulation from continued congestion along local streets, especially along Gilman Street. The proposed improvements for pedestrians and bicyclists in the area would not be constructed, thereby maintaining the unsafe and higher stress conditions in the study area.

Build Alternative

Access, Circulation, and Parking

The Build Alternative would improve circulation and access by reducing congestion and vehicle conflicts.

Under the Build Alternative, 18 informal on-street parking spaces would be eliminated on Gilman Street west of I-80 for construction of the Bay Trail extension. Additionally, on Harrison Street, between 4th Street and 5th Street, 12 informal perpendicular parking spaces would be lost and replaced with 4 parallel spaces, with a net loss of 8 parking spaces. This is due to the 125 feet of new curb and sidewalk that would be part of the project along the south side of Harrison Street.

The Golden Gate Fields northeast (upper) parking lot would be reconfigured and restriped to allow room for the Gilman Street Extension/Golden Gate Fields Access Road intersection. The Golden Gate Fields northwest (lower) parking lot would be restriped to maximize the parking spaces. There would be no net loss of parking for Golden Gate Fields.

Traffic Operations

As shown in Table 2.1.4-3, during the AM peak hour in 2020, the West Frontage Road and westbound I-80 ramp intersections improve from LOS F in the No Build Alternative to LOS C under the Build Alternative. LOS at the eastbound I-80 ramps improve from LOS D to LOS B and Eastshore Highway intersection is projected to

improve from LOS F to LOS B compared to the No Build Alternative. In the PM peak hour in 2020, the West Frontage Road and westbound I-80 ramp intersections improve from LOS F in the No Build Alternative to LOS D under the Build Alternative. LOS at the eastbound I-80 ramps and Eastshore Highway intersections are projected to improve from LOS F to LOS B.

The West Frontage Road and westbound I-80 ramp intersections are projected to operate at LOS F during the AM peak hour and LOS E in the PM peak hour under the 2040 Build Alternative. The LOS F in the AM peak hour is due to the heavy queue-jumping demand using West Frontage Road as an alternative to I-80 in the peak direction of travel. The delay on West Frontage road in the AM peak hour and on the westbound ramps in the PM peak hour under the Build Alternative would improve to 30 seconds compared to over 10 minutes under the No Build Alternative. Under the 2040 Build Alternative, the eastbound I-80 ramps improve from LOS C to LOS A in the AM peak hour and LOS B in the PM peak hour. The Eastshore Highway intersection is projected to improve from LOS F to LOS A in the AM peak hour and LOS B in the PM peak hour.

Transit

The long-term impacts of the proposed project on bus travel would generally be positive because of the reduction of traffic delay and congestion along Gilman Street and surrounding intersections within the study area. One AC Transit bus stop would be removed from the southwest corner of 4th Street and Gilman Street to provide space for the cycle track. This bus stop would not be replaced. The next eastbound bus stop is located at 7th Street and Gilman Street, three blocks east of 4th Street and Gilman Street. Key PDT members met with AC Transit in March 2018 to determine onboarding and offboarding numbers at this stop and concluded that eliminating this 4th Street bus stop would not result in an adverse impact to the community because ridership is very low at the stop.

Table 2.1.4-3: Intersection Level of Service, Opening Year (2020) and Future (2040) – Build Alternative

ID	Intersections	Control Type	AM Peak Hour				PM Peak Hour			
			2020		2040		2020		2040	
			Delay[a] (sec/veh)	LOS[b]	Delay[a] (sec/veh)	LOS[b]	Delay[a] (sec/veh)	LOS[b]	Delay[a] (sec/veh)	LOS[b]
1	Gilman Street at West Frontage Road	Roundabout	27.9	C	123.2	**F**	43.2	D	59.9	**E**
2	Gilman Street at westbound I-80 ramps	Roundabout								
3	Gilman Street at eastbound I-80 ramps	Roundabout	10.9	B	9.6	A	17.1	B	17.3	B
4	Gilman Street at Eastshore Highway	Roundabout								
5	Gilman Street at 2nd Street	TWSC [c]	32.2	D	45.8	**E**	>50.0	**F**	>50.0	**F**
6	Gilman Street at 4th Street	Signal	7.8	A	7.9	A	9.7	A	8.3	A
7	Gilman Street at 6th Street	Signal	15.6	B	14.5	B	25.5	C	32.5	C
8	Gilman Street at 8th Street	Signal	9.1	A	28.1	C	8.2	A	14.3	B
9	Gilman Street at 9th Street	Signal	9.0	A	9.9	A	10.5	B	13.0	B
10	Gilman Street at 10th Street	TWSC [c]	27.7	D	>50.0	**F**	>50.0	**F**	>50.0	**F**
11	Gilman Street at San Pablo Avenue	Signal	41.2	D	>50.0	**F**	42.6	D	>50.0	**F**
12	Eastshore Highway at Harrison Street	AWSC [d]	12.2	B	13.0	B	8.4	A	12.3	B
13	2nd Street at Harrison Street	AWSC [d]	6.9	A	7.5	A	7.0	A	10.9	B

Notes:

[a] Delay in seconds per vehicle. For signalized and all-way stop control intersections, over-all (intersection) delay reported. For two-way-stop-control intersections, the worst approach is reported.

[b] LOS – Level of Service.

[c] TWSC – Two-way-stop-control. Delay and LOS of the worst approach are reported.

[d] AWSC – All-way-stop-control.

Source: Traffic Operations Analysis Report, 2017.

The Build Alternative proposes installation of two roundabouts at the I-80/Gilman Street interchange area, along with reconfiguration of the on- and off-ramps to improve circulation conditions during peak commute hours. The Build Alternative also would include TSM and TDM measures, including signage, lighting, and pavement striping. These enhancements would provide improved highway conditions for carpooling or transit use compared to no-build conditions; however, it is anticipated that these facility improvements would not be sufficient to encourage increased transit service frequencies and ridership along the I-80 corridor.

Bicycle and Pedestrian Facilities

The Build Alternative would improve pedestrian and bicycle facilities throughout the study area. Bicyclists and pedestrians coming from all directions into the interchange would be able to cross through at grade, which means at ground level. A shared-use Class I path for pedestrians and bicyclists would be constructed on the south side of Gilman Street from 2nd Street to the eastern roundabout. The shared-use path would extend south along Eastshore Highway, where it would then connect to a proposed pedestrian and bicycle overcrossing. The overcrossing would be constructed over I-80, merging into the existing Bay Trail that runs parallel to West Frontage Road. The at-grade shared-use path would continue on the south side of Gilman Street under I-80 and terminate at the Bay Trail on the west side of the interchange. From the eastern roundabout, the shared use path would join a two-way cycle track and the existing sidewalk. The bicycle and pedestrian facilities improvements were developed with community input, detailed in Section 4.4, Public Participation.

The two-way cycle track would be located on the south side of Gilman Street between the eastern roundabout and 4th Street and would require installation of a traffic signal at the intersection of 4th Street and Gilman Street. The two-way cycle track is separated from vehicle traffic with a 2-foot-wide, 6-inch-high median. This facility would connect the bicycle lanes to the pedestrian and bicycle overcrossing and to the existing Class I Bay Trail facility along West Frontage Road.

West of the interchange, the existing Bay Trail would be extended approximately 600 feet west along the south side on the west end of Gilman Street from its current terminus at the intersection of West Frontage Road and Gilman Street to just beyond the Berkeley city limits. The proposed Bay Trail extension would be 14 feet. This extension would connect to a project that EBRPD is undertaking to extend the Bay Trail from the north.

The pedestrian and bicycle overcrossing would be similar to the existing pedestrian and bicycle overcrossing over I-80 at University Avenue. It would be a Class I facility, 15.5 feet wide, with sufficient space for bicycle lanes and a lane for pedestrians. The structure would have a minimum of three spans with a maximum span length of approximately 230 feet over I-80. There would be two staircases incorporated into the overcrossing, one on each side of I-80.

The intersection of 2nd Street would have new curbs and ADA-compliant standard curb ramps. Additional pedestrian improvements include high-visibility paint marking crosswalks and a stamped concrete median between traffic lanes on Gilman Street. Design elements intended to alert drivers to pedestrians and bicyclists include converting 2nd Street to a one-way street to minimize conflicts, high-visibility markings for the cycle track, a raised median between the cycle track and 2nd Street, and shortened intersection crossing distances for pedestrians.

Additional pedestrian and bicycle roadway crossing improvements include upgrading the 3rd Street/UPRR crossing at Gilman Street to accommodate the cycle track. Improvements would include relocating the gate and flashing beacons, addition of a bicycle signal, installation of medians, and improved striping and signage. All improvements would be approved by UPRR and the California Public Utilities Commission. Consultation and coordination with UPPR is discussed in Section 4.4.3, Stakeholder Coordination.

The intersection of 4th Street and Gilman Street would have new curbs and ADA-compliant standard curb ramps. The intersection would allow room for a two-stage bicycle turn box for bicyclists who want to transition from the Class II bicycle lanes to the Class IV cycle track. A two-stage bicycle turn box provides a safe way for bicyclists to make turns across multilane roadways. A new signal at the intersection would provide pedestrian and bicycle countdowns.

Improvements would also be made along 4th Street to Harrison Street to 5th Street to provide bicycle connectivity between the Codornices Creek Path and the two-way cycle track on Gilman Street. These improvements would consist of painted shared-lane markings, also known as sharrows, on the pavement throughout this corridor. Bicycle signage and lighting would be included as part of the improvements.

Approximately 125 feet of new curb, gutter, and sidewalk beginning at the corner of Harrison Street and 4th Street and ending halfway down the block towards 5th Street

would be constructed. Parallel parking would be added along this new section of curb and sidewalk.

Construction Impacts

No Build Alternative

Under the No Build Alternative, there would be no construction impacts to circulation and access, public or private parking, traffic operations, transit system, and bicycle and pedestrian facilities.

Build Alternative

Access, Circulation, and Parking

Construction of the Build Alternative could result in temporary roadway obstruction by construction equipment and vehicles. Temporary lane closures may be required, resulting in access restriction to some local businesses. Proactive public information systems, such as changeable message signs, would notify travelers of pending construction activities. A TMP would also be developed as part of the project to address traffic impacts from staged construction, lane closures, and specific traffic handling concerns during construction. Adjacent streets may also experience episodes of increased congestion as a result of construction within the study area. Any such effects would be localized, temporary, and of short duration. A TMP would be developed and implemented to minimize circulation and access impacts. The TMP would identify and provide alternate traffic detour routes, pedestrian routes, and residential and commercial access routes to be used during the construction period.

During the construction phase of the project, parking restrictions may be required on a temporary basis, especially along Gilman Street. Parking for Tom Bates Regional Sports Complex would be temporarily reduced during construction due to staging areas. Approximately half of the Tom Bates Regional Sports Complex parking spaces would remain open for users. Caltrans and Alameda CTC will coordinate with the operators of Tom Bates Regional Sports Complex to minimize event scheduling impacts. In addition, a public outreach program would be implemented throughout the construction period to keep the public informed of the construction schedule and the scheduled parking and roadway closures, including detour routes and alternative parking, if available.

Traffic Operations

Acceptable LOS would be maintained throughout project construction, and access to freeway on- and off-ramps would be maintained. All lane closures would be approved by Caltrans prior to implementation. Closures and traffic detours may be needed for construction of the pedestrian and bicycle overcrossing and would be limited to off-peak hours.

Transit

During the construction phase of the project, bus service near the I-80/Gilman Street interchange area could be disrupted by construction vehicles and equipment. Some rerouting may be required. A public outreach program would be implemented throughout the construction period to keep the public informed of the construction schedule and the scheduled roadway closures, including any necessary detour routes.

Pedestrian and Bicycle Facilities

During construction of the project, some existing bicycle and pedestrian facilities could be disrupted by construction equipment and vehicles (e.g., the Bay Trail). Access to the Bay Trail would be maintained during construction. A TMP would be developed and implemented to minimize vehicular circulation and access impacts. The TMP would identify and provide alternate traffic detour routes to be used during the construction period.

Project Features

PF COM-4: During the design phase of the project, prepare a TMP that includes plans for traffic rerouting, a detour plan (if required), and public information procedures with participation from local agencies, transit services, local communities, business associations, and affected drivers. Early and well-publicized announcements and other public information measures will be implemented prior to and during construction to minimize confusion, inconvenience, and traffic congestion. If detours are required, detour routes will be planned in coordination with Caltrans and the cities of Berkeley and Albany traffic departments and will be noticed to emergency service providers, transit operators, and I-80 users in advance.

PF COM-5: During construction of the project, some on-street parking restrictions may be required on a temporary basis, especially along Gilman Street. 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, Minimization, and/or Mitigation Measures

The following avoidance and minimization measures will help reduce potential impacts to traffic and transportation, bicycle, and pedestrian facilities.

AMM COM-3: A public education campaign will be developed by Alameda CTC in coordination with Caltrans and implemented to inform area drivers and residents about the new roundabout to minimize potential accidents and disruptions to emergency service providers. It will include information on how drivers should respond when emergency vehicles are approaching the roundabout. Proactive public information systems, such as changeable message signs, will notify travelers of pending construction activities. The campaign will include measures such as:

- Holding public meetings prior to opening the roundabout to traffic and/or giving presentations at local organization meetings;
- Preparing news releases detailing what motorists and pedestrians can expect during and after construction; and
- Distributing an informational brochure to residents explaining how to navigate roundabouts (both in a vehicle and as a pedestrian or bicyclist).

AMM COM-4: Signs would be placed on the trail in advance of construction activities to notify users of temporary closures. The Alameda CTC project website and Bay Trail Project website will be updated with temporary trail closures and traffic detours.

2.1.5 Visual/Aesthetics

Regulatory Setting

NEPA establishes that the federal government use all practicable means to ensure all Americans safe, healthful, productive, and *aesthetically* and culturally pleasing surroundings (42 U.S.C. 4331[b][2]). To further emphasize this point, FHWA, in its implementation of NEPA (23 U.S.C. 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.

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 PRC Section 21001[b]).

BCDC is a state planning and regulatory agency with regional authority over San Francisco Bay, its shoreline band, and the Suisun Marsh. BCDC was created in 1965 and is the nation's oldest coastal zone agency. Its mission is to protect and enhance San Francisco Bay and to encourage the Bay's responsible and productive use. As part of its work, BCDC developed the Bay Plan, which contains land use and management policies for the Bay and its shoreline.

The Bay Plan includes policies on the topics of Appearance, Design and Scenic Views, Public Access, Transportation, and Recreation. In addition to the Bay Plan, BCDC's *Landscape Guide of Shoreline Plantings for the San Francisco Bay* is applicable to the project. A summary of the applicable BCDC Bay Plan's findings and policies are presented in Table 2.1.5-1.

The Bay Plan designates I-80 through the study area as a Scenic Drive, making maintenance of the views from I-80 an important consideration.

Table 2.1.5-1 Summary of Bay Conservation and Development Commission San Francisco Bay Plan's Policies

Category	Policy
Appearance, Design, and Scenic Views	**Policy 7:** Access routes to Bay crossings should be designed so as to orient the traveler to the Bay (as in the main approaches to the Golden Gate Bridge). Similar consideration should be given to the design of highway and mass transit routes paralleling the Bay (by providing frequent views of the Bay, if possible, so the traveler knows which way he or she is moving in relation to the Bay). Guardrails, fences, landscaping, and other structures related to such routes should be designed and located so as to maintain and to take advantage of Bay views. New or rebuilt roads in the hills above the Bay and in areas along the shores of the Bay should be constructed as scenic parkways in order to take full advantage of the commanding views of the Bay.
	Policy 10: Towers, bridges, or other structures near or over the Bay should be designed as landmarks that suggest the location of the waterfront when it is not visible, especially in flat areas. But such landmarks should be low enough to assure the continued visual dominance of the hills around the Bay.
Public Access	**Policy 10:** Roads near the edge of the water should be designed as scenic parkways for slow-moving, principally recreational traffic. The roadway and right-of-way design should maintain and enhance visual access for the traveler, discourage through traffic, and provide for safe, separated, and improved physical access to and along the shore. Public transit use and connections to the shoreline should be encouraged where appropriate.
Transportation	**Policy 4:** Transportation projects on the Bay shoreline and bridges over the Bay or certain waterways should include pedestrian and bicycle paths that will either be a part of the Bay Trail or connect the Bay Trail with other regional and community trails. Transportation projects should be designed to maintain and enhance visual and physical access to the Bay and along the Bay shoreline.
Recreation	**Policy 4a:** To assure optimum use of the Bay for recreation, the following facilities should be encouraged in waterfront parks and wildlife refuges. (2) To capitalize on the attractiveness of their bayfront location, parks should emphasize hiking, bicycling, riding trails, picnic facilities, swimming, environmental, historical and cultural education and interpretation, viewpoints, beaches, and fishing facilities. (6) Trails that can be used as components of the San Francisco Bay Trail, the Bay Area Ridge Trail or links between them should be developed in waterfront parks. San Francisco Bay Trail segments should be located near the shoreline unless that alignment would have significant adverse effects on Bay resources; in this case, an alignment as near to the shore as possible, consistent with Bay resource protection, should be provided. Bay Area Ridge Trail segments should be developed in waterfront parks where the ridgeline is close to the Bay shoreline. (10) The Commission may permit the placement of public utilities and services, such as underground sewer lines and power cables, in recreational facilities provided they would be unobtrusive, would not permanently disrupt use of the site for recreation, and would not detract from the visual character of the site.

Affected Environment

The information in this section is discussed in detail in the *Visual Impact Assessment* (August 2018) and *Visual Impact Assessment – Addendum* (December 2018). This visual assessment was prepared consistent with the methodologies established by FHWA's *Visual Impact Assessment for Highway Projects* (1981). This methodology divides the views into landscape or character units that have distinct, but not necessarily homogenous, visual character. The view of the motorist is also considered as a separate character unit. Typical views are selected for each unit to represent the views to/from the project. Key viewpoints are usually selected to represent the typical views within the landscape units or study area for a more in-depth study that can include sketches or simulations to depict changes to the visual environment.

Caltrans evaluates visual quality by assessing three characteristics of the project viewshed: vividness, intactness, and unity. Vividness is the visual power or memorability of landscape components as they combine in distinctive visual patterns. Intactness is the visual integrity of the natural and man-built landscape and its freedom from encroaching elements. Unity is the visual coherence and compositional harmony of the landscape considered as a whole.

Visual Environment

The study area is in an older, industrialized area characterized by several small industrial buildings and uses. I-80 splits the area east/west, with the east side of I-80 being primarily industrial land uses. Farther to the east and south (and outside of the study area), land use turns more residential in character. The western half of the study area is dominated by Tom Bates Regional Sports Complex in the southwest quadrant of the interchange and Golden Gate Fields in the northwest quadrant of the interchange. Adjacent to both of these western land uses is San Francisco Bay.

Between PM 6.53 and 8.04, I-80 is classified as a Landscaped Freeway, which regulates the placement of outdoor advertising.

Visual Assessment Units

A Visual Assessment Unit is a portion of the regional landscape and can be thought of as an outdoor room that exhibits a distinct visual character. They also make it easier to comprehend the study area. The units, and the associated locations for each key viewpoint, can be seen in Figure 2.1.5-1 and are described more in detail below. The following units were defined within the study area:

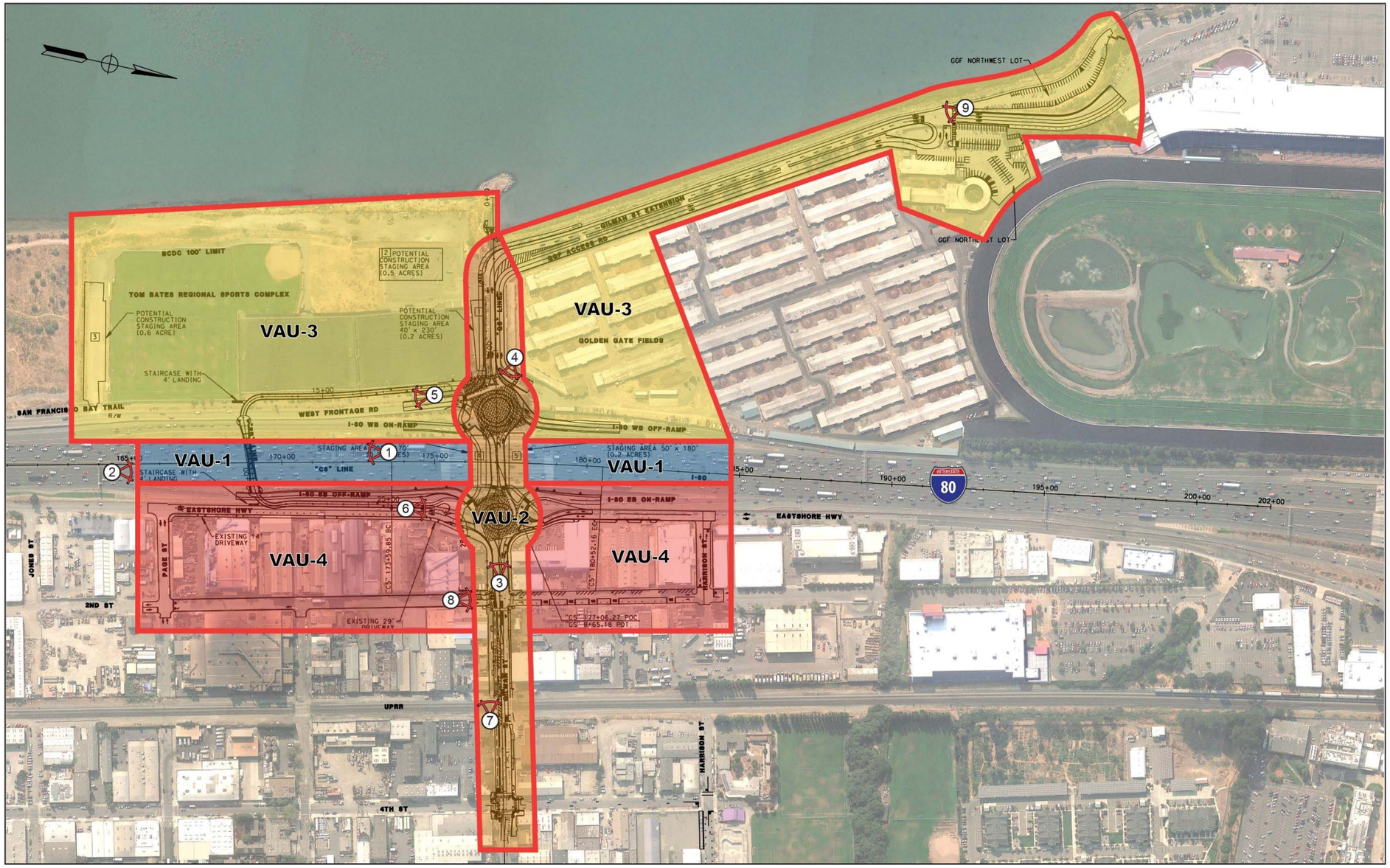
- Unit 1 – I-80 Freeway
- Unit 2 – Gilman Street
- Unit 3 – Westside Sports and Entertainment, West Frontage Road, Westbound On- and Off-Ramps, and the Bay Trail
- Unit 4 – Eastside Commercial/Industrial, Eastbound On- and Off-Ramps, and Eastshore Highway

The visual impacts of the proposed project were determined by assessing the existing visual resources, the visual resource change due to the project, and predicting viewer response to that change. The degree of visual quality in a view was evaluated using the following descriptive terms identified in *Visual Impact Assessment for Highway Projects* (FHWA, 1981):

- **Vividness:** Vividness is the visual power or memorability of landscape components as they combine in striking and distinctive visual patterns (e.g., Niagara Falls is a highly vivid landscape component).
- **Intactness:** Intactness is the visual integrity of the natural and human-built landscape and its freedom from encroaching elements. This factor can be present in well-kept urban and rural landscapes and natural settings (e.g., a two-lane road that meanders through the countryside).
- **Unity:** Unity is the visual coherence and compositional harmony of the landscape considered as a whole; it frequently attests to the careful design of individual components in the landscape (e.g., an English or Japanese garden).

The degree of visual character in a view was evaluated using the following FHWA descriptive terms:

- **Scale:** Visual scale is the apparent size relationship between landscape components or features and their surroundings.
- **Diversity:** Diversity is the number of pattern elements, as well as the variety among them and edge relationships between them.
- **Continuity:** Continuity is the uninterrupted flow of pattern elements and the maintenance of visual relationships between immediately connected or related landscape components or features.



Legend:

① Key View Point (see Section 8 for more information)

VAU - Visual Assessment Unit
VAU-1 - I-80
VAU-2 - Gilman Street
VAU-3 - Westside Sports and Entertainment, West Frontage Road, and San Francisco Bay Trail
VAU-4 - East side commercial, EB On & Off Ramps, and Eastshore Hwy

Figure 2.1.5-1: Visual Assessment Units and Key Viewpoints

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- **Dominance:** Dominance is components or specific features in a scene that may be dominant because of prominent positioning, contrast, extent, or importance of pattern elements.

For projects that do not create a significant impact on existing visual character or quality, a more nuanced approach categorizes impact levels as low, moderately low, moderate, moderately high, and high based on the following descriptions:

- **Low:** Low negative change to existing visual resources and low viewer response to that change. May or may not require minimization or mitigation.
- **Moderately Low:** Low negative change to the visual resource with a moderate viewer response or moderate negative change to the resource with a low viewer response. Impact can be mitigated using conventional methods.
- **Moderate:** Moderate negative change to the visual resource with moderate viewer response. Impact can be mitigated within 5 years using conventional practices.
- **Moderately High:** Moderate negative change in the visual resource with high viewer response or high negative change with a moderate viewer response. Extraordinary mitigation practices may be required. Landscape treatment required will generally take longer than 5 years to mitigate.
- **High:** High level of negative change in character or a high level of viewer response to the change such that extraordinary architectural design and landscape treatments may not mitigate impacts below a high level. An alternative project design may be required to avoid high negative impacts.

The visual impact is determined by assessing the visual resource change resulting from the project and predicting viewer response to that change. Visual resource change is the total change in visual character and visual quality. The first step in determining visual resource change is to assess the compatibility of the proposed project with the existing visual character of the landscape. The second step is to compare the visual quality of the existing resources with the projected visual quality after the project is constructed. Next, viewer response to the changes is the sum of viewer exposure and viewer sensitivity to the project. The resulting level of visual impact is determined by combining the severity of resource change with the degree to which people are likely to oppose the change.

Environmental Consequences

Project-Level Impacts

No Build Alternative

Under the No Build Alternative, no improvements would be made to the study area. It would essentially remain the same visually.

Build Alternative

Nine key viewpoints have been identified for the Build Alternative. The overall locations within the study area for the key viewpoints are shown in Figure 2.1.5-1. Key viewpoints and their specific locations, along with descriptions for these, follow below. Note that all existing photos used as part of this assessment were taken June 12, 2016.

I-80 Freeway Visual Assessment Unit, Key Viewpoint #1

This key viewpoint was taken from the westbound lanes of I-80 approaching the proposed overcrossing and is looking south (Figure 2.1.5-1). See Figure 2.1.5-2 for the before and after views from this vantage point. This view was selected as a key viewpoint because it illustrates the new pedestrian and bicycle overcrossing over I-80 as the westbound viewer crosses over the Gilman Street undercrossing.

Existing Visual Character/Quality: The existing character of I-80 through the project corridor is that of an older freeway. Adjacent development is primarily older industrial on the east and sports fields and open space to the west; to the west are distant views to the bay. The median barrier partially obscures the views to the east, with only the upper portions of the buildings present in the view. To the west, the barrier along the edge of the shoulder similarly obscures the views to the sports fields and open space. However, isolated views to the distant bay can be seen, particularly from higher-profile vehicles. The overall visual quality of the view is moderate, with moderate vividness and intactness and moderately low unity.

Proposed Project Features: Within this view, the new pedestrian and bicycle overcrossing and associated ramp would be prominent to the view. These would be in addition to the existing freeway elements, including the existing overhead sign structure, University Avenue overcrossing, and pedestrian and bicycle overcrossing approximately 1 mile to the south. In addition to the two structures, lighting and fencing along these would also be notable, with the lights particularly noticeable at night.

Figure 2.1.5-2: Key Viewpoint #1 from Westbound I-80, Looking South

Note: The project features, such as signposts and utilities, are subject to approval and may not represent the final constructed conditions.

Changes to Visual Character: The addition of the pedestrian and bicycle overcrossing and its associated ramp is not anticipated to change the overall visual character of the view to a great extent. Views to the west from the westbound lanes would be further obscured by the ramp. Views to the bay backdrop would be further limited until the support is above the line of sight of the viewer. At freeway speeds, the time travel along the portion of the ramp that would obscure the existing views is less than 6 seconds, while at slower speeds more typical to this stretch of the interstate, it would take 40 seconds to travel this distance (at an assumed 10 mph). The overall change to the view's visual character and quality are anticipated to be moderate with the presence of the ramp and overcrossing and the view's existing moderately low visual quality.

Anticipated Viewer Response: Viewers along I-80 are anticipated to have a moderate response level based on sensitivity, which tends to be higher, and exposure, which tends to be moderate to moderately low.

Resulting Visual Impact: The new pedestrian and bicycle overcrossing would likely increase the level of existing visual clutter in the corridor, with additional elements exposed to view. The overall impact to the corridor visual quality is anticipated to be moderate, given the moderate viewer response and the moderate degree of change to the existing visual character and quality.

I-80 Freeway Visual Assessment Unit, Key Viewpoint #2

This key viewpoint was taken from the eastbound lanes of I-80 approaching the proposed overcrossing and is looking northward (Figure 2.1.5-1). See Figure 2.1.5-3 for the before and after views from this vantage point. This view was selected as a key viewpoint because it illustrates the new structure crossing over I-80 for the eastbound viewer.

Existing Visual Character/ Quality: The view from the eastbound lanes is similar to that described for the westbound lanes. From the eastbound lanes, the median barrier partially obscures the views to the west, with only taller elements, such as the fence surrounding the soccer fields, visible. The overall visual quality of the view is moderately low given the appearance of the building and the presence of weeds along the highway.

Figure 2.1.5-3: Key Viewpoint #2 from Eastbound I-80, Looking North toward the Proposed Bicycle and Pedestrian Overcrossing

Note: The project features, such as signposts and utilities, are subject to approval and may not represent the final constructed conditions.

Anticipated Viewer Response: Viewers along I-80 are anticipated to have a moderate response level based on sensitivity, which tends to be higher, and exposure, which tends to be moderate to moderately low.

Resulting Visual Impact: As with the southbound views, the new pedestrian and bicycle overcrossing would likely increase the level of existing visual clutter in the corridor, with additional elements exposed to view. The overall impact to the corridor visual quality is anticipated to be moderate, given the moderate viewer response and the moderate degree of change to the existing visual character and quality.

Gilman Street Visual Assessment Unit, Key Viewpoint #3

This key viewpoint looks from the center of Gilman Street looking west toward the I-80 undercrossing (Figure 2.1.5-1). See Figure 2.1.5-4 for the before and after views. The view was selected because it illustrates the views anticipated along Gilman Street east of I-80 and, in particular, of the proposed roundabout.

Existing Visual Character/ Quality: The view from Gilman Street to the west is dominated by the existing undercrossing. This portion of Gilman Street is dominated by older industrial buildings. Some street tree plantings can be found in the sidewalk along the back of the existing curb. In addition, there are a substantial number of powerlines along and crossing Gilman Street. These elements all combine to give the view moderately low visual quality.

Proposed Project Features: The new roundabout in the foreground would be the most prominent element in the view. In addition, the new cycle track along the eastbound lanes would be visible to the travelers along this stretch of Gilman Street. Of the features removed by the project, potential removal of the overhead powerlines would noticeably clear up the visual clutter of the view. Another potential feature is the inclusion of cut-off walls under the existing I-80 structure.

Changes to Visual Character: The possible removal of the powerlines and the addition of the roundabout and its associated elements (i.e., paving, plantings, and median treatments) would open up views and clear out much of the visual clutter in the existing view. In addition, the intersection would appear somewhat larger than the current, but it would be more organized with the various ramps and roadways that empty into the existing intersection. The potential cut-off wall would limit views under the existing bridge to those within the center bay or center three bays. This would have the effect of limiting views under the bridge to just the open bays.

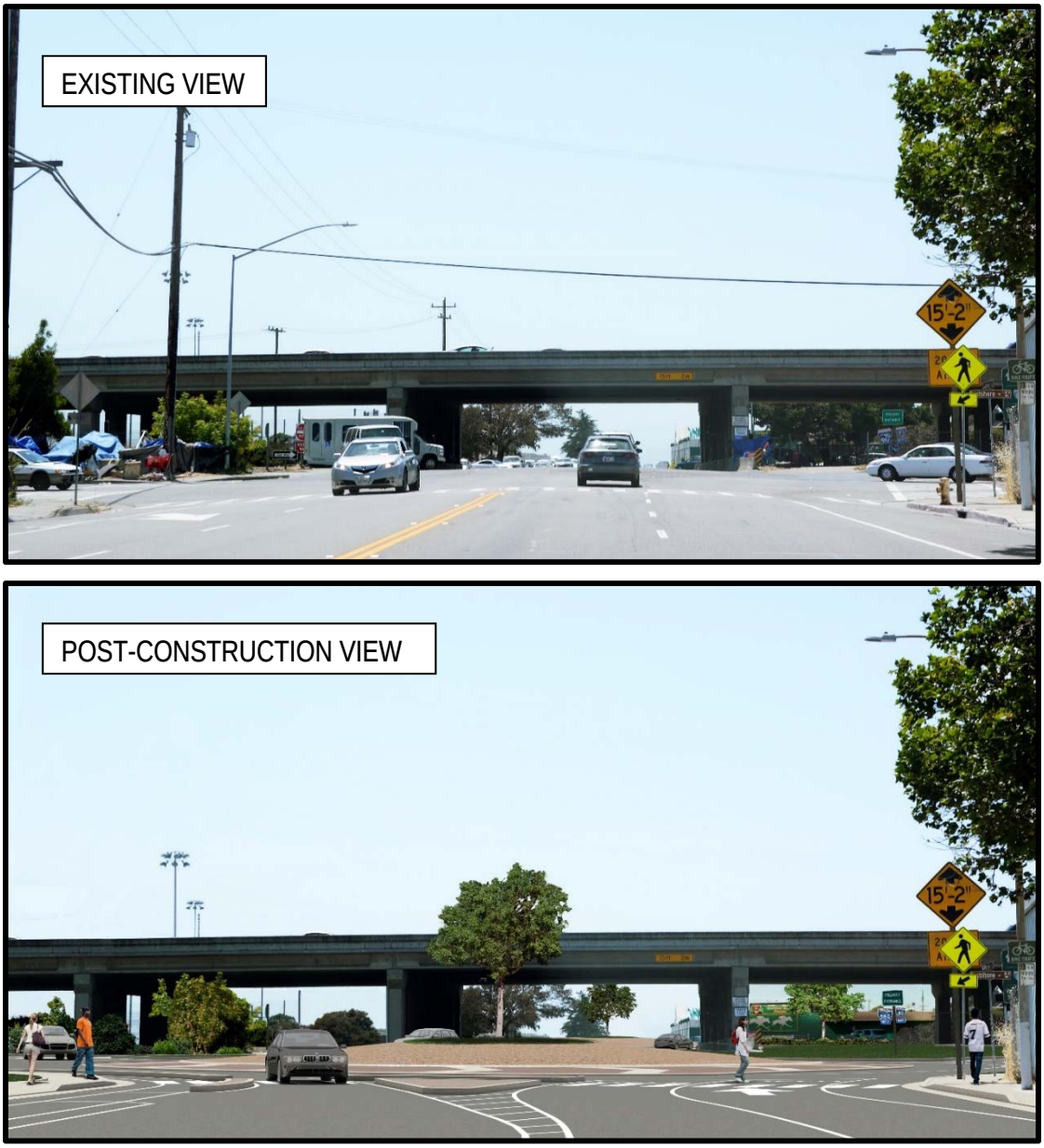

Figure 2.1.5-4: Key Viewpoint #3 in Gilman Street Visual Assessment Unit from the Center of Gilman Street, Looking West toward the Undercrossing

Note: The treatment of the islands, including the planting and paver designs, is subject to approval and may not represent the final constructed conditions.

With placement of the roundabout in the center of the intersection and removal of the visual clutter created by the powerlines within this view, the overall change to the existing visual character/quality is anticipated to be moderately high.

Proposed Project Features: Within this view, the new pedestrian and bicycle overcrossing would be very prominent to viewers approaching it. The associated ramp would be less prominent, but still present in the view, because it stretches away from the viewer. In addition, the lighting and fencing along the overcrossing and ramp would be noticeable, with the lights particularly noticeable at night.

Changes to Visual Character: The addition of the pedestrian and bicycle overcrossing and its associated ramps is not anticipated to change the overall visual character of the view to a substantial degree. The proposed structure would be located approximately 1 mile from an existing similar structure within the I-80 corridor, near University Avenue. Within this view, the overall change to the existing visual character/quality is anticipated to be moderate, given the presence of the new structure in the view and the view's current moderately low visual quality.

Anticipated Viewer Response: Viewers on Gilman Street are anticipated to have a moderately high response level based on sensitivity, which tends to be higher, and exposure, which tends to be moderate to moderately high (see Table 2.1.5-1).

Resulting Visual Impact: The overall impact to the corridor visual quality is anticipated to be moderately high, given the moderately high viewer response and the moderately high degree of change to the existing visual character and quality.

Gilman Street Visual Assessment Unit, Key Viewpoint #4

This key viewpoint looks from the service entrance to Golden Gate Fields, on Gilman Street, looking southeast toward the undercrossing and the westbound on-ramp (Figure 2.1.5-1). See Figure 2.1.5-5 for the before and after views. The view was selected because it illustrates the views associated with the new roundabout on the west side.

Existing Visual Character/Quality: The view from the entrance overlooks the intersection of the westbound on- and off-ramps and West Frontage Road, plus the Bay Trail that parallels the frontage road in this area. The existing I-80 overcrossing dominates the view. The view was chosen to illustrate the potential changes that might be expected with the roundabout in the intersection. The overall visual quality of the view is moderately low due to the expanse of asphalt within the view, as well as the presence of the powerlines, which add visual clutter. Weedy growth along the ramp also adds a reducing element, while the presence of the landscaping associated with the entrance adds a positive aspect.

Figure 2.1.5-5: Key Viewpoint #4 from the Golden Gate Fields Service Entrance Looking Southeast toward the existing Gilman Street Undercrossing and the Westbound On-Ramp

Note: The treatment of the islands, including the planting and paver designs, is subject to approval and may not represent the final constructed conditions.

Proposed Project Features: The new roundabout in the foreground would be the most prominent element in the view. Of the features removed by the project, the possible removal of the overhead powerlines would noticeably clear up the visual clutter of the view. As with Key Viewpoint #3, there is a potential feature of cut-off walls under the existing I-80 structure.

Changes to Visual Character: Similar to the changes associated with Gilman Street, east of I-80, the possible removal of the powerlines and the addition of the roundabout and its associated elements (i.e., paving, plantings, and median treatments) would open up views and clear out much of the visual clutter in the existing view. The intersection would appear larger than the current, but it would be more organized with clearer direction than the current large paved area. This would be in large part due to the location of the center island in the roundabout. The potential cut-off wall would limit views under the existing bridge to those within the center bay or center three bays. This would have the effect of limiting views under the bridge to just the open bays. As with the east side view, the overall change to the view is anticipated to be moderately high, given the prominent locations of the project elements.

Anticipated Viewer Response: Viewers on Gilman Street are anticipated to have a moderately high response level based on sensitivity, which tends to be higher, and exposure, which tends to be moderate to moderately high (see Table 2.1.5-1).

Resulting Visual Impact: The overall impact to the visual quality of the view is anticipated to be moderately high, given the moderately high viewer response and the moderately high degree of change to the existing visual character and quality.

Westside Sports and Entertainment, West Frontage Road, and San Francisco Bay Trail Visual Assessment Unit, Key Viewpoint #5

The view is from the perspective of the pedestrian on the Bay Trail, looking south along the trail, which is located between West Frontage Road and the fencing surrounding the sports fields (Figure 2.1.5-1). See Figure 2.1.5-6 for the before and after views. The view was selected because it illustrates the views from the trail to the new ramp structure associated with the overcrossing.

Existing Visual Character/ Quality: Elements in the existing view include the existing fence that surrounds the soccer fields and a row of shrubs planted along the fence. Between the Bay Trail and West Frontage Road is a narrow, landscaped area. The visual quality of the view is moderate, with moderate vividness intactness and unity.

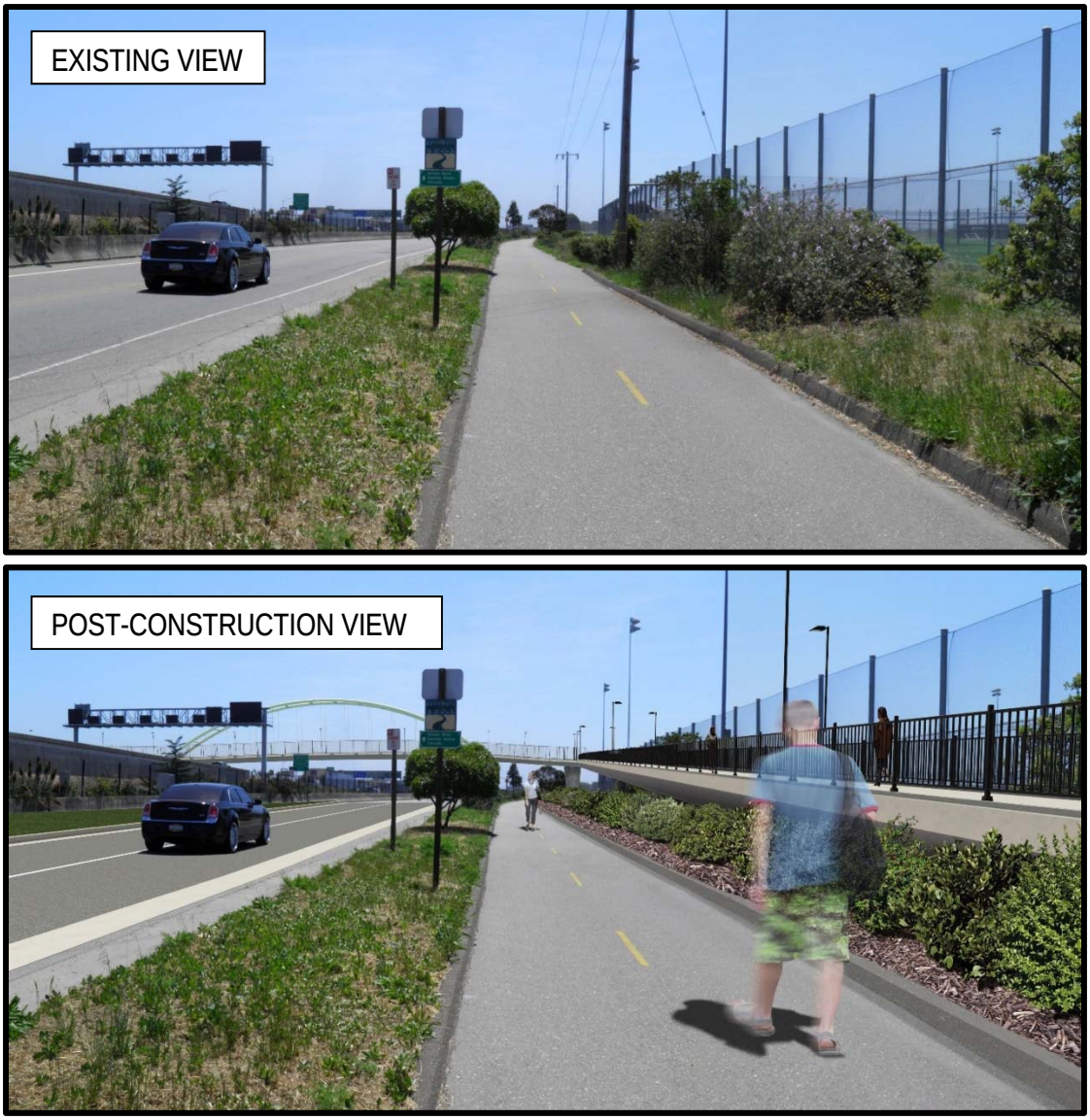

Figure 2.1.5-6: Key Viewpoint #5 in Westside Sports and Entertainment, West Frontage Road, and San Francisco Bay Trail Visual Assessment Unit from the San Francisco Bay Trail, Looking South to the Proposed Overcrossing

Note: The location and type of plantings are subject to approval and may not represent the final constructed conditions.

Proposed Project Features: The new access ramp to the proposed pedestrian and bicycle overcrossing would be prominent to trail and frontage road users, as well as those on the soccer fields on the west side of the ramp. The ramp, and its associated railing and lights, would begin at the existing grade behind this viewpoint and would quickly climb to meet the height of the overcrossing, approximately 600 feet to the south.

Changes to Visual Character: The location of the ramp along the west edge of the trail would block existing views to the soccer fields to the west, as well as to the distant views of the bay across the fields. While the existing vegetation along the fields currently partially screens these views, the ramp would be a much more solid block. This visual blocking would not be for the entire length of the ramp, because portions of the ramp would either be below the viewer near its starting point at Gilman Street or above the viewer at a point closer to the proposed overcrossing; however, there would be several hundred feet where these views would be effectively blocked. Changes to the existing visual character of the view are anticipated to be moderately high.

Anticipated Viewer Response: Viewers on West Frontage Road and the Bay Trail are anticipated to have a moderately high response level based on sensitivity, which tends to be higher, and exposure, which tends to be moderate to moderately high (see Table 2.1.5-1).

Resulting Visual Impact: The overall impact to the visual quality of the view is anticipated to be moderately high, given the moderately high viewer response and the moderately high degree of change to the existing visual character.

Eastside Commercial, Eastbound Off-Ramp, and Eastshore Highway Visual Assessment Unit, Key Viewpoint #6

This key viewpoint was taken along Eastshore Highway adjacent to existing industrial buildings. The view looks to the north, towards the intersection of Eastshore Highway and Gilman Street (Figure 2.1.5-1). See Figure 2.1.5-7 for the before and after views. The view was selected because it illustrates the views from the industrial areas along Eastshore Highway to the project elements.

Existing Visual Character/Quality: Buildings along the existing Eastshore Highway are older industrial buildings, and the area between the Eastshore Highway and I-80 eastbound off-ramp is weedy. The overall visual quality for this view is low, with low vividness, intactness, and unity.

Figure 2.1.5-7: Key Viewpoint #6 in Eastside Commercial, Eastbound Off-Ramp, and Eastshore Highway Visual Assessment Unit from the Perspective of the Eastshore Highway Users, Looking North toward the Gilman Street Intersection

Proposed Project Features: The new access ramp to the proposed pedestrian and bicycle overcrossing would be prominent to drivers along Eastshore Highway and to any businesses that look out onto the roadway. Other elements of the project that would be visible include the railing and lighting associated with the ramp, and gravel mulch under the ramp in an area that would be fenced off to prevent access. A new sidewalk along Eastshore Highway would be located along the east side of the road, and the existing parking would be maintained.

Changes to Visual Character: The presence of the ramp would have a large impact to the existing views by blocking the views to I-80 for drivers on Eastshore Highway and any businesses that look out to the west. The area would appear more built than the current appearance. In addition, the changes would also clean up the current fence line associated with the area between the eastbound off-ramp and Eastshore Highway. The extent of this would greatly depend on future maintenance of the area. Overall, it is anticipated that the project would have a moderately high change to the current view.

Anticipated Viewer Response: Viewers on Eastshore Highway and those associated with the businesses along Eastshore Highway are anticipated to have a moderate response level due to a moderately high sensitivity and a moderate duration/exposure (see Table 2.1.5-1).

Resulting Visual Impact: The resulting change in views and the blockage to the existing freeway and any views into the distance, plus the increase in afternoon shadows, would have an impact on the existing environment for these viewers. The overall impact to the visual quality of the view is anticipated to be moderately high, given the moderate viewer response and the moderately high degree of change to the existing visual character.

Gilman Street Visual Assessment Unit, Key Viewpoint #7

This key viewpoint is from the perspective of the bicycle rider on Gilman Street looking west across the railroad tracks towards the interchange area. The view was selected to show the changes to the streetscape along Gilman Street from the perspective of a bicyclist (see Figure 2.1.5-8).

Existing Visual Character/Quality: The view from Gilman Street to the west is dominated by both the streetscape trees and parking along the street. The overall visual quality is low with low vividness, intactness, and unity.

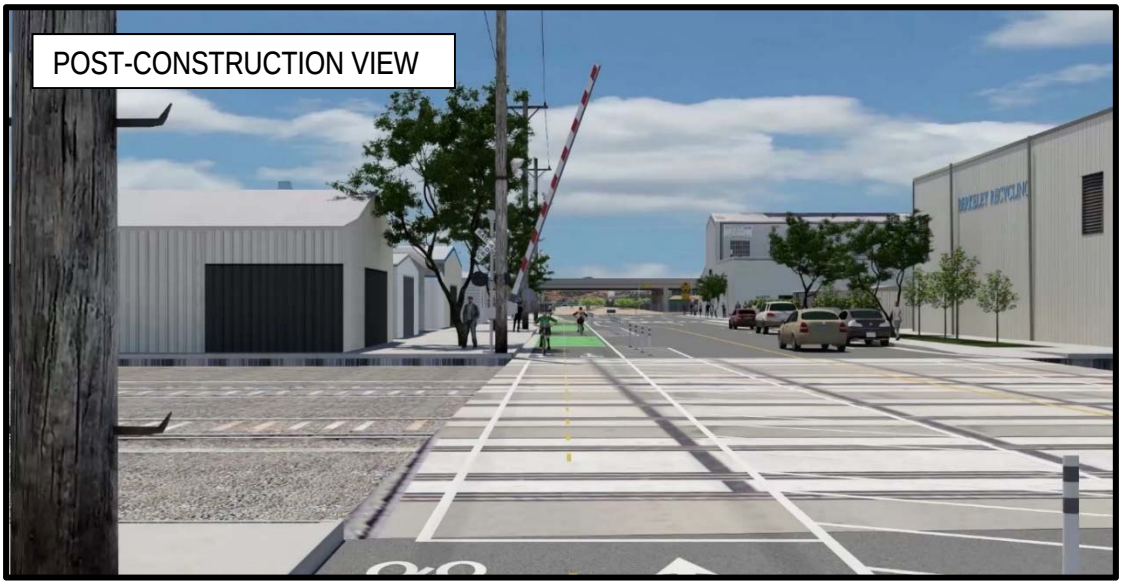

Figure 2.1.5-8: Key Viewpoint #7 in Gilman Street
Visual Assessment Unit from Center of Gilman Street
Looking West across the Railroad Tracks toward the Undercrossing

Proposed Project Features: The new striping for the railroad crossing is most prominent in the foreground of the view. In addition, removal of the parking along the cycle track, changes in the railroad crossing arms, relocation/upgrading of utility cabinets, and removal and/or replacement of the streetscape plantings are noticeable in the proposed view. The new roundabout is visible in the background of the view.

Changes to Visual Character: Removal of the parking and removal and replacement of the streetscape planting substantially open up the views along the corridor. Over time, new streetscape plantings would grow to meet the size and proportions of the existing plantings, but that is likely to take at least a decade to achieve. The new striping within the intersection would also prominently figure into the view. Overall, the anticipated change to the visual character is anticipated to be moderately high, given the changes to the streetscape and the speed of travel for bicyclists.

Anticipated Viewer Response: Viewers on the Gilman Street cycle track are anticipated to have a moderately high response level based on moderately high to high sensitivity due to a moderate to moderately high duration/exposure of view.

Resulting Visual Impact: The overall impact to the corridor's visual quality is anticipated to be moderately high, given the moderately high viewer response and the moderately high degree of change to the existing visual character and quality.

Gilman Street Visual Assessment Unit, Key Viewpoint #8

The photo for this key viewpoint was taken from the intersection of 2nd Street and Gilman Street and is looking north along 2nd Street. The view is from the perspective of the driver on the roadway and was selected to show the proposed changes to 2nd Street (see Figure 2.1.5-9).

Existing Visual Character/Quality: The view north along 2nd Street is typical of an industrial area. There is little streetscape along the street (although there is some along Gilman Street, which figures into the view). 2nd Street is primarily a parking and access area for workers. These elements all combine to give the view a moderately low visual quality.

Proposed Project Features: The most prominent project element in the view would be the proposed striping for the cycle track on Gilman Street that crosses 2nd Street in this location. Restriping of the roadway would also occur north of Gilman Street. However, the view generally does not substantially change from existing.

Figure 2.1.5-9: Key Viewpoint #8 in Gilman Street Visual Assessment Unit from 2nd Street, Looking North

Changes to Visual Character: The anticipated changes to the view are minor and primarily associated with the restriping/new striping of 2nd Street and Gilman Street. Therefore, the change to the visual environment for this view is not anticipated to change much from the existing and would be categorized as very low.

Anticipated Viewer Response: Viewers on 2nd Street are anticipated to have a moderately high response level based on moderate to moderately high sensitivity, which is based on duration of view.

Resulting Visual Impact: The overall impact to the corridor's visual quality is anticipated to be moderately low, given the moderately high viewer response and the very low degree of change to the existing visual character and quality.

Westside Sports and Entertainment, West Frontage Road, and Bay Trail Visual Assessment Unit, Key Viewpoint #9

This key viewpoint looks from the parking area associated with the west side of Golden Gate Fields to the south along the edge of San Francisco Bay. The view is from the perspective of a driver on the roadway (see Figure 2.1.5-10).

Existing Visual Character/Quality: The view is from the parking access road along the eastern edge of San Francisco Bay, looking south towards Gilman Street. Elements of the view are dominated by the roadway paving and the boulders lining the edge of the bay. The trees in the mid-ground provide a sense of scale the view.

Proposed Project Features: The existing roadway area would be restriped, and a metal beam guardrail would be placed along the bay side to separate the Bay Trail from auto traffic. There would be a slight reconfiguration of the entrance way, and decorative paving would be added (shown on the left edge of the proposed view). New planting along the road, where trees do not currently exist, would also be provided.

Changes to Visual Character: The existing visual character of the area would be very similar to current conditions because the area of paving would remain approximately the same as the existing. The addition of the guardrail would provide a degree of clarity to the current open expanse of paving but is generally not a visually pleasing element. The decorative paving at the entrance and the addition of trees, where feasible, would provide some enhancement to the existing character.

Figure 2.1.5-10: Key Viewpoint #9 in Westside Visual Assessment Unit from the Center of the Parking Access Road on the West Side of Golden Gate Fields, Looking South

Anticipated Viewer Response: Viewers on the access road would likely have a moderate sensitivity to the changes. Much of this traffic is for racing track staff to access parking, not visitors to Golden Gate Fields.

Resulting Visual Impact: The overall impact to the visual quality is anticipated to be moderately low. The changes to character are minimal, with the new paving staying within the existing's width and the addition of the guardrail, a somewhat negative element, balanced by the additional planting and decorative paving, which add to the quality. Existing views of San Francisco Bay and the city of San Francisco would remain unaffected.

Summary of Key Viewpoint Analysis

Merging both the viewer exposure and sensitivity leads to an overall response anticipated for each viewer group. Table 2.1.5-2 summarizes and compares the narrative ratings for visual resource change, viewer response, and visual impacts for each key viewpoint:

Table 2.1.5-2. Summary of Key Viewpoint Narrative Ratings

Visual Assessment Unit	Key Viewpoint	Build Alternative		
		Resource Change	Viewer Response	Visual Impact
Visual Assessment Unit 1 – I-80	1	Moderate	Moderate	**Moderate**
	2	Moderate	Moderate	**Moderate**
Visual Assessment Unit 2 – Gilman Street	3	Moderately High	Moderately High	**Moderately High**
	4	Moderately High	Moderately High	**Moderately High**
	7	Moderately High	Moderately High	**Moderately High**
	8	Very Low	Moderately High	**Moderately Low**
Visual Assessment Unit 3 – Westside Sports and Entertainment, West Frontage Road, westbound on- and off-ramps, and San Francisco Bay Trail	5	Moderately High	Moderately High	**Moderately High**
	9	Moderately Low	Moderate	**Moderate**
Visual Assessment Unit 4 – Eastside Commercial, eastbound on- and off-ramps, and Eastshore Highway	6	Moderately High	Moderate	**Moderately High**

Overall, the addition of the project elements would likely affect the existing visual environment of the study area to varying degrees depending on viewer and location. While these effects are anticipated to be less than substantial, they would change these existing views. In some cases, this might be a positive change, increasing the visual quality by removing existing visual clutter, or a negative change by blocking views or adding to the existing visual clutter.

Build Alternative Visual Impact Summary

The proposed Build Alternative would likely change the visual character and quality, but to a less than substantial degree. The addition of the new pedestrian and bicycle overcrossing and its associated access ramps would block the northbound and southbound traveler's views out from the I-80 corridor for a brief period while they traverse the approximately 600 feet between ramp touchdown to the overcrossing. To varying degrees, these views, both to the east and west, are partially blocked by the presence of concrete roadside barriers. For eastbound travelers, these views primarily consist of views to the old industrial buildings that front Eastshore Highway. For westbound travelers, these views are generally to the west across the sports fields and open space along West Frontage Road. These views can include distant views to a portion of San Francisco Bay. These existing views generally have a moderately low visual quality, and the addition of the ramps and overcrossing does not greatly reduce the quality of these views, as illustrated in Key Viewpoints #1 and #2.

Along Gilman Street, the addition of the roundabouts and their associated directional islands within what is currently a somewhat chaotic set of intersections should help provide clarity and a clearer view to the intersections. In addition, the possible removal of the overhead powerlines would be a large improvement over the existing cluttered views. The end result is that views along Gilman Street should improve over the existing views. As shown in Key Viewpoints #3 and #4, the existing moderately low visual quality of these views could be anticipated to increase to moderate with the addition of the roundabout elements.

Along the west side of the study area, including Tom Bates Regional Sports Complex, the Bay Trail, West Frontage Road, and the westbound on-ramp (i.e., the Westside Sports and Entertainment Visual Assessment Unit), the existing moderate visual quality views would be blocked by the access ramp that parallels the roadways in this area along the west side of the Bay Trail. As shown in Key Viewpoint #5, the view from the trail and frontage road to the west would be blocked for several hundred feet. As the viewer approaches the overcrossing, the ramp would fall above the viewer,

allowing views under the structure. With the addition of the project elements, these views would likely be impacted to a moderately high degree, and the existing moderate visual quality, while being maintained, would be very different and more urban than the current view.

Along Eastshore Highway, the ramp is located along the western edge of the road, between it and the eastbound off-ramp. Placement of the ramp would block views from along Eastshore Highway and the businesses that line the east side of the road to the existing highway and off-ramp. These views have a low visual quality, and the addition of the ramp, while not improving the view, does not lessen its already low visual quality, as illustrated in Key Viewpoint #6.

Impacts to Scenic Vistas and Scenic Routes

While no Caltrans-designated or locally identified scenic vistas or scenic routes are present in the study area, the Bay Plan has identified this portion of I-80 as a Scenic Drive. Views to the west towards San Francisco Bay, the distant city of San Francisco, and Golden Gate Bridge add to the visual quality of this drive. The addition of the west side pedestrian and bicycle overcrossing access ramp would partially block these views for a varying period, depending on the viewer's rate of travel.

San Francisco Bay Conservation & Development Commission

The new pedestrian and bicycle overcrossing would interfere with views to San Francisco Bay from I-80 over a stretch of 600 feet, between the beginning and end of the new access ramp along westbound I-80. However, the addition of the new overcrossing also provides new views of San Francisco Bay, the city of San Francisco, and Golden Gate Bridge for bicyclists and pedestrians that are not present in the existing environment in keeping with the Bay Plan Policy 7, of Appearance, Design, and Scenic Views; Policy 4 of Transportation; Policy 4a of Recreation; and Policy 10 of Public Access. Construction of the overcrossing would also provide an additional nonmotorized access route to shoreline resources (see Table 2.1.5-1 for a description of the BCDC policies and goals).

In addition, Policy 10 in Appearance, Design, and Scenic Views requires new structures be designed as landmarks that suggest the location of the waterfront. The proposed design for the new overcrossing (a tied-arch bridge) is similar in appearance to the existing I-80/University Avenue pedestrian and bicycle overcrossing structure. The placement of these two structures would create a landmark/gateway appearance in the I-80 corridor through a repetition of a unique form. Finally, the project also includes

completing a section of the Bay Trail. This also supports the goals of BCDC in the areas of Transportation, Recreation, and Public Access. Overall, the proposed project is consistent with BCDC's Bay Plan. See Section 4.2.3, San Francisco Bay Conservation and Development Commission, for consultation and coordination information.

Visual Character

The addition of the pedestrian and bicycle overcrossing and associated ramps along I-80 is not anticipated to change the visual character of I-80 or of the two frontage roads that parallel it (West Frontage Road and Eastshore Highway). The proposed overcrossing would match the design of the existing University Avenue pedestrian and bicycle overcrossing, approximately 1 mile to the south, maintaining the character of the corridor through this stretch.

For areas along Gilman Street, the addition of the roundabouts would likely change the visual character slightly, but it is anticipated to improve the visual quality by decluttering the existing views and providing clarity to a set of chaotic intersections.

Light and Glare

The proposed lighting on the pedestrian and bicycle overcrossing and ramps would add a new source of glare to the study area but would be consistent with the light-emitting diode (LED) lighting currently used in the project footprint. This would be most visible to travelers along the roads and the Bay Trail because these parallel the structure. This can be partially minimized by providing shielding to the lights so that it is directed onto only the approach ramps and overcrossing walking surface, but it would still be noticeable to the viewer at night. Existing sources of light and glare are associated with the existing LED street lighting along the local streets (Gilman Street, Eastshore Highway, and West Frontage Road) and the soccer field lights associated with the sports complex. The overcrossing and ramp lighting would be an incremental increase in the area. For areas associated with an open sky (i.e., in places where the darkness of the night sky is relatively free of interference from artificial light), the design lighting would be dark sky friendly. The design would include caps that direct the light downward and/or a shield that prevents light from shining on adjacent properties and the Bay.

Construction Impacts

No Build Alternative

There would be no construction with the No Build Alternative; therefore, no construction impacts would occur.

Build Alternative

The Build Alternative would have several temporary impacts associated with construction of the project elements. Key among these would be the construction/ laydown yards necessary to build the project. The potential locations for these are located within Tom Bates Regional Sports Complex and are shown in Figure 2.1.5-1. Construction equipment, concrete forms, supplies, and sheds would be located in these areas. Given the 18-month construction schedule anticipated for the project, the items in these yards would be visually present to viewers. Other temporary visual impacts would be found with demolition of existing elements of roadways and streetscapes, construction signage, and flaggers.

Project Features

Project Features include design elements of the project and standardized measures that are applied to all or most Caltrans projects, including Best Management Practices, Caltrans Standards and Specifications, and standard special provisions. The features are considered an integral part of the project and have been considered prior to any significance determinations for CEQA. The following project features are included in the Build Alternative:

PF VA-1: **Preserve Existing Vegetation.** Beginning with preliminary design and continuing through final design and construction, save and protect as many existing trees in the study area as feasible.

PF VA-2: **Preserve Existing Vegetation.** Survey exact locations for trees and include in plan set.

PF VA-3: **Landscape Plantings.** Use drought-tolerant plants, including California native species, as part of the planting palette where regionally appropriate. Planting must be maintainable, low maintenance, durable, and site appropriate.

PF VA-4: **Landscape Plantings**. Plantings within the State right-of-way will follow the 1997 Caltrans Plant Setback and Spacing Guide. Use of turf is prohibited within the State right-of-way.

Avoidance, Minimization, and/or Mitigation Measures

The following avoidance and minimization measures would be designed and implemented with concurrence of the District Landscape Architect:

AMM VA-1: **Fencing and Barriers.** Fence areas under the ramps to limit access along the adjacent roadways. At a minimum, make the fencing vinyl-clad chain link.

AMM VA-2: **Light and Glare.** For areas associated with an open sky (i.e., in places where the darkness of the night sky is relatively free of interference from artificial light), the design lighting shall be dark sky friendly. Lighting along the San Francisco Bay waterfront shall be designed so that it does not shine light onto the water.

AMM VA-3: **Wall Aesthetics.** Include texture on walls and slope paving with a texture range between 0.75 inch and 1.5 inches deep. All walls shall be colored to potentially reduce glare.

AMM VA-4: **Decorative Paving.** Provide decorative paving in all medians and parkway strips too narrow to plant. Decorative paving shall consist of a texture and color that contrasts with adjacent sidewalk or roadway paving.

AMM VA-5: **Landscape Plantings.** To the extent feasible, plant the surrounding available areas outside of the roundabouts to soften the hard surfaces of the intersections.

AMM VA-6: **Landscape Plantings.** To the extent feasible, include low plantings along the sides of the Bay Trail to provide a visual break between the hard elements associated with the ramp or the adjacent frontage road.

AMM VA-7: **Landscape Plantings.** Add plantings between the new retaining walls along the eastbound on- and off-ramps to soften the freeway elements.

AMM VA-8: **Landscape Plantings.** To the extent feasible, include street tree plantings, and associated tree grates if necessary, within the project footprint to replace those removed by the project. Minimum spacing of trees within the City rights-of-way shall be no greater than 35 feet on-center. Low-maintenance and drought-tolerant plantings will be provided within Caltrans right-of-way.

AMM VA-9: **Landscape Plantings.** Provide a permanent irrigation system to all plantings. Make separate systems for Caltrans versus City of Berkeley-owned areas.

AMM VA-10: **Stormwater Treatment Facilities.** Beginning with preliminary design and continuing through final design and construction, use drainage and water quality elements, where required, that maximize the allowable landscape and work within the landscape aesthetic framework.

AMM VA-11: For areas of the project that fall within the BCDC jurisdictional area, develop any plantings or revegetation in compliance with BCDC's Landscape Guidelines and permit approvals.

AMM VA-12: Lighting for the project, including lighting under the existing structure, should be thematically approached to work with the overall design approach to the project aesthetic design.

2.1.6 Cultural Resources

Regulatory Setting

The term "cultural resources" as used in this document refers to all "built environment" resources (e.g., structures, bridges, railroads, water conveyance systems), 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:

The National Historic Preservation Act 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 National Register of Historic Places (NRHP). Section 106 of the National Historic Preservation Act requires federal agencies to consider 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 CFR 800). On January 1, 2014, the First Amended Section 106 Programmatic Agreement (PA) among FHWA, the ACHP, the California State Historic Preservation Officer (SHPO), and Caltrans went into effect for Caltrans 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 Caltrans. FHWA's responsibilities under the PA have been assigned to Caltrans as part of the Surface Transportation Project Delivery Program (23 U.S.C. 327).

Historic properties may also be covered under Section 4(f) of the USDOT Act, which regulates the "use" of land from historic properties. See Appendix A for specific information about Section 4(f).

CEQA requires the consideration of cultural resources that are historical resources and tribal cultural resources, as well as "unique" archaeological resources. California 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 (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.

Affected Environment

The following cultural resources studies were completed for the project:

- *Archaeological Survey Report (ASR) for the Interstate 80/Gilman Street Interchange Improvement Project,* Berkeley, California (Siskin *and Ryan,* August 2018)
- *Extended Phase I Archaeological Testing Report for the Proposed Interstate 80/ Gilman Street Interchange Improvement Project,* Alameda County, California (Strother and Higelmire, February 2019)
- *Historic Resources Evaluation Report (HRER) for the Interstate 80/Gilman Street Interchange Improvement Project,* Berkeley, California (Bunse, *et al.*, August 2018)
- *Historic Property Survey Report (HPSR) for the Interstate 80/Gilman Street Interchange Improvement Project,* Berkeley, California (DeBaker and Brookshear, August 2018)
- *Supplemental Historic Property Survey Report (HPSR) for the Interstate 80/ Gilman Street Interchange Improvement Project,* Berkeley, California (Hartman and Meloy, April 2019).
- *Finding of No Adverse Effect without Standard Conditions (Strother, April 2019)*
- *Post-Review Discovery Plan, Environmentally Sensitive Area Action Plan, and Monitoring Plan* for *the Proposed Interstate 80/Gilman Street Interchange Improvement* Project, Alameda County, California (Strother, February 2019)

Area of Potential Effects

The Area of Potential Effects (APE) is located between PM 6.38 and 6.95 on I-80 and is an irregularly shaped area encompassing properties that have the potential to be directly (Archaeology) and indirectly (Architectural History) affected as a result of the project (Figure 2.1.6-1). The APE was established in accordance with the PA Stipulation VIII.A in consultation with Caltrans Professionally Qualified Staff and the Caltrans Project Manager on April 30, 2018. The APE encompasses all project elements and alternatives, as well as detour routes, temporary construction easements, and staging areas. The APE includes project elements west and east of I-80 and the Gilman Street interchange. West of I-80 and Gilman Street, the APE extends approximately 3,330 linear feet from the southern parking lot of the Tom Bates Regional Sports Complex, runs along the existing Bay Trail, extends west down Gilman Street to an outfall in San Francisco Bay and north along the San Francisco Bay shore to include improvements along Gilman Street Extension, two private parking lots, and a portion of an entrance road leading to the Golden Gate Fields offices. On the east side of I-80, the APE extends east–west approximately 2,220 linear feet from Page Street to Harrison Park beyond Harrison Street. The APE includes a narrow strip (approximately 330 linear feet) under I-80 along the Gilman Street underpass to connect the roundabouts and to provide for improvements on the at-grade bicycle and pedestrian path through the roundabouts. The APE begins at the end of 5th Street and Harrison Park, continues to Harrison Street and turns on 4th Street until it reaches Gilman Street. The eastern roundabout would be installed at the intersection of Gilman Street and Eastshore Highway, and the western roundabout would be installed at the intersection of Gilman Street and West Frontage Road. Properties bounded by Page Street, Harrison Street, and Eastshore Highway are included in the Architectural History APE because these parcels are either immediately adjacent to the main project activities or include temporary construction easements, which are required for project construction. Minor project activities that would occur completely within existing street rights-of-way include utility relocation; additional curbs, gutters, sidewalks; and signaling equipment, and these elements are encompassed in the Architectural History APE. Some parcels adjacent to these minor project activities are not included in the Architectural History APE because they do not have the potential to directly or indirectly affect adjacent built environment resources. The vertical APE below ground level varies; at the light poles, it may extend upwards for up to 13 feet below the ground surface to account for the maximum vertical depth of the light pole foundations and utility relocations. Retaining wall footings are expected to extend as deep as 50 feet below ground surface, and the foundation for the pedestrian and bicycle overcrossing

would be drilled to a maximum of 120 feet deep. A depth of disturbance of up to 8 feet is proposed for interchange modifications, road construction, landscaping, grubbing, and grading. Utility removal and replacement is expected to extend no more than 6 feet below the existing ground surface. An EBMUD recycled water transmission line pipe trench is anticipated to be 5 feet deep, and other drainage and sewer pipes would be excavated to a maximum depth of 6 feet.

Records Search

A records search was conducted on May 5, 2016, at the Northwest Information Center of the California Historical Resources Information System at Sonoma State University, Rohnert Park (File No. 15-1619). An additional record search was conducted on May 17, 2018, to accommodate an expansion of the APE. Three previously recorded built environment cultural resources were documented within the APE, including a horse racing facility, a historic period commercial building, and portions of track, spurs, and grades of the UPRR. One bridge (Bridge #33 0127/Gilman Street UC) was identified within the APE; however, it is listed as Category 5 in the Caltrans Historic Highway Bridge and thus is considered ineligible for listing in the CRHR and the NRHP. No archaeological resources were identified within the APE as a result of the records search. Five previously recorded cultural resources were identified within a 0.25-mile radius of the APE: a buried prehistoric archaeological site and a historic-period commercial building; a historic period wood concrete pier; a historic period residential and commercial district; and a historic period residential and educational district. Nine cultural resources investigations, including excavations, surveys, and built environmental studies, have been completed within or directly adjacent to the APE. Additionally, the records search indicated that 17 cultural resources investigations have been completed within a 0.25-mile radius of the APE.

Historical Societies/Historic Preservation Groups Consultation

Letters were sent to the following local historical societies and historic preservation groups to request information regarding significant cultural resources located within or near the APE: Berkeley Landmarks Preservation Commission, Alameda County Historical Society, Berkeley Historical Society, Berkeley Architectural Heritage Association, and Albany Historical Society. No built environment resources were identified during the consultation process.

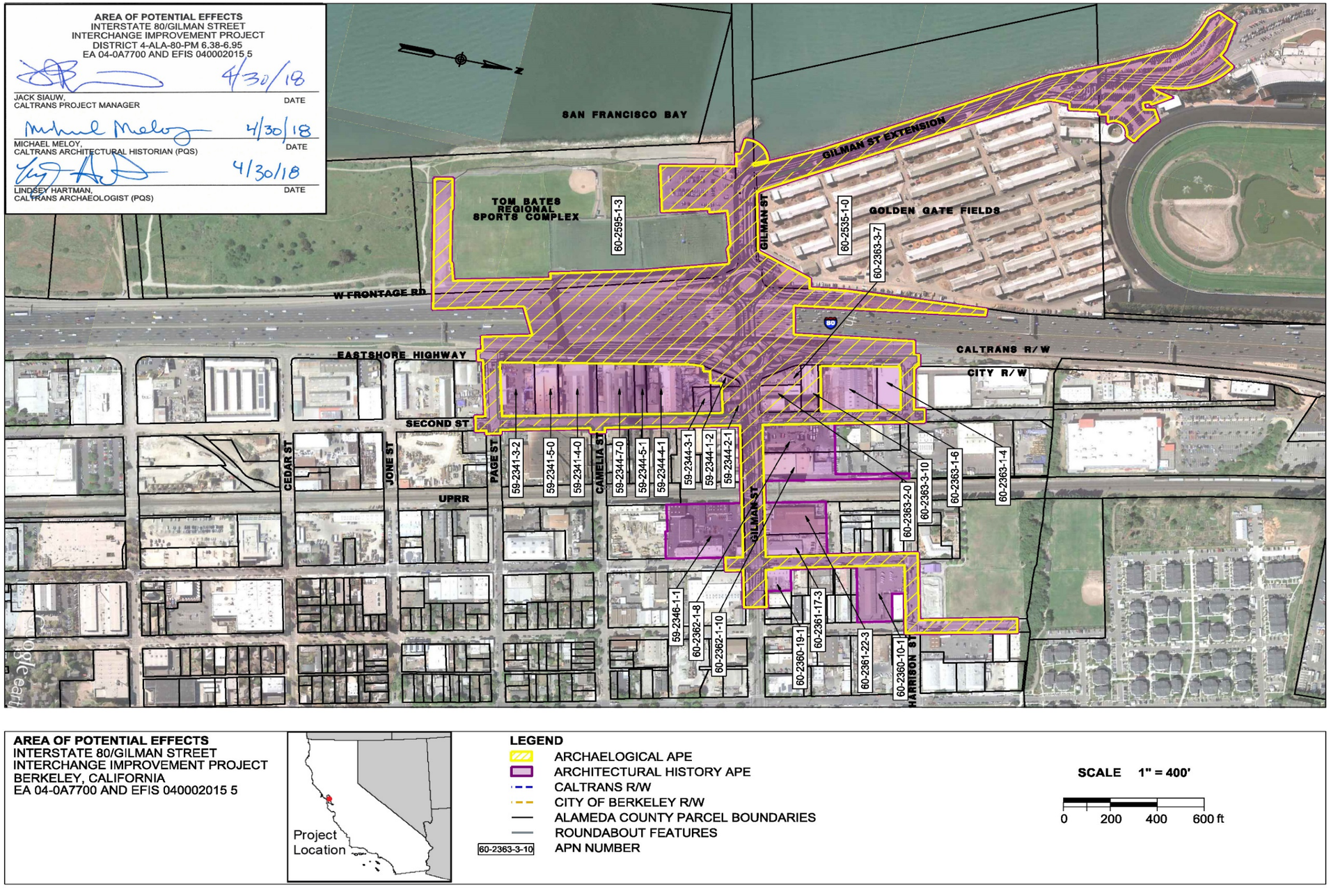

Figure 2.1.6-1: Area of Potential Effects

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Native American Consultation

As part of the tribal consultation process with Native American groups and individuals, the Native American Heritage Commission (NAHC) was contacted via e-mail on May 6, 2016, with a request for a search of the Sacred Lands File for information about cultural resources that may be located within the APE. The NAHC responded on May 20, 2016, with a list of interested Native American groups and individuals who might have information regarding resources within or near the APE. The NAHC also reported that a search of the Sacred Lands File indicated there are no sacred sites recorded within the APE.

On May 26, 2016, letters were mailed to the six Native American contacts listed by the NAHC for Alameda County to initiate consultation for Section 106 and AB 52. The SB 18 statewide list of Native Americans was also consulted to determine interested parties for the area. Follow-up communication with Native American individuals via e-mail was carried out on June 2, 2016, and by telephone on June 3, 2016. Ms. Rosemary Cambra and Ms. Katherine Erolinda Perez expressed their request, via telephone on June 3, 2016, to have a Native American monitor present during project construction due to the presence of known prehistoric sites near the APE. No additional Native American individuals expressed an interest in further consultation.

Additional notification letters were mailed to all Native American individuals on February 10, 2017, to inform them of the identification of a prehistoric site (CA-ALA-690) discovered inside the APE as a result of Extended Phase I testing. Native American participation was not requested on the first round of Extended Phase I testing because there were no archaeological resources identified at that time. Letters were also sent to the two Native American individuals who requested notification of any new discoveries, Ms. Perez and Ms. Cambra.

Follow-up phone calls on February 14 and 16, 2017, were made to Ms. Cambra and Ms. Perez to further discuss Native American monitoring. At that time, it was explained that identification efforts were not yet complete, and all Native American contacts would be informed of results from identification efforts and any subsequent needs for Native American monitoring during construction. Ms. Cambra and Ms. Perez responded by indicating they wished to be contacted in the event of any archaeological discoveries and prior to ground-disturbing project construction. It was communicated to Ms. Cambra and Ms. Perez that it is Caltrans policy for Native American monitoring to occur under the following circumstances: (1) during excavations; (2) during construction and construction-related activities adjacent to known Native American

resources or ESAs; and (3) during construction or related activities in areas where there is a high probability that there may be a buried deposit within the APE. Caltrans coordinated with Ms. Cambra to arrange for a Native American monitor to be present during the second round of subsurface coring. As a result, Ms. Monica Arellano, representative of the Muwekma Ohlone Indian Tribe of the San Francisco Bay Area, and another representative were present during collection and in-field inspection of the additional cores collected near the newly discovered cultural resource inside the APE. All correspondence pertaining to Native American consultation is presented in the HPSR, referenced above.

Follow-up phone calls were made on October 25, 2018 to Ms. Cambra and Ms. Perez to further discuss the use of an ESA to protect CA-ALA-690. Ms. Cambra could not be reached on October 25, 2018 and a follow up message was left on her voicemail on October 26, 2018. On the October 25, 2018 call with Ms. Perez, she was informed that the project planned to use an ESA Action Plan in construction to protect the site. Ms. Perez indicated that she agreed with the ESA approach and requested that she be notified of any significant changes in the project design and if cultural resources are encountered during construction.

On February 8, 2019, Mr. Strother phoned Ms. Perez and Ms. Cambra to discuss the plan for archaeological and Native American monitoring. The same day, Mr. Strother attempted to reach Ms. Cambra via two separate phone numbers provided by NAHC; both lines were out of service, so no message was left with Ms. Cambra. On February 8, 2019, Carie Montero of Parsons informed GANDA via e-mail that Rosemary Cambra is no longer the point of contact for the Muwekma of the Ohlone Indian Tribe of the San Francisco Bay Area. Her daughter, Charlene Cambra Nijmeh is the new point of contact. On February 8, 2019, Mr. Strother called Ms. Nijmeh and left a message concerning Native American monitoring for the project. No response has been received.

Field Survey

Archaeological pedestrian surveys of the APE were conducted on May 18, 2016, and April 27, 2018. No archaeological resources were identified during the field surveys. Architectural surveys of the APE were conducted on May 18, June 2, and June 6, 2016; December 7, 2017; and April 23, 2018. The field survey observations were documented in field notes and digital photographs, and they resulted in the identification of 9 historic-era built environment resources more than 45 years of age, some with multiple addresses (see Table 2.1.6-1). The built environment resources were recorded or

updated on Department of Parks and Recreation (DPR) forms (DPR 523). Field surveys were not made for the two previously identified built environment resources identified in the literature search and discussed in records search.

Table 2.1.6-1: Built Environment Resources Identified in the APE (during Field Surveys in 2016, 2017, and 2018)

Name	Primary No./ Trinomial	Address/Location	Community
Manasse Block Tannery Complex	P-01-011814	708, 726, 746, 766, and 1300 Gilman Street; 1350 4th Street	West Berkeley
Pacific Steel Casting Co. Complex	P-01-011816	1314 and 1320 2nd Street; 1305 Eastshore Freeway	West Berkeley
Berkeley Steel Construction Co. Complex	P-01-011811	1330 2nd Street; 1331 and 1401 Eastshore Highway	West Berkeley
Hawkins and Hawkins Co. Complex	P-01-011819	1255 Eastshore Highway	West Berkeley
Red-D-Arc Welderentals Complex	P-01-011817	635 Gilman Street	West Berkeley
Tuttle Manufacturing Co.	P-01-011818	725 Gilman Street	West Berkeley
Merit Tank & Body Co.	P-01-011815	707 Gilman Street	West Berkeley
Union Pacific Railroad	P-01-001783/ CA-ALA-623H	UPRR Main Line (CA-ALA-623H) North End: 4192682mN, 561127mE; South End: 4192538mN, 561165mE SPRR Spur Line (CA-ALA-623H) North End: 4192559mN, 561055mE; South End: 4192234mN, 561137mE	West Berkeley
PT&T Vehicle Maintenance Facility	N/A	1206 5th Street	West Berkeley

Archaeological Testing

Based on the proximity of nearby archaeological sites, depth of project impacts, and the ASR's buried site sensitivity assessment, subsurface testing was required to complete identification efforts. Extended Phase I testing was conducted within the APE by extracting continuous subsurface soil cores to depths ranging from 12 to 50 feet below ground surface, based on the vertical APE in each given area. The coring program was conducted between November 14 and 23, 2016, and February 21 and 23, 2017. As a result of subsurface testing and analysis, two new archaeological sites – a historic-period archaeological deposit (CA-ALA-691/H) and a prehistoric midden site (CA-ALA-690) – were identified within the APE. These resources were documented on DPR 523 forms.

Archaeological Resources Results

The historic-period archaeological deposit (CA-ALA-691H) qualifies for exemption for evaluation under the PA Attachment 4. Based on the historic context for this location within the APE and the utilitarian and fragmentary condition of the historic-period materials identified and recovered during Extended Phase I testing, the deposit is considered a highly disturbed isolated refuse dump and scatter. As a result, the historic-period artifact deposit within the APE meets the criteria for exemption in accordance with the PA; therefore, it has no potential to be a historic property and warrants no evaluation or further study. This resource is not considered significant for the purposes of CEQA.

For the purposes of this project, the prehistoric site (CA-ALA-690) is assumed eligible for listing in the NRHP and the CRHR per the PA in accordance with Stipulation VIII.C.4. This resource is considered a unique archaeological resource and is significant for the purposes of CEQA. A Finding of No Adverse Effect without Standard Conditions was approved on May 30, 2019 to document how the project will result in no adverse effects to CA-ALA-690. A *Post-Review Discovery Plan, Environmentally Sensitive Area Action Plan, and Monitoring Plan* was approved by the SHPO on May 30, 2019. This plan describes how impacts to CA-ALA 690 will be avoided and will describe measures that will be taken to document additional discoveries that may occur during construction.

Built Environment Results

Out of the 12 built environment resources identified within the APE, 3 were previously evaluated and found ineligible for the NRHP and the CRHR – Bridge #33 0127, the horse racing facility (Golden Gate Fields), and segments of the UPRR located within the APE, including the main line along former 3rd Street, Harrison Street to Page Street, and Spur lines along 2nd Street. These three previously evaluated properties are also not considered significant resources for the purposes of CEQA. One property (735 Gilman Street) qualifies for exemption for evaluation under the PA Attachment 4, Property Type 3, and is not considered a significant resource under CEQA.

The following seven resources in Table 2.1.6-2 were evaluated as part of this project for the CRHR and the NRHP and found ineligible. The resources are also not considered significant resources for the purposes of CEQA.

Table 2.1.6-2: Built Environment Resources Evaluated as Ineligible for the NRHP and CRHR

Name	Primary No./ Trinomial	Address/Location	Community
PT&T Vehicle Maintenance Facility	N/A	1206 5th Street	West Berkeley
Tuttle Manufacturing Co.	P-01-011818	725 Gilman Street	West Berkeley
Merit Tank and Body Company	P-01-011815	707 Gilman Street	West Berkeley
Berkeley Steel Construction Co. Complex	P-01-011811	1330 2nd Street 1331 and 1401 Eastshore Highway	West Berkeley
Pacific Steel Casting Co. Complex	P-01-011816	1314 and 1320 2nd Street 1305 Eastshore Freeway	West Berkeley
Red D'arc Welders Complex	P-01-011817	635 Gilman Street	West Berkeley
Hawkins and Hawkins Co. Complex	P-01-011819	1255 Eastshore Highway	West Berkeley

One resource was evaluated and determined eligible for both the NRHP and the CRHR – the Manasse Block Tannery Complex. The Manasse Block Tannery Complex consists of eight buildings located on the northern half of the block between 3rd Street and 4th Street south of Gilman Street. The tannery is an important example of wood-framed industrial loft construction in Berkeley. The wood-framed loft buildings within the tannery complex were constructed between 1898 and 1941, the period of significance for the resource. The resource meets NRHP Criterion C and CRHR Criterion 3 as an important local example of multi-story, wood-framed industrial loft architecture. Portions of the resource were previously listed as a local Historical Landmark (#103) by the City of Berkeley, thus making it a resource significant for the purposes of CEQA.

Environmental Consequences

Project-Level Impacts/Construction Impacts

Within the APE, two historic properties were identified as significant cultural resources: prehistoric site CA-ALA-690 and Manasse Block Tannery Complex, a historic industrial building complex. The No Build Alternative would have no impact to the Manasse Block Tannery Complex and CA-ALA-690. Under the Build Alternative, proposed work in proximity to CA-ALA-690 includes the installation of a recycled water line to the west of the archaeological site and restriping and curb work on the roadway above the archaeological site. The known site boundaries for CA-ALA-

690 would be protected from project impacts by the establishment of a vertical ESA. In order to avoid an adverse effect to the site, non-standard conditions in the form of archaeological monitoring would be imposed. A Post-Review Discovery Plan, Environmentally Sensitive Area Action Plan, and Monitoring Plan was prepared outlining how the site will be avoided, and impacts minimized should they occur.

The use of these non-standard conditions would result in a finding of No Adverse Effect without Standard Conditions (FNAE-No SC) for CA-ALA-690. The Manasse Block Tannery Complex would not be impacted by the Build Alternative, resulting in a finding of No Adverse Effect (Table 2.1.6-3).

Table 2.1.6-3: Cultural Resource Impact Findings

Resource	Finding
CA-ALA-690	No Adverse Effect without Standard Conditions- (FNAE No SC)
Manasse Block Tannery Complex	No Adverse Effect

The project (undertaking) as a whole has a finding of No Adverse Effect without Standard Conditions on historic properties.

Concurrence from the SHPO on the ineligibility of the eight previously unevaluated built environment resources, and the eligibility of one built environment resource located within the APE was issued on November 6, 2018. The SHPO's concurrence on the project's No Adverse Effect without Standard Conditions finding was issued on May 30, 2019. Pursuant to the Section 106 PA Stipulation VIII.C.1, Caltrans determined the historic archaeological deposit (CA-ALA-691H/P-01-011810) to be exempt from evaluation. SHPO consultation and concurrence are detailed in Section 4.2.5, State Historic Preservation Officer. Caltrans Cultural Studies Office concurred on the assumption of eligibility for CA-ALA-690 per Stipulation VIII.C.4 of the PA on November 26, 2018 and approved the Post Review Discovery Plan, ESA Action Plan, and Monitoring Plan on May 17, 2019.

Adverse effects to CA-ALA-690 will be avoided by implementing the Post Review Discovery and Monitoring/ESA Action Plan prepared for the project, to include the following:

An ESA will be established around the known horizontal and vertical archaeological site boundary.

An Archaeological Monitoring Area will be established in proximity to the site boundaries.

Caltrans shall inform interested Native Americans about the proposed project activities and the Post Review Discovery and Monitoring/ESA Action Plan prior to construction.

If cultural materials are discovered during construction, all earth moving activities within and around the immediate discovery area will be diverted until the Resident Engineer or his designated representative contacts a Caltrans Professionally Qualified archaeologist to assess the nature and significance of the find.

If cultural materials are found to be significant, procedures in the Post Review Discovery Plan will be followed.

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

Historic properties within the APE were analyzed to determine whether they are protected Section 4(f) resources. Only one of the built environment properties evaluated appears eligible for the NRHP and qualifies as a Section 4(f) resource. The Build Alternative would not use any Section 4(f) historic properties (see Appendix A).

Project Features

The following project features would be implemented as part of the Build Alternative:

PF CUL-1: If cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area will be diverted until a Caltrans qualified archaeologist 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. Caltrans' Cultural Resources Studies Office will contact the Alameda County Coroner. Pursuant to CA PRC Section 5097.98, if the remains are thought by the coroner to be Native American, the coroner will notify the NAHC, which will then notify the Most Likely Descendent. Caltrans, District 4, Cultural Resources Studies Office will work with the Most Likely Descendent on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable

Avoidance, Minimization, and/or Mitigation Measures

The following minimization measures will be implemented to avoid potential adverse impacts to cultural resources:

AMM CUL-1: One archaeological resource (CA-ALA-690) is considered eligible for the NRHP and CRHR for purposes of this undertaking and shall be protected by a vertical ESA. No project-related activities (e.g., excavation, trenching, staging, equipment parking) shall take place below the vertical ESA limit. The ESA will be physically delineated on the pavement with bright orange paint to demarcate a 10-foot-wide ESA buffer around CA-ALA-690. The vertical ESA will also be physically delineated with marked paddles or laminated signs on wooden stakes. No construction impacts will be allowed beyond 3 feet below the pavement surface (ground surface) within the marked area. A Caltrans-approved, professionally qualified archaeologist will be onsite to delineate the vertical ESA and to periodically monitor the protective measures.

AMM CUL-2: A Post-Review Discovery Plan, Environmentally Sensitive Area Action Plan, and Monitoring Plan for CA-ALA-690 will be prepared and implemented prior to construction. It describes the actions to be taken to protect archaeological site CA-ALA-690, and other unidentified resources during project construction.

AMM CUL-3 A Caltrans qualified archaeological monitor will monitor all construction activities occurring near the ESA and within an established Archaeological Monitoring Area identified in the Post-Review Discovery Plan, Environmentally Sensitive Area Action Plan, and Monitoring Plan.

2.2 Physical Environment

2.2.1 Hydrology and Floodplain

Regulatory Setting

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

To comply, the following must be analyzed:

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

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

Affected Environment

Hydrology

A *Location Hydraulic Study Report* (May 2018), a *Water Quality Assessment Report* (May 2018), and their addendum reports (November 2018) were prepared for the project. The Alameda County Flood Control and Water Conservation District identifies the study area as being within the Gilman Street, Codornices Creek, and Schoolhouse Creek watersheds as noted on the watershed maps included in the *Location Hydraulic Study Report*. The Gilman Street watershed drains the majority of the study area, including all of the project west of I-80 and most of the project north of Gilman Street. The Schoolhouse Creek watershed drains the south side of Gilman Street between the Eastshore Highway and the UPRR tracks. The Codornices Creek watershed drains the study area along 5th Street north of Harrison Street.

The Federal Emergency Management Agency (FEMA) is the nationwide administrator of the National Flood Insurance Program, which was established to protect lives, property, and reduce the financial burden of providing disaster assistance. In California,

the National Flood Insurance Program is administered by the Department of Water Resources' Division of Flood Management. Local communities have an agreement with both the state and federal government to regulate floodplain development according to criteria and standards outlined in the National Flood Insurance Program.

The Gilman Street watershed consists of the various networks of drainage facilities that connect to the 60-inch reinforced concrete pipe that runs underneath Gilman Street and discharges to San Francisco Bay. This storm drain outfall is low in elevation in relation to the FEMA Zone VE water surface elevation (WSE); therefore, there is the potential for storm drain system performance to be affected during high water. The storm drain system will be analyzed in more detail in a *Drainage Impact Report* prepared during final design. Within the Schoolhouse Creek and Codornices Creek watersheds, runoff is conveyed via storm drains and natural creek channels that ultimately discharge to San Francisco Bay.

No creek, stream, or river crossings are located within the study area. Runoff from the project is collected and conveyed through a system of culverts that ultimately directly discharge to either San Francisco Bay, Codornices Creek, or Schoolhouse Creek. There are no bridges associated with a water body within the study area. The existing I-80 bridge over Gilman Street is identified as Bridge Number 33 0127 and is located at PM 6.62.

Floodplains

Natural and beneficial floodplain values include, but are not limited to, wildlife habitat, scenic beauty, scientific study, outdoor recreation, aquaculture, flood moderation, and groundwater recharge. Coastal floodplains, in particular, provide wildlife habitat for fish, waterfowl, and shorebirds.

A portion of the study area is within the Zone VE floodplain, according to FEMA's Flood Insurance Rate Maps (Numbers 06001C0014H, 06001C0018H, and 06001C0056H), as shown in Figure 2.2.1-1. This is associated with San Francisco Bay. Zone VE represents coastal floodplains subject to flooding and velocity hazard (wave action) by the 1 percent annual chance flood. The Zone VE floodplain is present primarily along the shoreline of the bay (Figure 2.2.1-2). The 100-year WSE in FEMA Zone VE has the potential to inundate the existing storm drain system and reduce storm drain performance. This would result in ponded water in the low-lying areas until water recedes.

Figure 2.2.1-1: FEMA Flood Insurance Rate Map

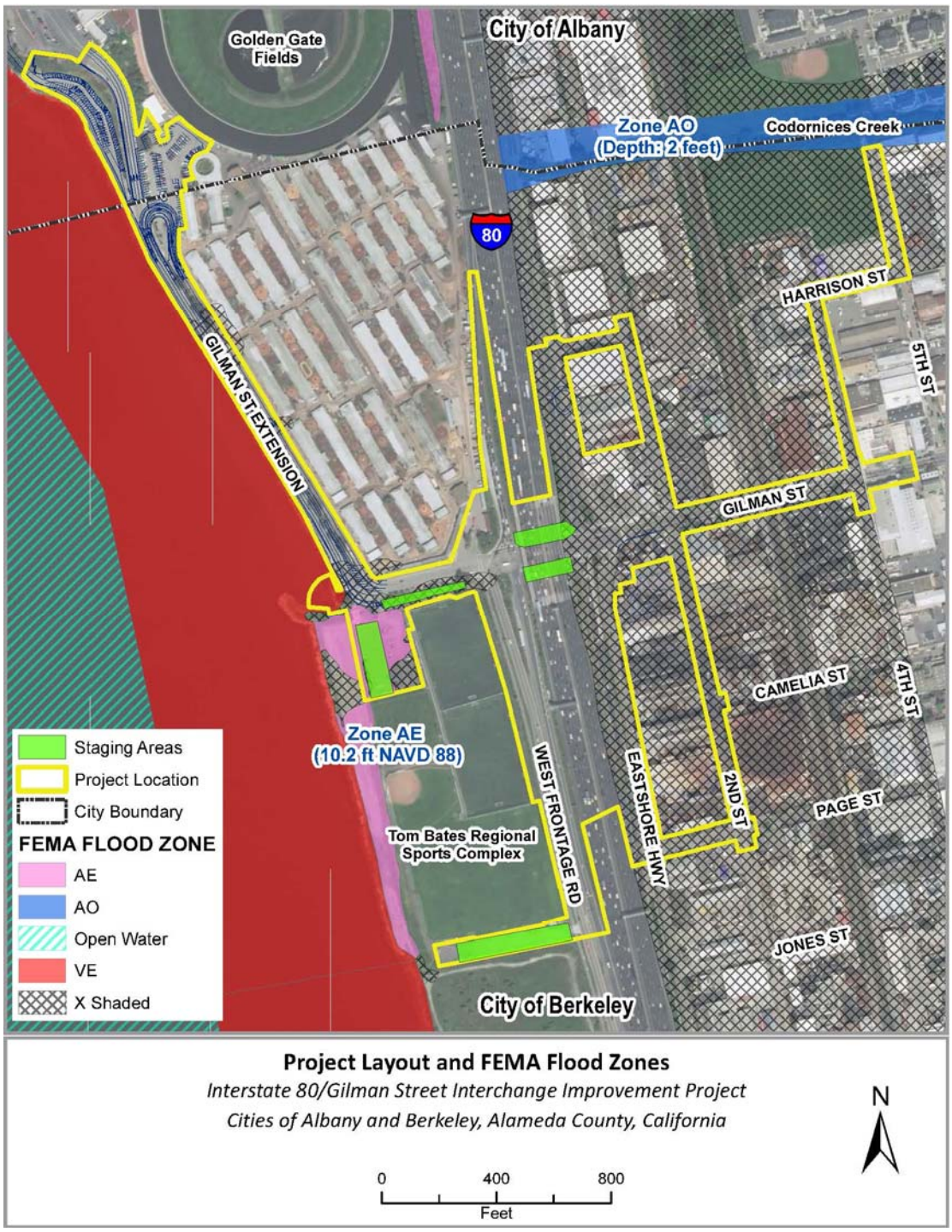

Figure 2.2.1-2: FEMA Zone VE Map with Study Area

Areas east of I-80 are located within the shaded portion of Zone X. This zone represents areas in the 0.2 percent annual chance floodplain. Areas west of I-80 and outside of Zone VE are in the unshaded portion of Zone X, representing areas outside the Special Flood Hazard Area and above the elevation of the 0.2 percent annual chance flood.

Environmental Consequences

Project-Level Impacts

No Build Alternative

The No Build Alternative would not result in any change in the study area's land use or its impervious surface area, or result in any floodplain encroachment.

Build Alternative

The Build Alternative does not propose to change land use in or around the study area. The predominant land use within the study area is industrial. Partial acquisitions of the Tom Bates Regional Sports Complex and the Golden Gate Fields properties are necessary for project completion; however, no businesses or residences would be displaced.

Per the Water Quality Assessment Report (August 2018), the project will add 0.069 acre of impervious area to the existing 16.76 acres of impervious area within the proposed study area. This added impervious area is small in comparison to the San Francisco Bay watershed. In addition, Zone VE is a coastal floodplain where flooding is caused by tidal influence and storm surges rather than channelized runoff (e.g., runoff from streams or canals). Therefore, the proposed increase in impervious area is expected to have a negligible impact on flooding in the study area.

There would be minimal fill placement in the study area. The project proposes to balance cut and fill within Zone AE. Cut and fill quantities will be further determined for Zone VE in the design phase. No cut or fill is proposed within Zone AO. No changes are proposed that would affect the 100-year WSE because Zone VE is a coastal floodplain where flooding is caused by tidal influence and storm surges.

Risk is defined by FHWA as the consequences associated with the probability of flooding attributable to an encroachment. This includes the potential for property loss and hazard of life. The risk associated with implementation of the proposed project is low. Change in land use, impervious surface area, floodplain fill, and the 100-year WSE would be minimal, and the impacts would be negligible. The increase in impervious

surface area has low risk and minimal impact because the project is within Zone VE where flooding is not caused by surface runoff.

FHWA defines a significant encroachment as a highway encroachment, and any direct support of likely base floodplain development, that would involve one or more of the following construction or flood-related impacts: (1) significant potential for interruption or termination of a transportation facility that is needed for emergency vehicles or provides a community's only evacuation route, (2) a significant risk (to life or property), or (3) a significant adverse impact on the natural and beneficial floodplain values (FHWA, 1994). Implementation of the action would not result in a significant floodplain encroachment. The project is not expected to cause any additional traffic interruptions during the base flood. The project's Natural Environment Study (NES) (August 2018) concluded there are no beneficial floodplain values within the project limits. The project would improve the flow of traffic at the interchange, but its design does not encourage incompatible floodplain development. Finally, the project does not constitute a longitudinal encroachment into the floodplain.

The water level of San Francisco Bay has the potential to increase in elevation because of future sea level rise; however, the proposed project would not affect sea level rise. Sea level rise by the year 2040 has the potential to impact a significant portion of the project site. High tide stages and storm surge in conjunction with sea level rise would cause backflow into the 60-inch reinforced concrete pipe storm drain outlet near the bay jetty and into the storm drain system draining Gilman Street and the surrounding area. A tidal flap gate would be installed at this outfall to prevent backflow.

The elevation of the project site (9.0 to 20.0 feet North American Vertical Datum of 1988 [NAVD 88]) is relatively low, and the site would be susceptible to inundation from future sea level rise. There are local low points within the study area. One is located at a drain inlet on the southwestern edge of the westbound traffic circle with an approximate elevation of 10.4 feet. The second low point is located at a drain inlet on the Gilman Street Extension before the ingress/egress point to Golden Gate Fields with an approximate elevation of 9.0 feet. These areas would be especially susceptible to impacts from sea level rise, during the 100-year WSE, due to backflow through their associated drainage systems or from overland tidal inundation. In addition, the road surface elevations and the storm drain inlet elevations around the 2nd Street and Gilman Street intersection range from 10.1 to 10.5 feet NAVD 88. These areas are susceptible to backflow through the storm drain system when accounting for sea level rise.

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

Construction Impacts

No Build Alternative

No construction is associated with the No Build Alternative; therefore, no construction impacts would occur.

Build Alternative

During construction of the Build Alternative, impacts to hydrology and floodplains would be minimized with implementation of the measures described in the Avoidance, Minimization, and/or Mitigation Measures described below.

Avoidance, Minimization, and/or Mitigation Measures

The project does not propose any adverse impacts to the floodplain; therefore, mitigation measures are not necessary for this project. The Build Alternative proposes to avoid blocking coastal flood flows and minimize fill in the floodplain by balancing the cut and fill work in the Zone AE floodplain. Cut and fill quantities will be further determined for Zone VE in the design phase. The project does not propose any structures with the potential to block flows within the Special Flood Hazard Area Zone VE. It is required to prevent flooding from runoff from the design storm, as defined by the *Highway Design Manual* (Caltrans, 2015). To accomplish this, proposed drainage systems will be designed to capture and convey runoff from the design storm in the study area.

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2.2.2 Water Quality and Stormwater Runoff

Regulatory Setting

Federal Requirements: Clean Water Act

In 1972, Congress amended the Federal Water Pollution Control Act, making the addition of pollutants to the waters of the U.S. from any point source[1] unlawful unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. This act and its amendments are known today as the Clean Water Act (CWA). Congress has amended the act several times. In the 1987 amendments, Congress directed dischargers of stormwater from municipal and industrial/ construction point sources to comply with the NPDES permit scheme. The following are important CWA sections:

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

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

[1] A point source is any discrete conveyance such as a pipe or a man-made ditch.

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. Environmental Protection Agency'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 EPA in conjunction with 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 that 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. 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[2] 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 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 least environmentally damaging practicable alternative determination, if any, for the document is included in Section 2.3.2, Wetlands and Other Waters.

State Requirements: Porter-Cologne Water Quality Control Act

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

[2] EPA defines "effluent" as "wastewater, treated or untreated, that flows out of a treatment plant, sewer, or industrial outfall."

Cologne Act are permitted by Waste Discharge Requirements (WDRs) and may be required even when the discharge is already permitted or exempt under the CWA.

The State Water Resources Control Board (SWRCB) and RWQCBs are responsible for establishing the water quality standards (objectives and beneficial uses) required by the CWA and regulating discharges to ensure compliance with the water quality standards. Details about water quality standards in a study 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 these uses. As a result, the water quality standards developed for particular water segments are based on the designated use and vary depending on that use. In addition, the SWRCB identifies waters failing to meet standards for specific pollutants. These waters are then state-listed in accordance with CWA Section 303(d). If a state determines that waters are impaired for one or more constituents and the standards cannot be met through point source or nonpoint source controls (NPDES permits or WDRs), the CWA requires the establishment of Total Maximum Daily Loads. Total Maximum Daily Loads specify allowable pollutant loads from all sources (point, nonpoint, 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, Total Maximum Daily Loads, 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 stormwater discharges, including 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 stormwater, that is designed or used for collecting or conveying stormwater." The SWRCB has identified Caltrans as an owner/operator of an MS4 under federal regulations. Caltrans' MS4 permit covers

all Caltrans rights-of-way, properties, facilities, and activities in the state. The SWRCB or the RWQCB issues NPDES permits for 5 years, and permit requirements remain active until a new permit has been adopted.

Caltrans' MS4 Permit (Order No. 2012-0011-DWQ) was adopted on September 19, 2012 and became effective on July 1, 2013. It was amended by Order No. 2014-0006-EXEC (effective January 17, 2014), Order No. 2014-0077-DWQ (effective May 20, 2014), Order No. 2015-0036-EXEC (conformed and effective April 7, 2015), and Order No 2017-0026-EXEC (effective November 27, 2017). The permit has four basic requirements:

1. Caltrans must comply with the requirements of the Construction General Permit (CGP) (see below);
2. Caltrans must implement a year-round program in all parts of the state to effectively control stormwater and non-stormwater discharges; and
3. Caltrans stormwater discharges must meet water quality standards through implementation of permanent and temporary (construction) BMPs, to the Maximum Extent Practicable, and other measures as the SWRCB determines to be necessary to meet the water quality standards.
4. Caltrans must comply with trash reduction requirement per CT Statewide Stormwater NPDES permit – Attachment V – Specific Region Requirement: San Francisco Bay Area.

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

Construction General Permit

The CGP (Order No. 2009-0009-DWQ) was adopted on September 2, 2009, and became 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 stormwater discharges from construction sites that result in a Disturbed Soil Area (DSA) of 1 acre or greater, and/or are smaller sites that are part of a larger common plan of development. By law, all stormwater discharges associated with construction activity where clearing, grading, and excavation result in soil disturbance of at least 1 acre must comply with the provisions of the CGP. Construction activity that results in soil disturbances of less than 1 acre is subject to this CGP 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 Stormwater Pollution Prevention Plans (SWPPP); implement sediment, erosion, and pollution prevention control measures; and obtain coverage under the CGP.

The CGP separates projects into Risk Levels 1, 2, or 3. Risk levels are determined during the planning and design phases, and they 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 stormwater 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' Standard Specifications, a Water Pollution Control Program 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 be in compliance with State water quality standards. The most common federal permit triggering 401 Certification is a CWA Section 404 permit, which is issued by USACE. The 401 permit certifications are obtained from the appropriate RWQCB, dependent on the project location, and are required before 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 permanent and temporary discharges of a project.

Regional and Local Requirements

RWQCB Basin Plan

The project is within jurisdiction of the San Francisco Bay RWQCB, Region 2. The *San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)* (2015) states the goals and policies, beneficial uses, and water quality objectives that apply to water bodies throughout the San Francisco Bay region, which includes the study area. The Basin Plan has been adopted by the SWRCB, EPA, and Office of Administrative Law.

MS4

The project would include work along Gilman Street, Harrison Street, 2nd Street, 4th Street, 5th Street, Page Street, Eastshore Highway, West Frontage Road, and Buchanan Street Extension, which are within the City of Berkeley's urban area and are covered under the San Francisco Bay Municipal Regional Permit (MRP), Order No. R2-2015-0049. Work within Golden Gate Fields is within the City of Albany's urban area, which is also covered by the MRP. The Alameda County Clean Water Program developed the *C.3 Stormwater Technical Guidance* (2016) to summarize the requirements of the MRP and provide guidance for low-impact development design strategies and specific BMP selection criteria. This manual provides technical guidance for project designs that require implementation of permanent stormwater BMPs throughout Alameda County. Placement of stormwater treatment BMPs within the City of Berkeley's right-of-way would comply with the guidance document.

Affected Environment

A *Water Quality Assessment Report* (August 2018), Addendums to the *Water Quality Assessment Report* (November 2018 and May 2019), a *Storm Water Data Report* (August 2018), and an Addendum to the *Storm Water Data Report* (June 2019) were prepared for the proposed project.

Regional and Local Hydrology

Per the *Water Quality Assessment Report*, the study area is mostly within an undefined Hydrologic Sub-Area (#203.30) of the Berkeley Hydrologic Area and Bay Bridges Hydrologic Unit. A portion of the Gilman Street Extension lies within an undefined Hydrology Sub-Area (#203.10) of the Bay Waters Hydrologic Area and Bay Bridges Hydrologic Unit.

The Alameda County Flood Control and Water Conservation District identifies the study area as within the Gilman Street, Codornices Creek, and Schoolhouse Creek watersheds. The Gilman Street watershed drains most of the study area, which includes areas west of the I-80 eastbound on- and off-ramps and most of the study area north of Gilman Street. The Codornices Creek watershed drains the portion of the study area along 5th Street north of Harrison Street. The Schoolhouse Creek watershed drains the study area on the south side of Gilman Street between Eastshore Highway and the UPRR tracks.

There are no creeks, streams, or river crossings within the study area. Runoff from the study area is collected and conveyed through a system of storm drains that ultimately discharge into one of three receiving waters: San Francisco Bay, Codornices Creek, or Schoolhouse Creek. Codornices Creek is adjacent to the northern border of the study area. It crosses under I-80 at approximately PM 6.91. Schoolhouse Creek is also located outside the study area. It runs under Virginia Street and crosses under I-80 at approximately PM 6.15.

Municipal Supply

No drinking water reservoirs or recharge facilities were identified within the study area. None of the potential receiving waters have been identified as having beneficial uses for municipal or domestic water supply.

Groundwater Hydrology

The project lies within the East Bay Plain sub-basin of the Santa Clara Valley groundwater basin (Basin No. 2-9.04). The existing beneficial uses of this sub-basin include municipal and domestic, industrial process and service, and agricultural water supplies. Available data indicate groundwater to be encountered approximately 7 to 8 feet below ground elevations.

Existing Water Quality

Per the *Water Quality Assessment Report*, two waterbodies within the study area are on the CWA 303(d) list of water quality limited segments: Codornices Creek and San Francisco Bay (Central). Codornices Creek is listed as impaired for temperature and trash. The San Francisco Bay (Central) has 11 listed impairments: chlordane, dichlorodiphenyltrichlorethane (DDT), dieldrin, dioxin compounds, furan compounds, invasive species, mercury, PCBs, dioxin-like PCBs, selenium, and trash.

Environmental Consequences

Project-Level Impacts

No Build Alternative

There would be no construction under the No Build Alternative; therefore, no permanent water quality impacts would occur.

Build Alternative

Within the study area, existing drainage facilities are expected to be modified (or removed) and new drainage features installed to convey runoff. A tidal flap gate is proposed at the Gilman Street outfall. This would reduce tidal backwater flow from entering the study area. The proposed project is expected to have minimal impacts to the physical characteristics of the aquatic environment. The project would not alter the greater existing drainage pattern of the watersheds in which it is located. Proposed drainage facilities would remain connected to the existing outfalls to San Francisco Bay, Codornices Creek, and Schoolhouse Creek.

Permanent impacts to water quality are anticipated due to the added impervious area, which would prevent runoff from naturally dispersing and infiltrating into the ground resulting in increased concentrated flow. However, this increase in runoff is anticipated to be minimal due to the small size of the added impervious areas (Table 2.2.2-1). Additionally, impacts from runoff would be minimized through implementation of permanent stormwater treatment measures.

Table 2.2.2-1: Build Alternative Disturbed Soil Area and Impervious Areas

Project Right-of-Way	DSA [a] (acres)	Existing Impervious Area (acres)	Added Impervious Area (acres)	Removed Impervious Area (acres)	RIS[b] (acres)	NIS[c] (acres)
Caltrans	5.59	3.73	0.44	0.66	3.10	2.88
City of Berkeley	3.18	7.90	0.25	0.09	2.55	2.80[d]
City of Albany (Golden Gate Fields)	0.27	5.13	0.002	0.14	0.13	0.13[d]
Total	9.04	16.76	0.69	0.89	5.78	5.81

[a] Disturbed Soil Area (DSA)
[b] Replaced impervious surface (RIS)
[c] New impervious surface (NIS)
[d] The MRP quantifies added and replaced impervious areas for treatment goals and does not take into account of removed impervious area.

Hydromodification is the alteration of the natural flow of water through a landscape. Alterations can include changes in land use or cover. Although the proposed project would add impervious area compared to the existing condition, hydromodification impacts are anticipated to be minimal. This is due to the study area's location within an area that is tidally influenced or primarily depositional.

Heavy metals, oil and grease, and exhaust emissions are the primary pollutants associated with transportation corridors. Generally, stormwater runoff from roadways has the following pollutants: total suspended solids, nitrate nitrogen, total Kjeldahl nitrogen, phosphorus, ortho-phosphate, copper, lead, and zinc. These pollutants are dispersed from combustion of fossil fuels and the wearing of brake pads and tires. The proposed project is expected to ease traffic congestion, leading to less pollutant deposition from exhaust from braking.

Permanent erosion control measures would be installed in all exposed areas once grading or soil disturbance work is completed to achieve final stabilization. For example, seed, mulch, compost, and tackifiers may be hydraulically applied to promote vegetation establishment. Erosion control blankets and fiber rolls may also be employed to promote permanent stabilization.

An existing bioinfiltration strip is located along the eastbound Gilman Street off-ramp from PM 6.2 to 6.4. No work is proposed in that area. In addition to bioretention area basins, media filters and tree well filters will be considered during project design. Treatment of pollutant-laden runoff through these measures would reduce potential water quality impacts to receiving waters. BMP selection will be refined as project design progresses. The *Stormwater Data Report* (August 2018) provides conceptual BMP locations within the study area and the treatment area associated with each measure.

The project proposes modifications to coastal/estuarine areas in San Francisco Bay for the installation of the tidal flap gate at the Gilman Street outfall. This would result in permanent impacts to San Francisco Bay. Beach sediment downstream of the outfall may be removed during construction. Subsequent sediment deposition during typical tidal cycles would replenish this sediment over time, resulting in no permanent impacts to storm, wave, and erosion buffers within the study area. The existing headwall and rock slope protection would be partially removed and replaced.

There are no natural sources of water supply identified within the study area, so no permanent impacts are anticipated. Any manmade water supplies (e.g., potable or

nonpotable water lines) would be protected in place or relocated in accordance with the project plans and specifications developed during the design phase.

Recreational fishing in San Francisco Bay may be allowed along the Gilman Street shoreline. Commercial fisheries, managed by the National Oceanic and Atmospheric Administration (NOAA), are also located within the bay. Installation of the tidal flap gate may result in impacts to fisheries and aquatic habitat. Consultation and coordination with NOAA are detailed in Section 4.2.2, National Oceanic and Atmospheric Administration. Impacts would be avoided using standard construction site BMPs. Access to the shoreline would be maintained during construction, although temporary lane or road closures could create delays for those attempting to access the shoreline from Gilman Street.

Construction Impacts

No Build Alternative

There would be no construction with the No Build Alternative; therefore, no construction impacts would occur.

Build Alternative

Temporary water quality impacts can result from sediment discharge from DSAs and construction near water resources or drainage facilities. Estimates for DSAs are listed in Table 2.2.2-1. These DSA values would be refined during the design phase once the limits of grading and proposed improvements, construction staging, construction access, and final roadway geometry have been developed.

Proposed grading and excavation activities would have the potential to increase erosion, resulting in elevated turbidity of stormwater runoff. The project would disturb an estimated 9.04 acres of soil during construction. Sediment-laden runoff could enter storm drainage facilities that discharge into receiving waters. This would potentially impact the beneficial uses of the bay. Additional sources of sediment include stockpiles, construction staging areas, and construction equipment not properly maintained or cleaned.

Impacts from sediment-laden stormwater would be minimized through proper implementation of pollution prevention and treatment BMPs. This project was rated as Risk Level 2. Therefore, in addition to implementation of standard construction site BMPs, the contractor would be required to perform quarterly non-storm discharge water visual inspections and rain event visual inspections. The project would also be

required to implement Rain Event Action Plans and comply with Numeric Action Level effluent limits for pH and turbidity.

A temporary clear water diversion system may be necessary for the work at the Gilman Street outfall. Design and management of this system would adhere to Caltrans' Standard Specifications. The installation and removal of this system may disturb the substrate of San Francisco Bay. This would result in increased turbidity during high tide and a degradation of water quality. Water quality monitoring would be performed during and after installation and removal of the system to document changes in turbidity in compliance with water quality standards and permits. Therefore, impacts from this system would likely be temporary, minimal, and localized.

Information on agency consultation and coordination, including USACE, SWRCB, and RWQCB, can be found in Section 4.2, Consultation and Coordination.

If fueling or maintenance of construction vehicles occurs within the study area during construction, there is a risk of accidental spills or releases of fuels, oils, or other potentially toxic materials. An accidental release of these materials may pose a threat to water quality if contaminants enter storm drains, open channels, or receiving water bodies. The magnitude of the impact from an accidental release depends on the amount and type of material spilled. A spill prevention and control plan would be implemented during construction to avoid and minimize any potential spill impacts.

Proposed excavations within the study area would likely encounter groundwater. Dewatering would be needed at these locations and would comply with the Caltrans' Standard Specifications and Field Guide to Construction Site Dewatering. If required, a separate dewatering permit would also be obtained prior to the start of construction. Both actions would avoid or limit potential impacts to groundwater.

Minimal impacts are anticipated to human use of the aquatic environment during construction. Access to the bay and its recreational uses would be maintained during construction, although temporary lane or road closures could create delays for those attempting to access the bay from Gilman Street. Temporary staging areas within Tom Bates Regional Sports Complex would be returned to preconstruction conditions.

Project Features

The following project features would be implemented as part of the Build Alternative:

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. Permanent erosion control BMPs will be implemented prior to, during, and after construction to prevent silt and sediment from entering drainage facilities and discharging to the bay.

PF WQ-2: The design features to address water quality impacts are a condition of the Caltrans MS4 Permit, MRP, CGP, and other regulatory agency requirements. Details for these design features or BMPs will be developed and incorporated into the project design and operations prior to project startup. With proper implementation of these design features or BMPs, short-term construction-related water quality impacts and permanent water quality impacts will be avoided or minimized.

Project Construction

PF WQ-3: The CGP, Caltrans, and local standards require the project's contractor to implement an SWPPP to comply with the conditions of the CGP. The SWPPP will be submitted by the contractor and approved by Caltrans prior to the start of construction. The SWPPP will detail the measures needed to prevent temporary water quality impacts resulting from construction activities. The SWPPP will also include development of a Construction Site Monitoring Program that details procedures and methods related to the visual monitoring, sampling, and analysis plans.

PF WQ-4: Prior to any soil disturbance, a Notice of Intent will be filed with the SWRCB's Storm Water Multiple Application and Report Tracking System. In addition to filing a Notice of Intent, all dischargers must electronically file Permit Registration Documents, Notice of Termination, changes of information, sampling and monitoring information, annual reporting, and other required compliance documents through the SWRCB's 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. Typical construction site BMPs that shall be considered for this project are listed in Table 2.2.2-2. The selected BMPs are consistent with the practices required under the CGP. The actual minimum temporary construction site BMPs necessary for the project to comply with the CGP, Caltrans, and local standards will be determined during the design phase.

Table 2.2.2-2. Temporary BMPs

Temporary BMP	Purpose
Soil Stabilization	
Move-In/Move-Out	Mobilization locations where permanent erosion control or revegetation to sustain slopes is required within the project
Temporary Cover	Plastic covers for stockpiles
Sediment Control	
Temporary Fiber Rolls	Degradable fibers rolled tightly and placed on the toe and face of slopes to intercept runoff
Temporary Silt Fence	Linear, permeable fabric barriers to intercept sediment-laden sheet flow that are placed downslope of exposed soil areas, along channels, and the project's perimeter
Temporary Drainage Inlet Protection	Runoff detainment devices used at storm drain inlets that are subject to runoff from construction activities
Tracking Control	
Temporary Construction Entrances/Exits	Points of entrance/exit to a construction site that are stabilized to reduce the tracking of mud and dirt onto public roads
Street Sweeping	Removal of tracked sediment to prevent them entering a storm drain or water body
Non-Stormwater Management	
Dewatering Operations	Dewatering activities associated with stormwater and non-stormwater to prevent the discharge of pollutants from construction site
Clear Water Diversion	System designed to intercept and divert surface water upstream around a construction area and discharge downstream with minimal water quality impacts.
All other anticipated non-stormwater management measures are covered under Job Site Management.	
Waste Management and Materials Pollution Control	
Temporary Concrete Washout Facilities	Specified vehicle washing areas to contain concrete waste materials
All other anticipated waste management and materials pollution control measures are covered under Job Site Management.	

Table 2.2.2-2. Temporary BMPs

Job Site Management	
General measures covered under job site management include: • Spill prevention and control • Materials management • Stockpile management • Waste management • Hazardous waste management • Contaminated soil • Concrete waste • Sanitary and septic waste and liquid waste	Non-storm water management consists of: • Water control and conservation • Illegal connection and discharge detection and reporting • Vehicle and equipment cleaning • Vehicle and equipment fueling and maintenance • Paving, sealing, saw cutting, and grinding operations • Thermoplastic striping and pavement markers • Concrete curing and concrete finishing
Miscellaneous job site management includes: • Training of employees and subcontractors on site BMPs	

Dewatering activities will be necessary for installation of the tidal flap gate. Dewatering may also be necessary due to the shallow groundwater.

PF WQ-6: Dewatering activities and the clean water diversion will comply with the Caltrans Standard Specifications and Field Guide to Construction Site Dewatering, and, if required, a separate dewatering permit will be obtained prior to the start of construction.

PF WQ-7: A spill on the roadway will trigger immediate response actions to report, contain, and mitigate the incident. The California Office of Emergency Services has developed a Hazardous Materials Incident Contingency Plan, which provides a program for response to spills involving hazardous materials. The plan designates a chain of command for notification, evacuation, response, and cleanup of spills.

Permanent Design Pollution Prevention Measures

Permanent design pollution prevention measures are a combination of drainage and erosion control practices to ensure that permanent water quality and stormwater impacts are minimized.

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 rilling or scouring.

These drainage design features will be further considered and incorporated as appropriate during the design phase.

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. These measures may include hydraulically applying a combination of hydroseed, hydromulch, straw, tackifier, and compost to promote vegetation establishment and installing fiber rolls to prevent sheet flow from concentrating and causing gullies. For steeper slopes or areas that may be difficult for vegetation to establish, measures such as netting, blankets, or slope paving can be considered to provide permanent stabilization.

Permanent Stormwater Treatment Measures

This project is required to implement treatment BMPs within Caltrans right-of-way because the proposed improvements result in the creation or replacement of more than 1 acre of impervious area. The treatment BMP strategy for areas within Caltrans right-of-way will comply with the Caltrans MS4 Permit. The permit states that treatment must be designed according to the following priorities, in the following order of preference:

i. Infiltrate, harvest and reuse, and/or evapotranspire the stormwater runoff
ii. Capture and treat the stormwater runoff

PF WQ-11: This project is required to implement post-construction stormwater controls within the City of Berkeley's right-of-way and City of Albany's right-of-way because the proposed improvements are a road project that creates 10,000 square feet (0.23 acre) or more of newly constructed contiguous impervious surface.

PF WQ-12: The proposed added impervious area is minimal; therefore, the potential increase in sediment-laden flows is expected to be minimal. Existing drainage facilities are expected to be modified or removed and new drainage features installed to convey runoff. The MRP

prioritizes the use of low-impact development measures for stormwater treatment controls. These measures are 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.

Caltrans has an approved list of treatment BMPs that have been studied and verified to provide pollutant removal from stormwater. All BMPs would be installed with impermeable liners to reduce potential groundwater contamination. The goal of the proposed project is to treat the 2.88 acres of new impervious surface within Caltrans right-of-way. The proposed Build Alternative would treat 3.94 acres of impervious area and 0.45 acre of pervious area within Caltrans right-of-way. Therefore, the project would provide full treatment. BMPs will be refined as design progresses. There are existing treatment BMPs within the limits of the project that will need to be protected during construction and the impervious watershed flowing to these BMPs maintained.

PF WQ-13: Given the site and design limitations, other conventional-type treatment measures that capture and treat stormwater runoff may need to be considered for this project; these devices can include basins, media filters, or tree well filters. In coordination with Caltrans, the City of Berkeley, and the City of Albany, nonstandard treatment measures will also be considered, such as the use of low-flow pumps to convey runoff to a treatment facility. 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.

PF WQ-14: The potential for adverse effects to water quality will be avoided by implementing temporary and permanent BMPs outlined in the Caltrans *Construction Site Best Management Practices Manual* (Caltrans, 2017). Caltrans erosion-control BMPs will be used to minimize any wind- or water-related erosion. This manual is comprehensive and includes many other protective measures and guidance to prevent and minimize pollutant discharges. Protective measures will be included in the contract documents, including, at a minimum:

- No discharge of pollutants from vehicles and equipment cleaning will be allowed into the storm drain or water courses.
- Vehicle and equipment fueling and maintenance operations must be at least 50 feet away from water courses and storm drain inlets.
- Dust control will be implemented, including the use of water trucks and tackifiers to control dust in excavation and fill areas, applying drain rock to temporary access road entrances and exits, and covering temporary stockpiles when weather conditions require.
- Work areas where temporary disturbance has removed pre-existing vegetation will be restored and reseeded with a native seed mix.
- Graded areas will be protected from erosion using a combination of silt fences, biodegradable fiber rolls along the toe of slopes or along edges of designated staging areas, and erosion-control biodegradable netting such as jute or coir, as appropriate. Biodegradable fiber rolls will be installed along or at the base of slopes during construction to capture sediment, and temporary organic hydromulching will be applied to all unfinished disturbed and graded areas. Installation of BMPs with monofilament netting is strictly prohibited.
- A water quality inspector will inspect the site before and after a qualifying rain event to ensure that stormwater BMPs are adequate. A rain event is defined to be any storm that produces or is forecasted to produce at least 0.50 inch of precipitation at the time of discharge, with a 72-hour dry period between events.
- A cofferdam and dewatering will be used to minimize increases in sediment transport and turbidity during work performed within San Francisco Bay. Cofferdams will conform to Caltrans 2018 Standard Specifications Section 19-3.01, and dewatering will be in accordance with "Caltrans Storm Water Quality Handbooks, March 1, 2003" Section 7: Construction Site Best Management Practices Manual - Clear Water Diversion NS-5. If surface water or groundwater inflows are present, a dewatering system will be installed in order to perform work within the cofferdam.

Avoidance, Minimization, and/or Mitigation Measures

The Build Alternative will require a 404 permit from USACE and a 401 Water Quality Certification from the San Francisco Bay RWQCB. Because of this, the Caltrans District Biologist must document that the identified project features and avoidance and

minimization measures for the project have been followed. In addition, the following measures resulted from agency coordination between the draft and final environmental document. These will be implemented to minimize potential impacts related to water quality:

AMM WQ-1: Disturbed areas will be restored with the following methods:

- All slopes or unpaved areas temporarily affected by the proposed project outside of the sediment grading area will be restored to original topography and stabilized with effective erosion control materials. The permanent postconstruction topography of the sediment grading area will be at a lower elevation due to excavation of sediment; this area will be stabilized following construction.
- Slopes and bare ground will be reseeded with native plant seed mix to stabilize and prevent erosion, where appropriate.

AMM WQ-2: Turbidity monitoring will be performed during all in-water work, which includes grading the shoreline, removal and replacement of the rock slope protection, during and after installation and removal of the cofferdam, as well as during dewatering activities according to Standard Specification 13-1.01D(5)(b) Water Quality Sampling and Analysis. Water quality monitoring will be performed to document changes in turbidity in compliance with water quality standards, permits, and approvals from NOAA Fisheries and/or CDFW.

2.2.3 Geology/Soils/Seismicity/Topography

Regulatory Setting

For geologic and topographic features, the key federal law is the Historic Sites Act of 1935, which establishes a national registry of natural landmarks and protects "outstanding examples of major geological features." Topographic and geologic features are also protected under 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 Caltrans' Seismic Design Criteria. The Seismic Design Criteria provides the minimum seismic requirements for highway bridges designed in California. A bridge's category and classification will determine its seismic performance level and which methods are used for estimating the seismic demands and structural capabilities. For more information, please see Caltrans' Division of Engineering Services, Office of Earthquake Engineering, Seismic Design Criteria.

Affected Environment

This section references findings from the *Preliminary Geotechnical Design Recommendations for I-80/Gilman Interchange Technical Memorandum* (April 2016), *Preliminary Foundation Report Pedestrian Overcrossing* (May 2018), *Location Hydraulic Study Report* (May 2018), *Location Hydraulic Study Addendum Report* (November 2018), *Water Quality Assessment Report* (August 2018), *Water Quality Assessment Report Addendum* (November 2018), and *Paleontological Identification/Evaluation Report* (June 2018).

Topography

The study area is relatively flat, sloping from east to west towards San Francisco Bay. Within the study area, the San Francisco Bay shoreline is reinforced with large boulders (rock slope protection). Along Gilman Street, the elevations in NAVD 88 range from approximately 12 feet west of West Frontage Road to 14 feet at the I-80 eastbound ramp intersection. I-80 is elevated on fill north and south of Gilman Street and crosses over Gilman Street in an elevated bridge structure with a vertical clearance of approximately 15 feet.

Geology/Soils

The project is located within the eastern edge of San Francisco Bay on a gently sloping southwesterly trending alluvial plain. The alignment is situated in the flats west of the East Bay Hills, which are part of the California Coast Range Geomorphic Province.

The project site is underlain by artificial fill, beach ridge deposits, and alluvial fan and fluvial deposits (see Figure 2.2.3-1). Artificial fill (Historic) consists of man-made deposits of various materials and ages. Artificial fill overlies alluvial fan and fluvial deposits (Holocene and late Pleistocene). These deposits consist of alluvial fan, sand, and clay from valley areas. Beach ridge deposits (Holocene) consist of well-sorted sands. The site is underlain by Quaternary-aged Bay Mud and alluvial gravel, sand, and clay. San Francisco Bay Mud is described as silty, clayey, sandy with small lenses of sand and contains shells and organic material, which in some places is abundant enough to form thin layers of peat.

Seismic Conditions

The proposed project is in a seismically active area of California. Many faults located near the project improvements can produce earthquakes that may cause strong ground shaking. Table 2.2.3-1 presents the maximum earthquake magnitudes of faults near the I-80 corridor.

Table 2.2.3-1: Maximum Magnitude of Earthquake Faults Located in the Study Area

Fault	Closest Distance from I-80 (in miles)	Maximum Magnitude of Earthquake
Hayward Fault Zone (Northern Section)	2.4	7.3
Southhampton Fault	5.6	6.3
San Andreas Fault Zone (Peninsula Section)	15.6	7.9
San Andreas Fault Zone (North Coast Section)	16.6	7.9

Sources: I-80 Integrated Corridor Mobility IS/EA, 2011; and Preliminary Foundation Report Pedestrian Overcrossing, May 2018.

Liquefaction Susceptibility

Due to the seismically active nature of the proposed project site, liquefaction potential was evaluated for the proposed site's soils. Soil liquefaction occurs when saturated or partially saturated soil substantially loses strength and stiffness in response to applied stress, such as shaking during an earthquake, causing the soil to behave like a liquid.

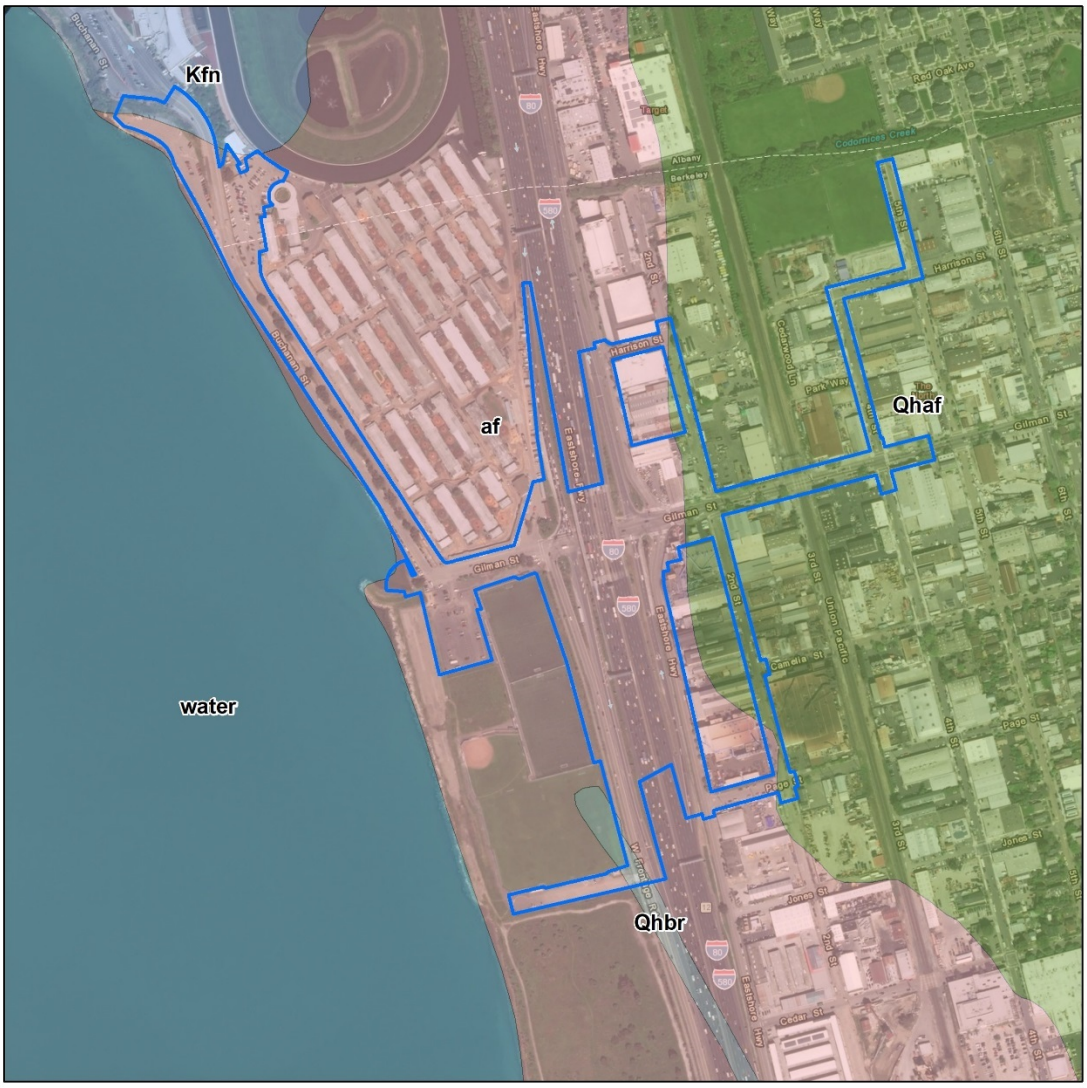
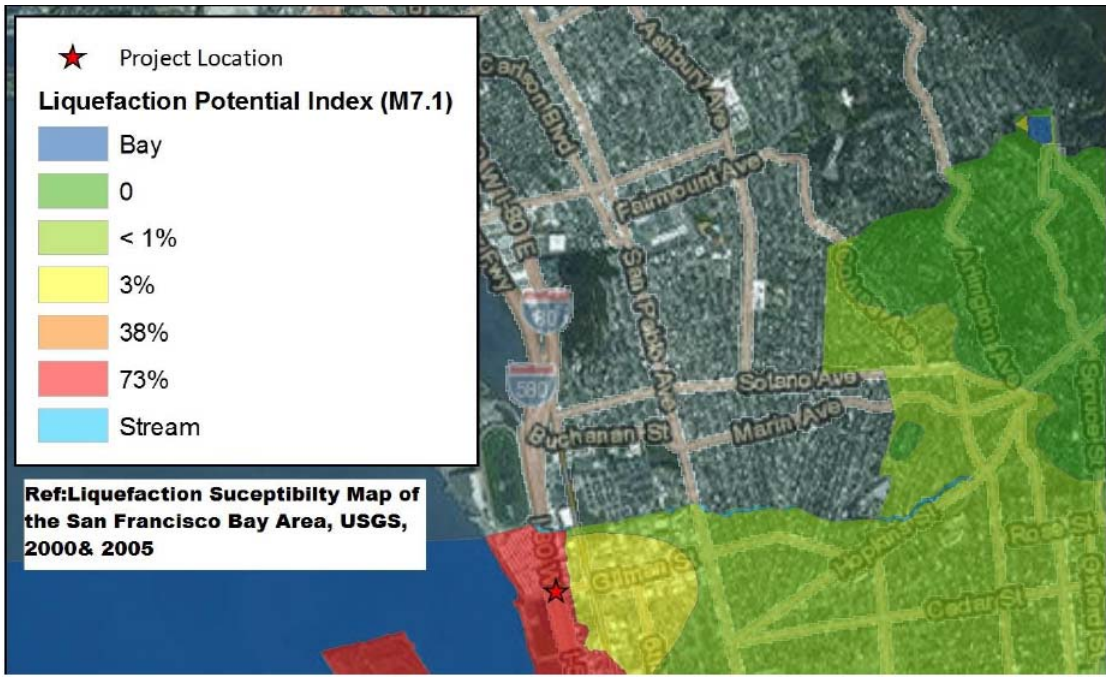


Figure 2.2.3-1: Geologic Map

In 2016, the study area was evaluated for liquefaction potential by using available as-built soils information and published geological hazards mapping. The results show that the project lies within the limits of a region mapped as high liquefaction potential (see Figure 2.2.3-2).



Source: Preliminary Geotechnical Design Recommendations for I-80/Gilman Interchange Technical Memorandum, April 2016.

Figure 2.2.3-2: Liquefaction Potential

However, the as-built logs of test borings show the site to be underlain by approximately 10 feet of fill over 10 feet of bay mud and then soft to stiff clays. It is anticipated that any liquefaction potential would be limited to the upper 20 feet of the site soils, and it is in these areas where any remediation is anticipated to be necessary to construct the project.

Groundwater

The project lies within the East Bay Plain sub-basin of the Santa Clara Valley groundwater basin (Basin No. 2-9.04). This sub-basin has existing beneficial uses for municipal and domestic, industrial process and service, and agricultural water supplies. The available as-built log of test borings identifies groundwater was encountered approximately 7 to 8 feet below current grade (WRECO, 2017).

Runoff from the project is collected and conveyed through a system of culverts that ultimately directly discharge to either San Francisco Bay or Schoolhouse Creek; the

creek is located outside the project limits and runs underneath Virginia Street, crossing I-80 at approximately PM 6.1.

Ground Surface Rupture

The project site lies adjacent to an Alquist-Priolo Earthquake Fault Zone; however, the site is situated approximately 2.4 miles southwest of the Hayward Fault Zone (Northern Section), which is a mapped Alquist-Priolo Earthquake Fault Zone. No faults have been mapped as crossing or trending towards the site. Surface rupture due to faulting within the project site is not anticipated to occur unless an unknown fault were to rupture.

Seismic Shaking

A seismic study was performed to develop seismic design parameters for the proposed bridge design because it is susceptible to potential shaking hazards. Following the Caltrans Seismic Design Criteria Version 1.7, (Caltrans, 2013), Memos to Designer Section 20, and design tools outlined in the Caltrans *Methodology for Developing Design Response Spectrum for Use in Seismic Design Recommendation, November 2012*, a seismic analysis was performed for this structure to develop seismic design parameters and identify potential seismic hazards such as liquefaction or lateral spreading.

Environmental Consequences

Project-Level Impacts

No Build Alternative

There would be no impact to geologic resources under the No Build Alternative.

Build Alternative

Grading would not affect any designated natural landmarks because there are no officially designated natural landmarks or other major geological features within the study area. The project site has no known history of subsidence, rock falls/ landslides, or embankment failures due to seismic activity, and none were observed during limited field observations and review of available published seismic hazards for the study area. The site is generally level; therefore, natural slope seismic instability does not appear to be an issue within the project limits. Fault rupture potential is remote, and the risk of secondary seismic hazards is generally low. The primary seismic hazards at the site are strong shaking and liquefication.

Faulting and Seismicity

Earthquakes could lead to ground-shaking hazards in the study area. Using Caltrans seismic design procedures would ensure the structural integrity of structures and reduce hazards to the traveling public during a major earthquake in the region. The proposed project would not increase the risk of exposing people or structures to potential adverse effects because of seismic activities or seismic-related ground failure beyond the existing level already present with the interchange.

Liquefaction

Based on the available as-built soils information, the project site is underlain by potentially liquefiable soils in the upper 15 to 20 feet. At this level of study for cost determination purposes, either the foundations should be placed below the potentially liquefiable soils or ground improvement installed to provide lateral resistance for the foundation elements. Foundations for the pedestrian and bicycle overcrossing would be located on cast-in-drilled-hole piles 120 feet below the existing ground surface. Retaining walls for the pedestrian bridge will be excavated 50 feet below the ground surface.

Groundwater

Groundwater is encountered between 7 to 8 feet below current grade, which is in agreement with the California Department of Water Resources-published groundwater depths and with water levels in San Francisco Bay, which is just to the west. Any permanent cuts below this depth would need controls in place to deal with this permanent groundwater, and this groundwater is anticipated to fluctuate significantly with large tidal movements.

Ground Surface Rupture

Surface rupture due to faulting within the project site is not anticipated to occur unless an unknown fault were to rupture.

Seismic Shaking

Although the project is in a seismically active region, it is not expected to contribute to any seismic shaking/ground motion that may occur. There is no expected seismic shaking as a result of either project construction or operation. Earthquakes could lead to ground-shaking hazards in the study area. Using Caltrans seismic design procedures would ensure the structural integrity of structures and reduce hazards to the traveling public during a major earthquake in the region.

Construction Impacts

No Build Alternative

There would be no construction with the No Build Alternative; therefore, no construction impacts would occur.

Build Alternative

No adverse impacts on geology, soils, seismic, or topography are anticipated during construction.

Avoidance, Minimization, and/or Mitigation Measures

All project components will be designed in accordance with standard engineering practices and Caltrans standard specifications. Because no substantial adverse effects under NEPA or significant impacts under CEQA would occur related to geology, soils, topography, and seismicity, no avoidance, minimization, and/or mitigation measures are required. Site-specific subsurface soil conditions and groundwater conditions within the project site will be verified during the project's final design phase.

As described in Section 2.2.2, Water Quality and Stormwater Runoff, erosion control measures will be implemented during construction activities in accordance with the BMPs outlined in the SWPPP. Protective measures will reduce soil erosion and minimize impacts to water quality.

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2.2.4 Paleontology

Regulatory Setting

Paleontology is a natural science focused on the study of ancient animal and plant life as it is preserved in the geologic record as fossils.

A number of federal statutes specifically address paleontological resources, their treatment, and funding for mitigation as a part of federally authorized projects.

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

23 U.S.C. 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 U.S.C. 431-433 above and state law.

Under California law, paleontological resources are protected by CEQA.

Affected Environment

This section summarizes the *Paleontological Identification/Evaluation Report* (June 2018). The project site is underlain by artificial fill (af, Historic), beach ridge deposits (Qhbr, Holocene), alluvial fan and fluvial deposits (Qhaf, Holocene and late Pleistocene), and sandstone of the Novato Quarry terrane (Kfn, Late Cretaceous); these deposits are shown in Figure 2.2.4-1.

Artificial fill consists of man-made deposits of various materials and ages. Artificial fill overlies Holocene and/or late Pleistocene bay margin deposits. Depending on location within the project limits, artificial fill could be 0 to 10 feet thick.

Beach ridge deposits consist of a long, narrow ridge of probably well-sorted sand. Most of this deposit is located between Berkeley and Emeryville, most of which is now beneath the roadbed of I-80. The depth to the base of beach ridge deposits is unknown within the project limits.

Alluvial fan and fluvial deposits consist of sand and clay deposited in valley areas. The deposits are present at the eastern end of the project limits and likely underlie most of the artificial fill that predominates the rest of the project limits. The transition from Holocene deposits to late Pleistocene deposits could be between 20 and 30 feet below ground surface. The depth to the base of Pleistocene deposits in the project limits is unknown.

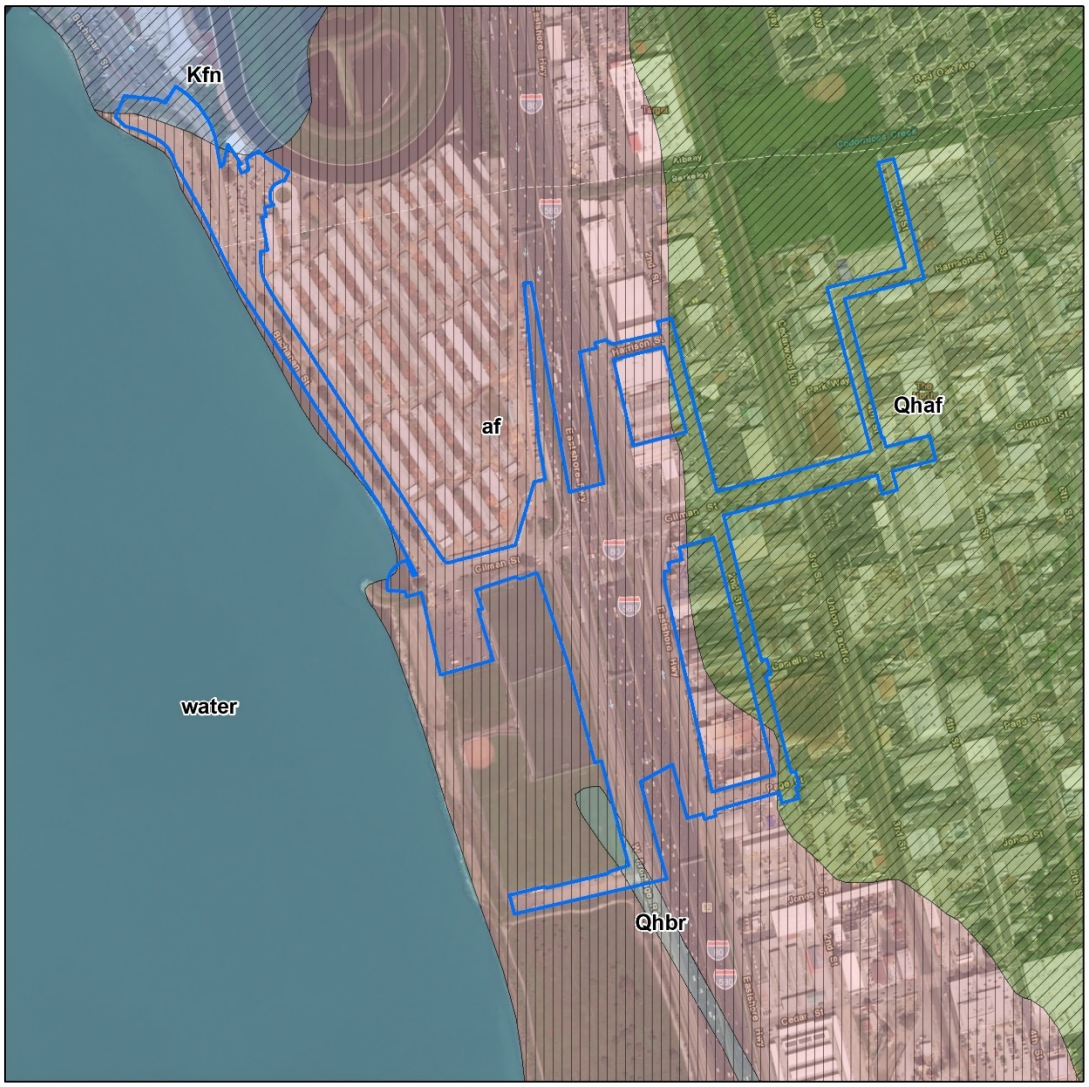

Figure 2.2.4-1: Geologic Map

Sandstone of the Novato Quarry terrane consists of local channel deposits of massive sandstone belonging to the Franciscan Complex. This geologic unit is present in the northernmost portion of the project limits near Golden Gate Fields and may also underlie the artificial fill in the northern portion of the project limits.

Assessments of paleontological sensitivity (i.e., potential to contain scientifically important paleontological resources) follow standard Caltrans criteria. The Caltrans criteria identify three categories to describe the likelihood that a geologic unit contains significant fossil materials: high potential, low potential, and no potential, as indicated in Table 2.2.4-1

Table 2.2.4-1: Paleontological Sensitivity

Caltrans Sensitivity Designation	Characteristics of Geologic Units in this Category
High Potential (High Sensitivity) • None	This category consists of rock units known to contain significant vertebrate, invertebrate, or plant fossils anywhere within their geographic extent, including sedimentary rock units that are suitable for the preservation of fossils, as well as some volcanic and low-grade metamorphic rock units. This category includes rock units with the potential to contain: • Abundant vertebrate fossils; • A few significant vertebrate, invertebrate, or plant fossils that may provide new and significant taxonomic, phylogenetic, ecological, and/or stratigraphic data; • Areas that may contain datable organic remains older than Recent; • Areas that may contain unique new vertebrate deposits, traces, and/or trackways; and • Fossiliferous deposits with very limited geographic extent or an uncommon origin (e.g., tar pits and cave deposits).
Low Potential (Low Sensitivity) • Alluvial fan and fluvial deposits (Qhaf) • Sandstone of the Novato Quarry terrane (Kfn)	This category includes sedimentary rock units that: • Are potentially fossiliferous, but have not yielded significant fossils in the past; • Have not yet yielded fossils, but have the potential to contain fossil remains; or • Contain common and/or widespread invertebrate fossils of species whose taxonomy, phylogeny, and ecology are well understood.
No Potential (No Sensitivity) • Artificial fill (af) • Beach ridge deposits (Qhbr)	This category includes rock units of intrusive igneous origin, most extrusive igneous rocks, and moderate- to high-grade metamorphic rocks. This category also includes sediments that are too young to contain fossils.

Source: Paleontological Identification/Evaluation Report, 2018.

Environmental Consequences

Project-Level Impacts

No Build Alternative

The No Build Alternative would have no impact on paleontological resources.

Build Alternative

There would be no project-level impacts to paleontological resources during operation of the Build Alternative because excavation is not expected to occur. Impacts could occur during the construction phase of the project, and these impacts are discussed in the Construction Impacts section below.

Construction Impacts

No Build Alternative

The No Build Alternative would not impact paleontological resources because no ground-disturbing activities would occur.

Build Alternative

The vertical study area for the Build Alternative includes shallow (1 to 3 feet deep) excavations for pavement construction, up to 5-foot-deep excavations for pipeline relocation, up to 6-foot-deep excavations for utility work, and excavations between 5 and 13 feet for light poles. Cast-in-drilled-hole pile foundation supports for retaining walls and the pedestrian and bicycle overcrossing are anticipated to extend up to 50 and 120 feet below ground surface, respectively.

Most of the ground-disturbing activities, including equipment laydown, clearing, grubbing, pavement construction, utility work, pipeline relocation, and light poles, are anticipated to occur within artificial fill, beach ridge deposits, and/or Holocene-age alluvial fan and fluvial deposits. However, the northernmost portion of the Bay Trail extension and work adjacent to Golden Gate Fields, including ingress/egress modifications and lighting installation, may impact Cretaceous-age sandstone of the Novato Quarry terrane. Any encountered fossils are likely to be poorly preserved and would not meet significance criteria because the sandstone has undergone extensive hydrothermal alteration.

Only cast-in-drilled-hole piles for retaining walls and the pedestrian and bicycle overcrossing are anticipated to penetrate into late Pleistocene-age alluvial fan and fluvial deposits. Prior to drilling, ground disturbance, including site leveling, is

occasionally performed; this would occur within artificial fill or Holocene-age alluvial fan and fluvial deposits. During drilling of the cast-in-drilled-hole pile shafts, spoils or excess soil generated while auguring from Pleistocene-age deposits could be brought to the surface. Any paleontological resources found within these low paleontological sensitivity deposits would be disturbed, removed from its stratigraphic location in the subsurface, and potentially damaged. These paleontological resources would not meet significance criteria.

Avoidance, Minimization, and/or Mitigation Measures

An evaluation of paleontological sensitivities and depths of anticipated ground-disturbing construction activities suggests that the project is likely to encounter geologic units that could potentially contain paleontological resources. However, based on the horizontal and vertical study area, the current anticipated construction means and methods, and low paleontological sensitivities, avoidance, minimization, and/or mitigation measures are not required.

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2.2.5 Hazardous Waste/Materials

Regulatory Setting

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

The primary federal laws regulating hazardous wastes/materials are the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the Resource Conservation and Recovery Act of 1976 (RCRA). The purpose of CERCLA, often referred to as "Superfund," is to identify and clean up abandoned contaminated sites so that public health and welfare are not compromised. The RCRA provides for "cradle to grave" regulation of hazardous waste generated by operating entities. Other federal laws include:

- Community Environmental Response Facilitation Act of 1992
- CWA
- Clean Air Act
- Safe Drinking Water Act
- Occupational Safety and Health Act
- Atomic Energy Act
- Toxic Substances Control Act
- Federal Insecticide, Fungicide, and Rodenticide Act

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

California regulates hazardous materials, waste, and substances under the authority of the California Health and Safety Code and is also authorized by the federal government to implement RCRA in the state. California law also addresses specific handling, storage, transportation, disposal, treatment, reduction, cleanup, and emergency planning of hazardous waste. The Porter-Cologne Water Quality Control Act also restricts disposal of wastes and requires clean up of wastes that are below hazardous waste concentrations but could impact ground and surface water quality. California regulations that address waste management and prevention and clean up contamination include Title 22 Division 4.5 Environmental Health Standards for the Management of Hazardous Waste, Title 23 Waters, and Title 27 Environmental Protection.

Worker and public health and safety are key issues when addressing hazardous materials that may affect human health and the environment. Proper management and disposal of hazardous material is vital if it is found, disturbed, or generated during project construction.

Affected Environment

Adjacent land uses to the study area are primarily industrial (e.g., metal forging, casting, welding, and machining) and commercial (e.g., equipment and vehicle rentals, horse racing, household waste handling, and recycling). Some adjacent recreational use is present along the west end of the study area near San Francisco Bay (Tom Bates Regional Sports Complex).

The following section is based on the *Initial Site Assessment* (May 2018). This report included an environmental records review package of 19 properties, which identified 12 facilities reported by the California Department of Toxic Substances Control (DTSC), the California Integrated Waste Management Board, or the California SWRCB. Each of these facilities is located within, or adjacent to, the study area waste or materials. Table 2.2.5-1 summarizes each facility and its status, and Figure 2.2.5-1 provides a map of the location of each facility.

A visual survey of the study area was performed as part of the *Initial Site Assessment*. This survey was conducted from publicly accessible locations on April 16 and 17, 2018. Existing conditions were evaluated for potential concerns, including debris piles, leaks/stains, monitoring wells or evidence of ongoing environmental work, chemical storage, poor housekeeping, active underground storage tanks (USTs), active aboveground storage tanks, or dry cleaners. The results of the visual survey were incorporated into the *Initial Site Assessment.*

Petroleum hydrocarbon contamination was the most frequent contaminant noted in the study area. Eight facilities had documented or potential contamination, with samples ranging from 0.56 to 7,300 parts per million (ppm). Contamination of groundwater by chlorinated solvents, such as tetrachloroethylene (PCE), has been reported within the study area, as well. Two facilities had documented contamination, with one sample detecting a concentration of 13 ppm.

A plume of hexavalent chromium has been documented within the study area. It reportedly intersects the northeast portion of the study area between the UPRR and 5th Street and lies under Harrison Street and Gilman Street. Hexavalent chromium concentrations ranged from 1.9 to 12 ppm.

Table 2.2.5-1: Initial Site Assessment Findings

Facility Number[1]	Background	Status
1	Site is currently paved and used for equipment storage. At least four USTs were formerly operated at the site. Six 10,000-gallon gasoline tanks and four 1,000-gallon waste oil tanks may have been removed from the site.	Closure (September 8, 1994) was issued by RWQCB, San Francisco Bay Region.
3	Site formerly had a fuel dispensing operation. Four USTs were removed, with most recent removal in 2014. During removal of this tank, petroleum hydrocarbons in the gasoline and diesel ranges were detected in soil and groundwater samples collected from excavations. Benzene and other volatile organic compounds (VOCs) were detected in some samples, as well. The petroleum hydrocarbon concentrations were reportedly comparable to those observed in the 1990s after removal of the three former USTs in 1989.	Closure (April 2015) was issued by City of Berkeley Toxics Management Division (TMD).
4	Properties were developed and used for numerous commercial and industrial purposes since at least the early 1900s. At least four USTs were formerly located on these properties. Groundwater monitoring wells associated with the tanks were reportedly removed and abandoned in 1998. Concentrations of several metals, including cobalt, lead, and copper, were greater than Environmental Screening Levels as established by the RWQCB in one or more samples.	Closures (1998 and 1999) were issued by the City of Berkeley TMD and the RWQCB.
5	The facility is a metal fabricator and machine shop for the design and manufacture of vacuum and pressure vessels, truck tanks, and food processing equipment. The site was formerly used by a trucking company that operated four USTs along the west side of the property. The tanks reportedly stored waste oil (two 2,000-gallon tanks), diesel in the kerosene range (one 4,000-gallon tank), and gasoline (one 2,000-gallon tank). These tanks were removed in 1999.	The report for the 2015 and 2016 investigations states that petroleum hydrocarbons (gasoline, diesel, and motor oil ranges) and tetrachlorethylene (PCE) were detected in groundwater at concentrations exceeding their respective Environmental Screening Levels for commercial sites as established by the RWQCB. The source of PCE is likely located on the property, but other sources in the area cannot be eliminated entirely.
6	Seven USTs were removed from this site. Hydrocarbons were discovered in soil and groundwater during tank removal, and three monitoring wells were installed on March 30, 1990.	In 2002, the DTSC referred the investigation and monitoring oversight to the City of Berkeley. No additional information is available.
7	This site is currently occupied by a home garden shop and furniture business. Groundwater is affected by the plume of hexavalent chromium originating from facility number 12.	No additional information is available.

Table 2.2.5-1: Initial Site Assessment Findings

Facility Number[1]	Background	Status
8	This site had one UST tank that contained gasoline. The tank was removed with Alameda County oversight.	No additional information is available.
9	*750 Gilman Street* – This site had documented surface spills of diesel, motor oil, and kerosene from approximately 60 aboveground storage tanks and associated pipes. Nine underground fuel tanks were present, 3 of which may have leaked or were occasionally overfilled. Two tanks are under the slabs and structural elements of historic buildings and were cleaned, filled with concrete, and officially closed in place under the City of Berkeley TMD supervision. One 300-gallon tank, which may have leaked, was removed under permit. The impacted soils from the excavation were removed to the extent possible and closed without further incident. *1340 4th Street* – Soil and groundwater at this site were impacted by releases of kerosene and diesel-range petroleum hydrocarbons, which were likely released from aboveground storage tanks and UST systems. Residual impacts are inaccessible and are proposed to remain in place below landmarked buildings and structures.	*750 Gilman Street* – Site is inactive and requires evaluation. No additional information is available. *1340 4th Street* – Site was officially closed in place under the City of Berkeley TMD supervision.
10	A 550-gallon gasoline UST was removed from the site in March 1996. Some residual petroleum hydrocarbons remained in the soil and groundwater after the tanks were removed.	Closure (1999) was issued by RWQCB.
11	Site operated as a tannery from 1905 until 1986. It is currently a complex of offices, retail space, and live-work units. One UST, which contained gasoline, was subsequently removed.	Tank was removed with oversight of the City of Berkeley. No additional information is available.
12	The facility reportedly uses chrome, nickel, and copper plating in its manufacturing processes.	Voluntary investigation and remediation has been ongoing since 1990 with oversight by the City of Berkeley TMD and the RWQCB, which since 2014 has had oversight responsibility for site investigations, remediation, and monitoring. Source removal and remediation activities have been implemented.
19	Gilman Street Outfall – Contaminated sediment could be present within the San Francisco Bay due to historical industrial and municipal discharges.	Sediment testing conducted in April 2019 within the proposed project area revealed no hazardous waste concerns.

[1] Facility number reflects the numbering assigned in Figure 2.2.5-1. The *Initial Site Assessment* evaluated 19 locations. Only 12 of these locations were noted as generators (or potential generators) of hazardous waste. Sites that had no potential hazardous waste concerns are not included in this table.

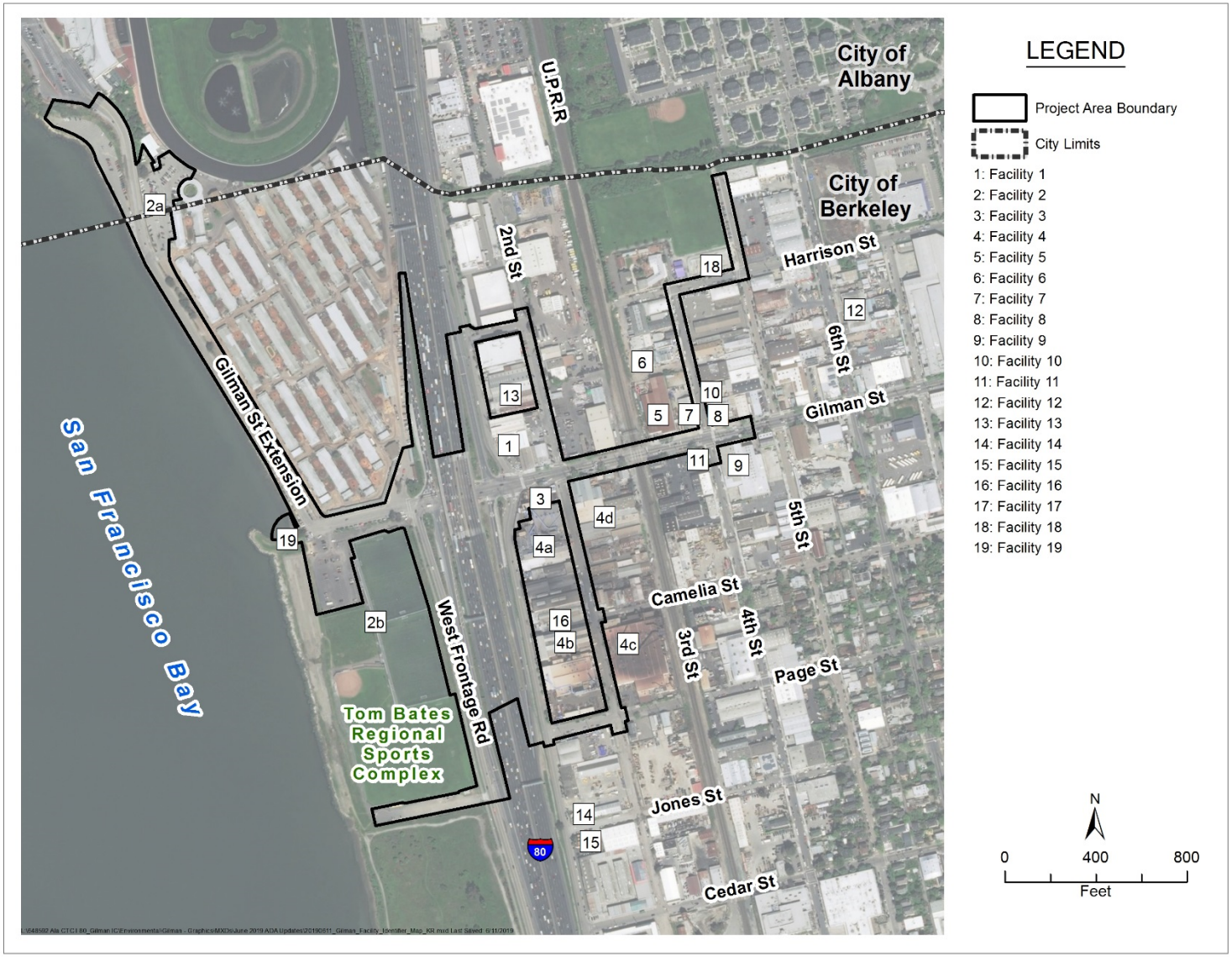

Figure 2.2.5-1: Facility Identifier Map

Impacts from historical releases of chemicals from USTs or other sources to soil or groundwater could occur if contaminated media are encountered during construction. Activities that might result in impacts include excavating to install light pole foundations, relocating utilities and drainage systems, and installing piles for the pedestrian bridge overcrossing of I-80. The average water table elevation is approximately 9 feet below the surface. Groundwater is as close as 4 feet from the surface in some portions of the study area and would likely be encountered during construction.

The proposed excavation within the San Francisco Bay may encounter contaminated sediment. This could include heavy metals, pesticides, and PCBs. These pollutants would likely have originated from historic industrial and municipal wastewater discharges into the Bay. Preliminary testing did not characterize any hazardous waste concerns.

Other Potential Sources of Environmental Releases

Aerially deposited lead (ADL) from vehicle emissions and lead -based paint weathered from older painted structures are potential sources of lead contamination along roadways. Leaded gasoline was used in the United States from the 1920s until the 1980s. Although lead is no longer used in gasoline formulations, lead emissions from vehicles remain a recognized source of soil contamination. Because I-80 and Eastshore Highway are traveled heavily and commercial services have been present since the 1920s, it is likely that soil lead concentrations within the study area are greater than background levels. Lead levels may be particularly elevated near the intersection of I-80 and Gilman Street where vehicles stop, idle, and accelerate.

Multiple buildings within the study area have been present since the early 20th century. Where older buildings (pre-1980s) are upgradient, lead-contaminated runoff may have flowed into swales and ditches along the roadways. Surface soils adjacent to the roadways have the potential to contain elevated concentrations of lead ranging from background levels to several thousand ppm.

Studies within the study area have reported concentrations of metals in soil above background levels. For example, copper and lead levels were elevated in soil samples collected within the study area (*Initial Site Assessment*, 2018). This contamination would be associated with historical air emissions and/or stormwater runoff from industrial facilities. Industrial facilities located adjacent to the study area include

foundries, machine and metal-working shops, tanneries, and chemical manufacturers (ink and printing facilities).

Bridges built between 1950 and 1982 may contain asbestos in their expansion joints, girders, abutment joints, metal beam guardrails, and shims. The study area contains a single bridge, the I-80 concrete bridge over Gilman Street. Expansion and abutment joints were observed from the public right-of-way during the site survey but were not inspected closely due to access constraints (i.e., fencing, homeless encampment, and traffic). The compounds in the joints might contain asbestos-containing materials.

Hazardous contamination may be found within the UPRR mainline right-of-way or the abandoned segment of railroad track that runs down 2nd Street. Chemicals could have leaked or spilled from tanks or cars transported by the railroad. Releases may also have occurred due to failure or breakage of brake lines or other equipment. Additionally, the railroad may have used chemicals to control vegetation growth. Residues of these chemicals might persist. The Kinder-Morgan pipeline runs parallel to the rail line through the study area. Historical leaks from this pipeline are also a potential source of contamination.

Lead chromate is the yellow pigment that was used in "safety yellow" colored traffic striping for many years. This hazardous pigment was recently replaced with lead-free and chromium-free yellow substitute pigments. Yellow thermoplastic containing lead chromate was used as recently as 2004. According to Caltrans guidelines, "lead chromate containing yellow striping materials may contain ~ 20,000 ppm of lead and ~ 5,000 ppm of hexavalent chromium." Yellow thermoplastic and yellow paint may produce toxic fumes when heated. The debris produced when this older yellow striping is ground from the pavement might meet the definition of hazardous waste, unless it is substantially diluted with the underlying paving material, as in the case where extensive pavement milling is being done. Caltrans specification SSP 15-1.03B includes instructions for removal and disposal of lead chromate-containing yellow striping. Yellow traffic striping and thermoplastic paint were observed in the study area during the visual site survey.

The area west of 2nd Street is largely built on fill that was obtained from undocumented sources and deposited in the early 20th century. The fill might contain metals, petroleum hydrocarbons, or other compounds associated with historical industrial practices of the time.

Coordination/Consultation with Regulatory Agencies

The *Initial Site Assessment* details the agency coordination that has taken place for each identified facility. The environmental database radius report (Appendix A of the *Initial Site Assessment*) includes summaries of federal, state, and local regulatory entries for the current and historical businesses in the area. During preparation of the *Initial Site Assessment*, SWRCB and DTSC databases were consulted.

Environmental Consequences

Project-Level Impacts/Construction Impacts

No Build Alternative

Under the No Build Alternative, there would be no change to the existing interchange and no disturbance of soils; therefore, there would be no interaction with hazardous contamination.

Build Alternative

Historical Chemical Releases from Industrial Activities

Nineteen (19) facilities were evaluated in the *Initial Site Assessment*. Of these, 12 facilities in or adjacent to the study area were identified as potential generators of hazardous waste (Figure 2.2.5-1). No right-of-way or temporary construction easements would be acquired from any of these properties. Any contamination from these facilities originated via pollutant migration into the study area likely via groundwater. Without additional data collection, the locations of any hazardous waste remain unknown.

The likelihood of encountering contamination within the study area was rated from "none" to "high" (Table 2.2.5-2). This rating was based on the adjacent work to each previously identified facility. Work conducted below the average water table would likely encounter pollutant plumes. Therefore, proposed work at (or below) the average water table elevation was identified as a "high" risk. This included piles for the pedestrian and bicycle overcrossing, storm drains, utilities, lighting, and traffic signals. If work was above, but near the water table level, it was rated as a "moderate" risk. This included installation of the new roundabouts. Shallow excavation, such as sidewalk reconstruction, was rated as a "low" risk for encountering hazardous contamination. No excavation, such as pavement striping operations, received a risk rating of "none".

Table 2.2.5-2: Potential Contamination within the Study Area

No.[1]	Known Contaminant(s)	Matrix	Known Concentrations (ppm)*	Potentially Affected Area	Proposed Work in Potentially Affected Area	Likelihood of Encountering Contamination
1	Petroleum Hydrocarbons (Gasoline)	Soil	210	Eastern roundabout and Eastshore Highway north of Gilman Street	Roundabout construction, sidewalk construction, and utility relocations	Moderate
3	Petroleum Hydrocarbons (Gasoline/Diesel)	Soil	7,300	Eastern roundabout and Gilman Street to the south	Roundabout construction, sidewalk construction, lighting, and utility relocations	Moderate
	Volatile Organic Compounds (Toluene)	Water	0.024			
4	Petroleum Hydrocarbons (Diesel)	Water	170	Eastshore Highway south of Gilman Street and the Gilman Street/2nd Street intersection	Pedestrian crossing, roadway widening, storm drain installation, sidewalk construction, and utility relocations	High
	Cobalt	Soil	21			
5	Petroleum Hydrocarbons (Diesel)	Soil	5,000	Gilman Street near the UPRR tracks	Mill/overlay and sidewalk construction	Low
	Volatile Organic Compounds (Tetrachloroethylene)	Water	13			
6	Hydrocarbon Solvents (Toluene, Vinyl Chloride, 1-Butanol, Benzene, and Xylene)	Water	1,800	Gilman Street between UPRR and Fourth Street	Mill/overlay, sidewalk construction, storm drain installation, and utility relocations	Moderate
7	Hexavalent Chromium	Water	1.9	Intersection of Gilman Street and 4th Street	Mill/overlay, storm drain installation, utility relocations, and traffic signals	High
8	Petroleum Hydrocarbons	Unknown	Unknown	Gilman Street between 4th and 5th Streets	Mill/overlay, storm drain installation, utility relocations, and traffic signals	Moderate
9	Petroleum Hydrocarbons	Unknown	Unknown	4th Street and its intersection with Gilman Street	Mill/overlay, storm drain installation, utility relocations, traffic signals, and pavement striping	Moderate
	Benzene	Unknown	Unknown			
	Vinyl Chloride	Unknown	Unknown			
10	Petroleum Hydrocarbons (Gasoline)	Water	0.56	4th Street north of Gilman Street	Pavement striping	None
11	Petroleum Hydrocarbons (Fuel Oil)	Soil	40,560	Gilman Street/4th Street intersection and to the west of this intersection	Mill/overlay, storm drain installation, utility relocations, and traffic signals	Moderate

Table 2.2.5-2: Potential Contamination within the Study Area

No.[1]	Known Contaminant(s)	Matrix	Known Concentrations (ppm)*	Potentially Affected Area	Proposed Work in Potentially Affected Area	Likelihood of Encountering Contamination
12	Volatile Organic Compounds (Xylenes)	Water/Soil	79/230	4th and 5th Streets north of Gilman Street and along Harrison Street	Pavement striping	None
	Total Chromium	Water	12			
19	Heavy Metals	Water/Soil	0.039/170	Gilman Street Outfall	Sediment excavation from the San Francisco Bay	Low
	Petroleum Hydrocarbons (Diesel/Gasoline)	Soil	470			

*Pollutant concentrations were all converted to parts per million (ppm) for consistency.

[1] Facility number reflects the numbering assigned in Figure 2.2.5-1. The Initial Site Assessment evaluated 19 locations. Only 12 of these locations were noted as generators (or potential generators) of hazardous waste. Sites that had no potential hazardous waste concerns were not included in this table.

Source: Final Initial Site Assessment, May 2018.

Most of the proposed project improvements could occur without excavation below the average water table elevation. Work below the water table includes storm drains, utilities, lighting, and signals. These elements cannot be avoided or minimized given the scope of the Build Alternative. The remainder of the excavation below the water table is associated with piles for the pedestrian and bicycle overcrossing. This work could only be avoided if this feature was eliminated from the Build Alternative.

The proposed sediment removal from the San Francisco Bay was rated as having a low risk of contamination. This work would be adjacent to historical and current industrial facilities. It likely received discharges from these facilities in the past, and it currently receives both groundwater and storm water discharges which could contain hazardous waste contamination.

Based on this assessment, most of the study area is at "moderate" to "high" risk of encountering hazardous contamination. Eight of the 12 identified facilities had releases (or potential releases) of petroleum hydrocarbons; therefore, this would be the most likely contaminant encountered during construction of the Build Alternative.

Encountering hazardous materials during construction could impact the project's scope, schedule, and cost. Proper disposal of contaminated media can add significant cost to the project and may cause delays as the necessary agency coordination is conducted. All contaminated soil and groundwater encountered during construction must be properly transported and deposed. Table 2.2.5-3 represents the estimated additional cost the project would incur if contaminated soil or groundwater is encountered. This analysis assumes that all soil and groundwater below the average water table elevation is contaminated by hazardous waste. The estimated additional cost for proper disposal would be $1.32 million, with a potential delay during construction of 5 months if widespread contamination is encountered. Construction delays could occur while the necessary agency coordination is conducted. Note that the cost of hazardous waste disposal presented in Table 2.2.5-3 is estimated. When final design is completed, disposal costs will be updated and could differ significantly from the provided estimate.

Table 2.2.5-3: Estimated Costs Associated with Hazardous Waste Disposal

Work Proposed below the Average Water Table Level	No Build Alternative	Build Alternative (No Contamination)*	Build Alternative (All Contaminated)**
Soil Disposal (Excavation, Transport, and Disposal)	$0	$560,000	$890,000
Dewatering (Transport and Treatment)	$0	$310,000	$1,300,000
TOTAL	$0	$870,000	$2,190,000

* Assumes no hazardous waste contamination is detected during construction.

** Assumes all soil and groundwater below the average water table elevation is contaminated with hazardous waste materials and would therefore have to be disposed of at an appropriate offsite treatment facility.

Project features and avoidance/minimization measures will be incorporated into the proposed project to limit the impacts to the proposed project's scope, schedule, and cost. Caltrans will conduct a preliminary site investigation during the design to further evaluate and quantify potential hazardous waste contamination. Because no right-of-way or temporary construction easement acquisition is proposed for any of the 12 identified facilities, this site investigation can occur during later stages of design. This site investigation will evaluate if additional requirements are necessary to satisfy environmental and/or worker health and safety requirements.

Aerially Deposited Lead and Industrial Emissions of Metals

ADL from the historical use of leaded gasoline, exists along roadways throughout California. There is the likely presence of soils with elevated concentrations of lead as a result of ADL on the state highway system right-of-way within the limits of the project alternatives. Soil determined to contain lead concentrations exceeding stipulated thresholds must be managed under the July 1, 2016, ADL Agreement between Caltrans and the California DTSC. This ADL Agreement allows such soils to be safely reused within the project limits if all requirements of the ADL Agreement are met.

Impacts from lead contamination could occur where construction involves disturbing or exposing surface soils adjacent to the existing roadway. Direct contact with contaminated soil and subsequent hand-to-mouth activities (e.g., smoking, drinking, or eating) could result in the inadvertent ingestion of contaminated soil. Construction activities that produce dust could also expose workers to lead via inhalation.

Asbestos-Containing Materials

Impacts from asbestos-containing materials could occur if the I-80 bridge over Gilman Street requires modification and if asbestos-containing materials were used in its construction. However, as the project is currently designed, no modifications to the I-80 bridge are proposed. The Bay Area Air Quality Management District (BAAQMD) requires an asbestos survey and notification prior to demolition or renovation of bridges. In addition, EPA requires demolished bridge concrete, as well as the more suspect components such as bridge rail, shims, and conduit, be screened for asbestos.

Yellow Thermoplastic and Yellow Paint

Yellow thermoplastic and yellow paint are present on streets within the study area and may produce toxic fumes when heated during demolition or repaving activities. The debris produced when this older yellow striping is ground from the pavement might meet the definition of hazardous waste.

Project Features

The following project features will be implemented:

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, Minimization, and/or Mitigation Measures

Any hazardous contamination encountered during construction must be properly transported and disposed. The estimated additional costs for proper disposal would be $1.32 million, with a potential delay during construction of 5 months if widespread contamination is encountered. Construction delays could occur while the necessary agency coordination is conducted.

The following minimization measures would address ADL near roadways and historical releases of metals from industrial facilities:

AMM HW-1: The soil sampling plan for the preliminary site investigation, to be conducted during the design phase, shall include a strategy for assessing the concentrations of metals associated with historical industrial releases in the study area. Due to the multiple potential sources and potential transport mechanisms (i.e., air emissions and

stormwater flows), the sampling plan shall develop a statistical approach to characterizing the project site where surface and subsurface soils will be disturbed during construction.

AMM HW-2: The preliminary site investigation shall collect and analyze soil samples for lead in areas near roadways or painted structures where surface soil will be disturbed. Areas of focus shall also include swales, ditches, and other low areas where runoff may have carried lead-contaminated particles from either aerially deposited vehicle emissions or the weathering of painted structures.

The following minimization measure would address the potential to encounter asbestos-containing materials during construction.

AMM HW-3: If the Gilman Street undercrossing of I-80 will be modified by the project or any portion of the concrete structure demolished, a survey of the bridge for asbestos-containing material shall be conducted prior to any repair or maintenance to protect worker safety and to meet BAAQMD and EPA requirements.

The following minimization measures would address historical releases from industrial facilities.

AMM HW-4: Because hydrocarbon and chlorinated solvent contamination in groundwater is widespread in the study area, soil samples and groundwater samples, if appropriate, shall be collected and analyzed for petroleum hydrocarbons and chlorinated solvents as part of the preliminary site investigation conducted during the design phase of the project for any location where project activities include subsurface work that will make contact with soils in the capillary fringe or encounter groundwater.

AMM HW-5: If subsurface activities will disturb only soil above the capillary fringe in an area adjacent to a property with a historical leaking UST (i.e., not encounter groundwater), soil and groundwater data for the property shall be reviewed during the design phase of the project. This information shall be considered to determine whether an intrusive investigation, such as collecting and analyzing soil samples, is warranted as part of a preliminary site investigation.

AMM HW-6: The City of Berkeley has indicated that the Pacific Steel Casting Company is slated for closure/decommissioning in mid-2018. Prior to subsurface or intrusive activities adjacent to this company, it is recommended that the City of Berkeley Toxics Management Division (TMD) and the lead environmental agency be consulted regarding up-to-date soil and remediation efforts specifically related to the plant closure activities.

AMM HW-7: The lead agency for the WRE/ColorTech site, currently the RWQCB, shall be contacted as part of the preliminary site investigation to determine the extent of hexavalent chromium contamination in the project vicinity, the site's status, and whether intrusive investigation, such as the collection of groundwater or soil samples, is warranted.

AMM HW-8: The lead agency for the Terminal Manufacturing Company site, currently the RWQCB, shall be contacted as part of the preliminary site investigation to determine the extent of PCE contamination in the project vicinity, the site's status, and whether intrusive investigation, such as the collection of groundwater or soil samples, is warranted.

The following minimization measure would address potential spills and releases associated with historical railroad usage.

AMM HW-9: If soil will be disturbed near the UPRR right-of-way or the abandoned railroad spur located along the centerline of 2nd Street, the sampling plan for the preliminary site investigation shall consider the collection and analysis of soil samples for chemicals that may have been used or spilled, including metals, petroleum hydrocarbons, volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons, pesticides, and herbicides.

The following minimization measures are specifically for properties that would be acquired in fee or by easement.

AMM HW-10: ***Golden Gate Fields Easement (Assessor's Parcel Number [APN]: 60-2535-1).*** The project site within the Golden Gate Fields property consists of fill that was placed in the early 20th century, and the property is in proximity to I-80. Soil shall be sampled within the

approximately 0.1-acre easement area and analyzed for petroleum hydrocarbons, polycyclic aromatic hydrocarbons, and metals. Attention shall be paid to landscaped areas that have not historically been covered by pavement and any low-lying areas, such as ditches or swales.

AMM HW-11: ***Tom Bates Regional Sports Complex Acquisition (APN: 60-2529-1-3).*** The project site within the sports complex property consists of fill that was placed in the early 20th century, and the property is in proximity to I-80. Soil shall be sampled within the approximately 0.45-acre acquisition area and analyzed for petroleum hydrocarbons, polycyclic aromatic hydrocarbons, and metals (particularly lead). Attention shall be paid to nonpaved, low-lying areas, such as ditches or swales.

The following avoidance and minimization measures would address the potential to encounter hazardous waste during construction.

AMM HW-12: If soil, groundwater, or other environmental medium with suspected contamination is encountered unexpectedly during construction activities (e.g., identified by odor or visual staining, or if any USTs, abandoned drums, or other hazardous materials or wastes are encountered), work shall cease in the vicinity of the suspect material, the area shall be secured as necessary, and all appropriate measures shall be taken to protect human health and the environment. Appropriate measures shall include notification of regulatory agency(ies), such as the RWQCB, DTSC, City of Berkeley TMD, and Alameda County Department of Environmental Health, and compliance with the various regulatory agencies' laws, regulations, and policies.

AMM HW-13: Soil generated by construction activities shall be stockpiled onsite in a secure and safe manner. All contaminated soils determined hazardous or nonhazardous waste shall be adequately profiled (i.e., sampled and analyzed) prior to acceptable reuse or disposal at an appropriate offsite facility. Specific sampling, handling, and transport procedures for reuse or disposal shall be in accordance with applicable local, state, and federal agencies laws, in particular the

RWQCB, DTSC, City of Berkeley TMD, and Alameda County Department of Environmental Health. Additionally, waste characterization soil samples shall be analyzed as required by the accepting landfill.

AMM HW-14: Groundwater pumped from the subsurface shall be contained onsite in a secure and safe manner, sampled and analyzed as needed prior to treatment and disposal, to ensure environmental and health issues are resolved pursuant to applicable local, state, and federal laws, regulations, and policies.

AMM HW-15: Material from structures that is removed or modified by the project will be handled and disposed of in accordance with all local, state, and federal requirements.

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2.2.6 Air Quality

Regulatory Setting

The Federal Clean Air Act (FCAA), as amended, is the primary federal law that governs air quality, while the California Clean Air Act is its companion state law. These laws, and related regulations by EPA and 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 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 USDOT 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. 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 CO, NO_2, O_3, particulate matter (PM_{10} and $PM_{2.5}$), and in some areas (although not in California) 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; 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 or not 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 the conformity analysis is successful, the Metropolitan Planning Organization, FHWA, and Federal Transit Administration 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, scope, and "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 FTIP; the project has a design concept and scope that has not changed significantly from those in the RTP and FTIP; project analyses have used the latest planning assumptions and EPA-approved emissions models; and in particulate matter 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 CO and particulate matter nonattainment or maintenance areas to examine localized air quality impacts.

Affected Environment

The discussion below was summarized from information contained in the *Air Quality Report* (June 2018), the *Traffic Operations Analysis Report* (2017), and the *Initial Site Assessment* (2018).

Meteorology and Climate

The project site is in the San Francisco Bay Area Air Basin (Basin), which includes nine Bay Area counties: Alameda, Contra Costa, Marin, Napa, San Francisco, San

Mateo, Santa Clara, Solano, and Sonoma. Air quality in the region is affected by natural factors, such as proximity to the bay and ocean, topography, meteorology, and existing air pollution sources. The San Francisco Bay Area is characterized by a Mediterranean-type climate, with warm, dry summers and cool, wet winters. The terrain of the area influences the climate and air pollution potential.

This climatological subregion of the study area stretches from Richmond to San Leandro. The western boundary is defined by the Bay and its eastern boundary by the Oakland-Berkeley Hills. The prevailing winds for most of this subregion are from the west. At the northern end, near Richmond, prevailing winds are from the south-southwest. Temperatures in this subregion have a narrow range due to the proximity of the moderating marine air. Maximum temperatures during summer average in the mid-70s, with minimums in the mid-50s. Winter highs are in the mid- to high-50s, with lows in the low- to mid-40s.

Attainment Status and Air Pollution Standards

Table 2.2.6-1 shows the NAAQS and California Ambient Air Quality Standards (CAAQS), along with associated principal health and atmospheric effects and typical sources of emissions. The table also shows attainment status for Alameda County. EPA designates areas as meeting (attainment) or not meeting (nonattainment) NAAQS. The FCAA requires states to develop a general plan to attain and maintain the standards in all areas of the country and a specific plan to attain the standards for each area designated nonattainment. A maintenance area is an area that was designated nonattainment for an NAAQS but later met the standard and was redesignated to attainment-maintenance. To ensure the air quality in this area continues to meet the NAAQS, states are required to develop maintenance SIPs.

Alameda County is designated as marginal nonattainment for the 2008 8-hour O_3 standard, moderate nonattainment for the 2006 $PM_{2.5}$ 24-hour standard, and moderate maintenance for CO standards. Alameda County has been designated as attainment or attainment/unclassified for all other NAAQS.

The State has a similar process for the CAAQS. The Air Basin has been designated by ARB has nonattainment for the O_3, PM_{10}, and $PM_{2.5}$ standards. The Air Basin has been designated as attainment or attainment/unclassified for all other CAAQS.

Table 2.2.6-1: State and Federal Criteria Air Pollutant Standards, Effects, and Sources

Pollutant	Averaging Time	State Standard[a]	Federal Standard[b]	Principal Health and Atmospheric Effects	Typical Sources	State Study Area Attainment Status	Federal Study Area Attainment Status
Ozone (O_3)	1 hour	0.09 ppm [c]	--- [d]	High concentrations irritate lungs. Long-term exposure may cause lung tissue damage and cancer. Long-term exposure damages plant materials and reduces crop productivity. Precursor organic compounds include many known toxic air contaminants. Biogenic VOC may also contribute.	Low-altitude O_3 is almost entirely formed from reactive organic gases/volatile organic compounds (VOC) and nitrogen oxides (NO_X) in the presence of sunlight and heat. Common precursor emitters include motor vehicles and other internal combustion engines, solvent evaporation, boilers, furnaces, and industrial processes.	Nonattainment	Nonattainment – (Marginal 8-Hour)
	8 hours	0.070 ppm	0.070 ppm (4^{th} highest in 3 years)				
Carbon Monoxide (CO)	1 hour	20 ppm	35 ppm	CO interferes with the transfer of oxygen to the blood and deprives sensitive tissues of oxygen. CO also is a minor precursor for photochemical O_3. Colorless, odorless.	Combustion sources, especially gasoline-powered engines and motor vehicles. CO is the traditional signature pollutant for on-road mobile sources at the local and neighborhood scale.	Attainment	Attainment – Maintenance (Moderate)
	8 hours	9.0 ppm /a/	9 ppm				
	8 hours (Lake Tahoe)	6 ppm	---				
Respirable Particulate Matter (PM_{10}) [e]	24 hours	50 µg/m^3 [f]	150 µg/m^3 (expected number of days above standard < or equal to 1)	Irritates eyes and respiratory tract. Decreases lung capacity. Associated with increased cancer and mortality. Contributes to haze and reduced visibility. Includes some toxic air contaminants. Many toxic and other aerosol and solid compounds are part of PM_{10}.	Dust- and fume-producing industrial and agricultural operations; combustion smoke and vehicle exhaust; atmospheric chemical reactions; construction and other dust-producing activities; unpaved road dust and re-entrained paved road dust; natural sources.	Nonattainment	Attainment
	Annual Arithmetic Mean	20 µg/m^3	--- [e]				

Table 2.2.6-1: State and Federal Criteria Air Pollutant Standards, Effects, and Sources

Pollutant	Averaging Time	State Standard[a]	Federal Standard[b]	Principal Health and Atmospheric Effects	Typical Sources	State Study Area Attainment Status	Federal Study Area Attainment Status
Fine Particulate Matter ($PM_{2.5}$) [e]	24 hours	---	35 µg/m^3	Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and produces surface soiling. Most diesel exhaust particulate matter – a toxic air contaminant – is in the $PM_{2.5}$ size range. Many toxic and other aerosol and solid compounds are part of $PM_{2.5}$.	Combustion, including motor vehicles, other mobile sources, and industrial activities; residential and agricultural burning; also formed through atmospheric chemical and photochemical reactions involving other pollutants including NO_X, sulfur oxides (SO_X), ammonia, and reactive organic gases.	Nonattainment	Nonattainment – (Moderate 24-Hour)
	Annual Arithmetic Mean	12 µg/m^3	12.0 µg/m^3				
	24 hours (conformity process) [g]	---	65 µg/m^3				
	Secondary Standard (annual; also for conformity process) [e]	---	15 µg/m^3 (98^{th} percentile over 3 years)				
Nitrogen Dioxide (NO_2)	1 hour	0.18 ppm	0.100 ppm[h]	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown. Contributes to acid rain and nitrate contamination of stormwater. Part of the "NO_X" group of O_3 precursors.	Motor vehicles and other mobile or portable engines, especially diesel; refineries; industrial operations.	Attainment	Attainment – Unclassified
	Annual Arithmetic Mean	0.030 ppm	0.053 ppm				
Sulfur Dioxide (SO_2)	1 hour	0.25 ppm	0.075 ppm[i] (99^{th} percentile over 3 years)	Irritates respiratory tract; injures lung tissue. Can yellow plant leaves. Destructive to marble, iron, steel. Contributes to acid rain. Limits visibility.	Fuel combustion (especially coal and high-sulfur oil), chemical plants, sulfur recovery plants, metal processing; some natural sources like active volcanoes. Limited contribution possible from heavy-duty diesel vehicles if ultra-low sulfur fuel not used.	Attainment	Attainment – Unclassified
	3 hours	---	0.5 ppm[j]				
	24 hours	0.04 ppm	0.14 ppm (for certain areas)				
	Annual Arithmetic Mean	---	0.030 ppm (for certain areas)				

Table 2.2.6-1: State and Federal Criteria Air Pollutant Standards, Effects, and Sources

Pollutant	Averaging Time	State Standard[a]	Federal Standard[b]	Principal Health and Atmospheric Effects	Typical Sources	State Study Area Attainment Status	Federal Study Area Attainment Status
Lead[k]	Monthly	1.5 µg/m^3	---	Disturbs gastrointestinal system. Causes anemia, kidney disease, and neuromuscular and neurological dysfunction. Also a toxic air contaminant and water pollutant.	Lead-based industrial processes like battery production and smelters. Lead paint, leaded gasoline. ADL from older gasoline use may exist in soils along major roads.	Attainment	Attainment – Unclassified
	Calendar Quarter	---	1.5 µg/m^3 (for certain areas)				
	Rolling 3-month average	---	0.15 µg/m^3 [l]				
Sulfate	24 hours	25 µg/m^3	---	Premature mortality and respiratory effects. Contributes to acid rain. Some toxic air contaminants attach to sulfate aerosol particles.	Industrial processes, refineries and oil fields, mines, natural sources like volcanic areas, salt-covered dry lakes, and large sulfide rock areas.	Attainment	N/A
Hydrogen Sulfide (H_2S)	1 hour	0.03 ppm	---	Colorless, flammable, poisonous. Respiratory irritant. Neurological damage and premature death. Headache, nausea. Strong odor.	Industrial processes such as: refineries and oil fields, asphalt plants, livestock operations, sewage treatment plants, and mines. Some natural sources like volcanic areas and hot springs.	Attainment	N/A
Visibility-Reducing Particles	8 hours	Visibility of 10 miles or more (Tahoe: 30 miles) at relative humidity less than 70%	---	Reduces visibility. Produces haze. NOTE: Not directly related to the Regional Haze program under the FCAA, which is oriented primarily toward visibility issues in National Parks and other "Class I" areas. However, some issues and measurement methods are similar.	See particulate matter above. May be related more to aerosols than to solid particles.	Attainment	N/A
Vinyl Chloride[k]	24 hours	0.01 ppm	---	Neurological effects, liver damage, cancer. Also considered a toxic air contaminant.	Industrial processes	Attainment	N/A

Table 2.2.6-1: State and Federal Criteria Air Pollutant Standards, Effects, and Sources

Pollutant	Averaging Time	State Standard[a]	Federal Standard[b]	Principal Health and Atmospheric Effects	Typical Sources	State Study Area Attainment Status	Federal Study Area Attainment Status

Greenhouse Gases and Climate Change: GHGs do not have concentration standards for that purpose. Conformity requirements do not apply to GHGs.

[a] State standards are "not to exceed" or "not to be equaled or exceeded" unless stated otherwise.

[b] Federal standards are "not to exceed more than once a year" or as described above.

[c] ppm = parts per million

[d] Prior to June 2005, the 1-hour O_3 NAAQS was 0.12 ppm. Emission budgets for 1-hour O_3 are still in use in some areas where 8-hour O_3 emission budgets have not been developed, such as the San Francisco Bay Area.

[e] Annual PM_{10} NAAQS revoked October 2006; was 50 $\mu g/m^3$. 24-hour $PM_{2.5}$ NAAQS tightened October 2006; was 65 $\mu g/m^3$. Annual $PM_{2.5}$ NAAQS tightened from 15 $\mu g/m^3$ to 12 $\mu g/m^3$ December 2012 and secondary annual standard set at 15 $\mu g/m^3$.

[f] $\mu g/m^3$ = micrograms per cubic meter

[g] The 65 $\mu g/m^3$ $PM_{2.5}$ (24-hour) NAAQS was not revoked when the 35 $\mu g/m^3$ NAAQS was promulgated in 2006. The 15 $\mu g/m^3$ annual $PM_{2.5}$ standard was not revoked when the 12 $\mu g/m^3$ standard was promulgated in 2012. The 0.08 ppm 1997 O_3 standard is revoked FOR CONFORMITY PURPOSES ONLY when area designations for the 2008 0.75 ppm standard become effective for conformity use (July 20, 2013). Conformity requirements apply for all NAAQS, including revoked NAAQS, until emission budgets for newer NAAQS are found adequate, SIP amendments for the newer NAAQS are approved with an emission budget, EPA specifically revokes conformity requirements for an older standard, or the area becomes attainment/unclassified. SIP-approved emission budgets remain in force indefinitely unless explicitly replaced or eliminated by a subsequent approved SIP amendment. During the "Interim" period prior to availability of emission budgets, conformity tests may include some combination of build versus no build, build versus baseline, or compliance with prior emission budgets for the same pollutant.

[h] Final 1-hour NO_2 NAAQS published in the *Federal Register* on February 9, 2010, effective March 9, 2010. Initial area designation for California (2012) was attainment/unclassifiable throughout. Project-level hot-spot analysis requirements do not currently exist. Near-road monitoring starting in 2013 may cause redesignation to nonattainment in some areas after 2016.

[i] EPA finalized a 1-hour SO_2 standard of 75 ppb (parts per billion [thousand million]) in June 2010. Nonattainment areas have not yet been designated as of September 2012.

[j] Secondary standard, set to protect public welfare rather than health. Conformity and environmental analysis address both primary and secondary NAAQS.

[k] ARB has identified vinyl chloride and the particulate matter fraction of diesel exhaust as toxic air contaminants. Diesel exhaust particulate matter is part of PM_{10} and, in larger proportion, $PM_{2.5}$. Both ARB and EPA have identified lead and various organic compounds that are precursors to O_3 and $PM_{2.5}$ as toxic air contaminants. There are no exposure criteria for adverse health effect due to toxic air contaminants, and control requirements may apply at ambient concentrations below any criteria levels specified above for these pollutants or the general categories of pollutants to which they belong.

[l] Lead NAAQS are not considered in Transportation Conformity analysis.

Source: Caltrans, Air Pollution Standards Table, http://www.dot.ca.gov/ser/downloads/AirQualityConformity/aq_updates_air_pollution_stds_tbl.docx, accessed January 27, 2017; and ARB, 2018.

Air Pollution Standards

Table 2.2.6-1 shows the NAAQS and CAAQS, along with associated principal health and atmospheric effects and typical sources of emissions.

Monitored Data

EPA, ARB, and BAAQMD maintain a network of air quality monitoring stations to characterize the air quality environment by measuring and recording pollutant concentrations in the local ambient air. The closest monitoring station to the intersection area is the Berkeley-Aquatic Park Monitoring Station located at 1 Bolivar Drive in Berkeley. The monitoring station is approximately 0.9 mile south of the intersection area. Data from the monitoring station were used for years 2016 and 2017. This monitoring station did not exist before 2016. Prior to 2016, the nearest monitoring station was located at 1100 21st Street in Oakland. This monitoring station is approximately 4.5 miles south of the intersection area. Data from this station were used for years 2013 to 2015.

Tables 2.2.6-2 and 2.2.6-3 include pollutant levels, state and federal standards, and number of exceedances recorded at monitoring stations in the study area from 2013 to 2017 for criteria pollutants. PM_{10} concentrations were not monitored in Alameda County between 2013 and 2017. Ambient data from another county would not be an accurate representation of air quality in the intersection area; therefore, it is not included. In the study area, the state 1-hour O_3 standard was exceeded one time in 2015; the federal 24-hour $PM_{2.5}$ standard was exceeded two times in 2013, two times in 2014, and three times in 2015; and the federal 1-hour NO_2 standard was exceeded one time in 2017.

Table 2.2.6-2: Ambient Air Quality Data 2013–2015

Pollutant	Pollutant Concentration & Standards	Calendar Year		
		2013	2014	2015
CO	Maximum 1-hour concentration (ppm)	3.8	3.0	4.7
	Days > 20 ppm (State Standard)	0	0	0
	Days > 35 ppm (Federal Standard)	0	0	0
	Maximum 8-hour concentration (ppm)	3.2	2.6	2.6
	Days > 9.0 ppm (State Standard)	0	0	0
	Days > 9 ppm (Federal Standard)	0	0	0
O_3	Maximum 1-hour Concentration (ppm)	0.071	0.072	0.09
	Days > 0.09 ppm (State Standard)	0	0	0
	Maximum 8-hour Concentration (ppm)	0.059	0.059	0.064
	Days > 0.070 ppm (State Standard)	0	0	0
	Days > 0.070 ppm (Federal Standard)	0	0	0

Table 2.2.6-2: Ambient Air Quality Data 2013–2015

Pollutant	Pollutant Concentration & Standards	Calendar Year		
		2013	2014	2015
NO_2	Maximum 1-hour Concentration (ppm)	0.064	0.056	0.057
	Days > 0.18 ppm (State Standard)	0	0	0
	Days > 0.100 ppm (Federal Standard)	0	0	0
	Annual (ppm)	0.017	0.014	0.014
	Days > 0.03 ppm (State Standard)	0	0	0
	Days > 0.053 ppm (Federal Standard)	0	0	0
$PM_{2.5}$	Maximum 24-hour Concentration (µg/m^3)	42.7	38.8	38.7
	Days > 35 µg/m^3 (Federal Standard)	2	2	3
	Maximum Annual Concentration (µg/m^3)	12.8	9.5	10.2
	Days > 12.0 µg/m^3 (State and Federal Standards)	0	0	0

Source: EPA, Outdoor Air Quality Data, https://www.epa.gov/outdoor-air-quality-data/monitor-values-report, accessed January 27, 2017; and ARB, 2018.

Table 2.2.6-3: Ambient Air Quality Data 2016–2017

Pollutant	Pollutant Concentration & Standards	Calendar Year	
		2016	2017
CO	Maximum 1-hour concentration (ppm)	1.6	2.2
	Days > 20 ppm (State Standard)	0	0
	Days > 35 ppm (Federal Standard)	0	0
	Maximum 8-hour concentration (ppm)	1.4	1.7
	Days > 9.0 ppm (State Standard)	0	0
	Days > 9 ppm (Federal Standard)	0	0
O_3	Maximum 1-hour Concentration (ppm)	0.052	0.058
	Days > 0.09 ppm (State Standard)	0	0
	Maximum 8-hour Concentration (ppm)	0.041	0.049
	Days > 0.070 ppm (State Standard)	0	0
	Days > 0.070 ppm (Federal Standard)	0	0
NO_2	Maximum 1-hour Concentration (ppm)	0.050	0.123
	Days > 0.18 ppm (State Standard)	0	0
	Days > 0.100 ppm (Federal Standard)	0	1
	Annual (ppm)	0.015	0.016
	Days > 0.03 ppm (State Standard)	0	0
	Days > 0.053 ppm (Federal Standard)	0	0
$PM_{2.5}$	Maximum 24-hour Concentration (µg/m^3)	17.3	52
	Days > 35 µg/m^3 (Federal Standard)	0	7
	Maximum Annual Concentration (µg/m^3)	7.1	9.1
	Days > 12.0 µg/m^3 (State and Federal Standards)	0	0

Source: EPA, Outdoor Air Quality Data, https://www.epa.gov/outdoor-air-quality-data/monitor-values-report, accessed January 27, 2017; and ARB, 2018.

Environmental Consequences

Regional Conformity

This project is exempt from regional (40 CFR 93.127) conformity requirements. Separate listing of the project in the RTP and FTIP, and their regional conformity analyses, is not necessary. The project would not interfere with timely implementation of Transportation Control Measures identified in the applicable SIP and regional conformity analysis. The MTC 2017 FTIP identifies the Build Alternative as exempt from regional conformity requirements per 40 CFR 93.127. The exemption is defined as changes in vertical and horizontal alignment that do not affect regional emissions. Nevertheless, the Build Alternative is included on page S4-71 of the financially constrained 2017 FTIP, which was adopted by MTC on September 28, 2016. FHWA and the Federal Transit Administration approved the 2017 FTIP on December 16, 2016. The 2017 FTIP Identification Number is ALA050079. The Build Alternative is described as "Berkeley: On Gilman Street at I-80; Reconfigure interchange providing dual roundabout at the entrance & exits from I-80 as well as the Eastshore Highway and West Frontage Road." The Build Alternative is also included in the RTP under Identification Number 21144 and described as "Reconfigure I-80/Gilman interchange, involves dual roundabout at interchange and pedestrian and bicycle improvements."

Project-Level Conformity

The project is in Alameda County and is in an attainment–maintenance (moderate) area for CO and, attainment for PM_{10}, and nonattainment (moderate- 24 hour) for $PM_{2.5}$. Thus, project-level hot-spot analyses for CO and $PM_{2.5}$ are required under 40 CFR 93.109. Interagency consultation with the Air Quality Conformity Task Force was conducted on September 28, 2017. Consultation and coordination with FHWA for a project-level conformity determination is detailed in Section 4.2.4, Federal Highway Administration and included in Appendix G. Caltrans requested a project-level conformity determination on February 19, 2019. FHWA responded with a conformity concurrence determination in a letter dated March 15, 2019.

Carbon Monoxide Hot-Spots

Caltrans has developed the Transportation Project-Level Carbon Monoxide Protocol (Caltrans, 1997) for assessing CO impacts of transportation projects. The procedures and guidelines comply with the following regulations without imposing additional requirements: Section 176(c) of the 1990 FCAA Amendments, federal conformity rules, state and local adoptions of the federal conformity rules, and CEQA requirements [California Code of Regulations Title 21 Section 1509.3(25)]. In the CO Protocol,

projects that worsen air quality are identified as those that significantly increase the percentage of vehicles operating on cold-start mode (defined as starting an engine after the vehicle has been shut off for more than 12 hours), significantly increase traffic volumes, or worsen traffic flow. The Build Alternative would have no effect to the percentage of vehicles operating in cold-start mode because the project would not cause the initiation of new vehicle trips. Similarly, the Build Alternative would have no effect on traffic volumes and would not worsen traffic flow. The purpose of the Build Alternative is to simplify and improve navigation, mobility, and traffic operations; reduce congestion, vehicle queues, and conflicts; improve local and regional bicycle connections and pedestrian facilities; and improve safety at the I-80/Gilman Street interchange. The *Traffic Operations Analysis Report* (2017) determined that the Build Alternative would result in 2020 and 2040 benefits at the following intersections: Gilman Street/West Frontage Road, Gilman Street/Westbound I-80 Ramps, Gilman Street/Eastbound I-80 Ramps, and Gilman Street/Eastshore Highway. The traffic study also concluded that the queue lengths would be reduced significantly on the I-80 eastbound off-ramp and on the I-80 westbound off-ramp to Gilman Street under both 2020 and 2040 conditions. Per the CO Protocol, the Build Alternative would not worsen air quality, and no further analysis is needed. Refer to the *Air Quality Report* (2018) for additional information related to the CO Protocol and the step-by-step hot-spot analysis.

Particulate Matter Hot-Spots

A particulate matter hot-spot analysis is required under the EPA Transportation Conformity rule for Projects of Air Quality Concern (POAQC). Per the EPA Transportation Conformity Guidance (EPA, 2013), five types of projects are considered POAQC:

1. New or expanded highway projects that have a significant number of or significant increase in diesel vehicles;
2. Projects affecting intersections that are at LOS D, E, or F with a significant number of diesel vehicles, or those that will change to LOS D, E, or F because of increased traffic volumes from a significant number of diesel vehicles related to the project;
3. New bus and rail terminals and transfer points that have a significant number of diesel vehicles congregating at a single location;
4. Expanded bus and rail terminals and transfer points that significantly increase the number of diesel vehicles congregating at a single location; and

5. Projects in or affecting locations, areas, or categories of sites that are identified in the $PM_{2.5}$ and PM_{10} applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation.

The Build Alternative has undergone interagency consultation regarding POAQC determination. Interagency consultation participants concurred that the project is not a POAQC on September 28, 2017. The Build Alternative is not considered a POAQC because it does not meet the definition as defined in EPA's Transportation Conformity Guidance; therefore, particulate matter hot-spot analysis is not required. Refer to the *Air Quality Report* (2018) for additional information related to the particulate matter discussion.

Conformity-Related Construction Requirements

40 CFR 93.123(c)(5) states that: "CO 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 5 years or less at any individual site." Construction would occur over approximately 24 months (2 years). Construction activities would not last for more than 5 years at one general location, so construction-related emissions do not need to be included in regional and project-level conformity analysis (40 CFR 93.123(c)(5)). Because construction of the project is expected to last less than 5 years, construction-related emissions related to it are not considered in the project-level or regional conformity analysis.

Long-Term (Operational Emissions) Criteria Pollutants and Ozone Precursors

The Build Alternative would change local traffic patterns and speeds, thereby affecting mobile source emissions. The Build Alternative would not generate new vehicle trips and would have the greatest effect on congestion and delay during the AM and PM peak hours. The traffic study only includes peak-hour volumes and delay. It is presumed that the study area operates in acceptable traffic conditions during non-peak hours, and changes in pollutant emissions related to improved traffic flow would be minimal; therefore, the sum of changes in total AM and PM peak-hour delay were used to characterize daily emissions resulting from implementation of the Build Alternative relative to the No Build Alternative in 2020 and 2040. This methodology represents a reasonable assessment of how exhaust emissions would change in the intersection area

with the Build Alternative. Regional operational emissions associated with project implementation were calculated using CT-EMFAC2014.

Table 2.2.6-4 shows emissions in the existing condition and 2020 and 2040 for the No Build and Build Alternatives. Emissions decrease in 2020 and 2040 compared to the existing condition primarily due to fleet turnover and improvements in exhaust controls. When compared to the No Build Alternative, the Build Alternative would result in slight reductions in daily criteria pollutant emissions due to improved traffic flow.

Table 2.2.6-4: Criteria Pollutant and Ozone Precursor Emissions

Year and Alternative	Pounds per Day				
	Volatile Organic Compounds (VOC)	Nitrogen Oxides (NO_X)	Carbon Monoxide (CO)	PM_{10}	$PM_{2.5}$
Existing Conditions (2016)					
	1.43	4.06	1.87	0.02	0.02
2020 Conditions					
No Build Alternative	1.17	3.07	1.58	0.02	0.02
Build Alternative	0.34	0.90	0.46	0.10	0.10
Net Change from No Build Alternative	-0.83	-2.17	-1.12	-0.02	-0.01
Net Change from Existing Condition	-1.09	-3.16	-1.41	-0.02	-0.02
2040 Conditions					
No Build Alternative	0.54	1.44	0.80	0.01	0.01
Build Alternative	0.38	1.00	0.55	0.01	0.01
Net Change from No Build Alternative	-0.16	-0.44	-0.24	0.00	0.00
Net Change from Existing Condition	-1.05	-3.06	-1.32	-0.02	-0.02

Source: Air Quality Report, 2018.

Mobile Source Air Toxics

Controlling air toxic emissions became a national priority with passage of the Clean Air Act Amendments of 1990, whereby Congress mandated that EPA regulate 188 air toxics, also known as hazardous air pollutants. EPA assessed this expansive list in its rule on the Control of Hazardous Air Pollutants from Mobile Sources (*Federal Register*, Vol. 72, No. 37, page 8430, February 26, 2007) and identified a group of 93 compounds emitted from mobile sources that are part of EPA's Integrated Risk Information System. In addition, EPA identified nine compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk drivers or contributors and noncancer hazard contributors from the 2011

National Air Toxics Assessment. These are 1,3-butadiene, acetaldehyde, acrolein, benzene, diesel particulate matter, ethylbenzene, formaldehyde, naphthalene, and polycyclic organic matter. While FHWA considers these the priority mobile source air toxics (MSATs), the list is subject to change and may be adjusted in consideration of future EPA rules.

Consideration of MSAT in NEPA Documents

FHWA developed a tiered approach with three categories for analyzing MSAT in NEPA documents, depending on specific project circumstances:

1. No analysis for projects with no potential for meaningful MSAT effects;
2. Qualitative analysis for projects with low potential MSAT effects; or
3. Quantitative analysis to differentiate alternatives for projects with higher potential MSAT effects.

Project-Level MSAT Analysis

Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents (FHWA, 2016) recommends a range of options deemed appropriate for addressing and documenting the MSAT issue in NEPA documents. The guidance states that FHWA does not recommend MSAT analyses for projects with no or negligible traffic impacts. Sources of MSAT emissions in the study area include I-80, UPPR tracks, and the Berkeley Marina. No MSAT monitoring sites were identified in Alameda County, and existing concentrations are not available in the study area. However, the analysis below documents the basis for the determination of no meaningful potential impacts.

The *Traffic Operations Analysis Report* (2017) determined that the Build Alternative would result in 2020 and 2040 benefits at the following intersections: Gilman Street/ West Frontage Road, Gilman Street/Westbound I-80 Ramps, Gilman Street/Eastbound I-80 Ramps, and Gilman Street/Eastshore Highway. The traffic study also concluded that the queue lengths would be reduced significantly on the I-80 eastbound off-ramp and on I-80 westbound off-ramp to Gilman Street under both 2020 and 2040 conditions. Furthermore, Table 2.2.6-4 demonstrates that the Build Alternative would reduce emissions of criteria pollutants and O_3 precursors in the interchange area.

This project has been determined to generate minimal air quality impacts for FCAA criteria pollutants and has not been linked with any special MSAT concerns. As such, this project would not result in changes in traffic volumes, vehicle mix, basic project

location, or any other factor that would cause a meaningful increase in MSAT impacts of the project from that of the No Build Alternative.

Moreover, EPA regulations for vehicle engines and fuels would cause overall MSAT emissions to decline significantly over the next several decades. Based on regulations now in effect, an analysis of national trends with EPA's MOVES2014 model forecasts a combined reduction of more than 90 percent in the total annual emissions rate for the priority MSAT from 2010 to 2050 while vehicle miles of travel are projected to increase by more than 45 percent (FHWA, 2016). The improvements in vehicle technology would offset any increases in MSAT from the increase in vehicle miles traveled. This would reduce the background level of MSAT, as well as the possibility of even minor increases in MSAT emissions from this project.

Short-Term (Construction Emissions) Criteria Pollutants and Ozone Precursors

During construction, short-term degradation of air quality may occur due to the release of particulate emissions (airborne dust) generated by excavation, grading, hauling, and various other construction-related activities. Exhaust emissions from construction equipment also are expected and would include CO, nitrogen oxide (NO_X), VOCs, directly emitted particulate matter (PM_{10} and $PM_{2.5}$), and toxic air contaminants such as diesel exhaust particulate matter. O_3 is not directly emitted from construction activities; it is a regional pollutant that is formed from NO_X and VOCs in the presence of sunlight and heat.

Construction of the proposed project is planned to commence in 2020/2021 and is anticipated to be completed in 2023. The duration of construction for the Build Alternative is approximately 24 months (2 years). The anticipated construction staging areas available include areas within the existing roadway right-of-way construction limits. An additional staging area may be required west of the project on Gilman Street in one or two parking lots owned by EBRPD. Three of the five staging areas would be located within BCDC jurisdiction (two are located within Tom Bates Regional Sports Complex and one is located adjacent to the north of Tom Bates Regional Sports Complex, on Gilman Street), and two would be located along the Gilman Street underpass.

Construction activities would not last for more than 5 years at one general location, so construction-related emissions do not need to be included in regional and project-level conformity analysis (40 CFR 93.123(c)(5)).

The temporary impact analysis utilized the Sacramento Metropolitan Air Quality Management District's Roadway Construction Model (RoadMod) Version 8.1.0 to quantify emissions, which BAAQMD considers an adequate model for estimating road construction emissions. The RoadMod phasing assumptions were used to allocate the project-specific construction equipment to the specific phases. Table 2.2.6-5 shows the assumed construction schedule and off-road equipment used in each phase of the Build Alternative. Calculation methods and assumptions as generated by RoadMod are provided in the *Air Quality Report* (2018).

Table 2.2.6-5: Duration and Equipment for Construction Activities

Construction Activity	Duration (months)	Equipment Used
Grubbing/Land Clearing	2.4	Crawler Tractor, Excavators, Signal Boards
Grading/Excavation	9.6	Auger Drill, Crane, Crawler Tractors, Excavators, Graders, Roller, Rubber Tired Loader, Signal Boards, Tractors/Loaders/Backhoes
Drainage/Utilities	8.4	Air Compressor, Generator Set, Grader, Plate Compactor, Pump, Rough Terrain Forklift, Scrapers, Signal Boards, Tractors/Loaders/Backhoes
Paving	3.6	Paver, Paving Equipment, Roller, Signal Boards, Tractors/Loaders/Backhoes

Source: Sacramento Metropolitan Air Quality Management District, RoadMod (Version 8.1.0), 2016.

Table 2.5.6-6 shows the daily emissions associated with the Build Alternative. Construction emissions are short-term and intermittent in duration. In addition, project features, avoidance, minimization, and/or mitigation measures are provided below that would reduce and/or control emissions resulting from construction activities.

Table 2.5.6-6: Construction Emissions

Activities	Pounds per Day					CO_2 (tons/ phase)
	Volatile Organic Compounds (VOC)	Nitrogen Oxides (NO_X)	Carbon Monoxide (CO)	PM_{10}	$PM_{2.5}$	
Grubbing/Land Clearing	2.63	24.06	23.35	16.28	4.32	121.54
Grading/Excavation	3.52	37.93	27.00	16.84	4.70	757.93
Drainage/Utilities	2.28	21.65	21.81	16.30	4.20	641.95
Paving	1.14	12.13	13.16	0.73	0.58	157.65
Total (Tons/Project)	0.70	7.12	5.98	3.74	1.02	1,679.07

Source: Air Quality Report, 2018.

Naturally Occurring Asbestos and Structural Asbestos

Naturally Occurring Asbestos

Naturally occurring asbestos can be released from serpentinite and ultramafic rocks when the rock is broken or crushed. The State Department of Conservation, in conjunction with the United States Geological Survey (USGS), has prepared a map and spreadsheet inventory of asbestos areas and areas known to contain serpentinite and ultraformic rocks. The locations of the identified deposits were examined, and it was determined that the project is not in an area containing naturally occurring asbestos. Standard dust control measures, such as watering, would effectively control unanticipated naturally occurring asbestos exposure.

Structural Asbestos

Impacts from suspect asbestos-containing materials could occur if the I-80 overcrossing of Gilman Street requires modification and if asbestos-containing materials were used in constructing the structure. However, no modifications to the I-80 overcrossing of Gilman Street would occur as the project is currently designed. BAAQMD requires an asbestos survey and notification prior to demolition or renovation of bridges. In addition, EPA requires that the concrete of bridges to be demolished and other typically more suspect components such as bridge rail shims and conduit be screened for asbestos (*Initial Site Assessment*, 2018).

Demolition activities would be subject to BAAQMD Regulation 11, Rule 2 (Asbestos Demolition, Renovation, and Manufacturing). BAAQMD Regulation 11, Rule 2 is intended to limit asbestos emissions and the associated disturbance of asbestos-containing waste material generated or handled during these activities. As described in the BAAQMD May 2017 CEQA Guidelines, "The rule addresses the national emissions standards for asbestos along with some additional requirements. The rule requires the Lead Agency and its contractors to notify BAAQMD of any regulated renovation or demolition activity. This notification includes a description of structures and methods utilized to determine whether asbestos-containing materials are potentially present. All asbestos-containing material found on the site must be removed prior to demolition or renovation activity in accordance with BAAQMD Regulation 11, Rule 2, including specific requirements for surveying, notification, removal, and disposal of material containing asbestos. Therefore, projects that comply with Regulation 11, Rule 2 would ensure that asbestos-containing materials would be disposed of appropriately and safely." By complying with BAAQMD Regulation 11,

Rule 2, thereby minimizing the release of airborne asbestos emissions, demolition activity would not result in a significant impact to air quality.

Lead

ADL has been found to occur in soils adjacent to high-use roadways and railways. The lead is presumably from the historical use of leaded gasoline and subsequent exhaust emissions. Buildings near the roadway have been present in some locations since the early 20th century. Where older buildings (pre-1980s) are upgradient and near the roadway, lead-contaminated runoff may have flowed into swales and ditches present along the roadways. Industrial facilities located adjacent to or near the project site include foundries, machine and metal-working shops, tanneries, and chemicals manufacturers or handlers (ink and printing facilities). Metals contamination associated with historical air emissions and stormwater runoff from these facilities could be present in soil. Facilities within the study area have reported concentrations of metals in soil above ambient background. More information is contained in the *Initial Site Assessment* (2018). Soils would be tested for the presence of hazardous materials such as lead. If lead is present, the project would be required to develop a Lead Compliance Plan to minimize exposure per BAAQMD rules and regulations.

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. Fugitive emissions generally shall meet a "no visible dust" criterion either at the point of emissions or at the right-of-way line depending on local regulations.

Avoidance, Minimization, and/or Mitigation Measures

The following avoidance and minimization measure would be implemented:

AMM AQ-1: 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. Such measures may include:

- The contractor will provide a dust control plan that includes provisions for any necessary watering to suppress dust.
- All haul trucks transporting soil, sand, or other loose material offsite shall be covered.

- All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- All vehicle speeds on unpaved roads shall be limited to 15 mph.
- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations). Clear signage shall be provided for construction workers at all access points.
- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation. At a minimum, all equipment should meet the current ARB fleet standards.
- A publicly visible sign with the telephone number and person to contact at the Lead Agency regarding dust complaints shall be posted. This person shall respond and take corrective action within 48 hours. The BAAQMD phone number shall also be visible to ensure compliance with applicable regulations.

Climate Change

Neither EPA nor FHWA has issued explicit guidance or methods to conduct project-level GHG 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 Chapter 3, CEQA Evaluation. The CEQA analysis may be used to inform the NEPA determination for the project.

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2.2.7 Noise

Regulatory Setting

NEPA and CEQA provide the 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.

California Environmental Quality Act

CEQA requires a strictly baseline versus build analysis to assess whether a proposed project will 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 CFR 772 noise analysis; please see Chapter 3, CEQA Evaluation, for further information on noise analysis under CEQA.

National Environmental Policy Act and 23 CFR 772

For highway transportation projects with FHWA involvement (and Caltrans, as assigned), the Federal-Aid Highway Act of 1970 and the associated 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 A-weighted decibels [dBA]) is lower than the NAC for commercial areas (72 dBA). Table 2.2.7-1 lists the NAC for use in the NEPA 23 CFR 772 analysis.

Figure 2.2.7-1 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.

According to Caltrans' *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 increase) or when the future noise level with the project approaches or exceeds the NAC. Approaching the NAC is defined as coming within 1 dBA of the NAC.

Table 2.2.7-1: Noise Abatement Criteria

Activity Category	Activity $L_{eq}[h]$[1]	Evaluation Location	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[2]	67	Exterior	Residential.
C[2]	67	Exterior	Active sport 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	--	--	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G	--	--	Undeveloped lands that are not permitted (without building permits).

[1] NAC, Hourly A- Weighted Noise Level, $L_{eq}(h)$
[2] Includes undeveloped lands permitted for this activity category.

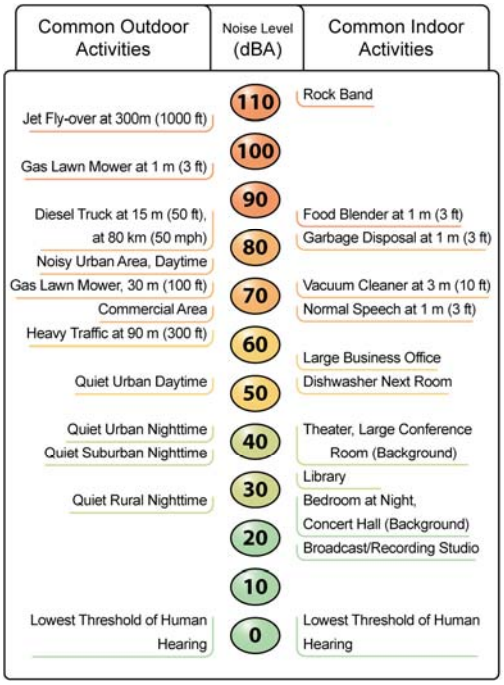

Figure 2.2.7-1: Noise Levels of Common Activities

If it is determined that the 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 project.

Caltrans' *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. A minimum 5-dBA reduction for all impacted receptors in the future noise levels must be achieved for an abatement to be considered feasible. Other considerations include topography, access requirements, other noise sources, and safety considerations. Additionally, a noise reduction of at least 7 dBA must be achieved at one or more benefited receptors for an abatement measure to be considered reasonable. The reasonableness determination is basically a cost-benefit analysis. Factors used in determining whether a proposed noise abatement measure is reasonable include residents' acceptance and the cost per benefited residence.

Affected Environment

The following summarizes the *Noise Study Report* (July 2018) and the *Noise Abatement Decision Report* (August 2018) and discusses the anticipated noise effects of the Build Alternative. Frequent outdoor use areas that could be subject to traffic and construction noise impacts from the proposed project were identified using aerial photography, Google Street View, and field site visit. Short-term noise measurements, ST1 and ST2, were conducted at two sites in August 2016 for two consecutive 10-minute intervals for a total duration of 20 minutes each. Long-term noise measurement, LT1, was conducted for 72 hours between April 17 and 20, 2018 to determine hourly noise distribution and identify the worst-noise hour. Train pass-by measurements were conducted as requested by Caltrans on April 18, 19, and 20, 2018, specifically to determine existing train characteristics, including pass-by noise levels, number of locomotives and cars, and speeds. Measurement locations are shown in Figure 2.2.7-2.

Although all developed land uses are evaluated in this analysis, noise abatement is only considered for areas of frequent human use that would benefit from a lowered noise level. Accordingly, this impact analysis focuses on locations with defined outdoor activity areas, specifically Tom Bates Regional Sports Complex and the Bay Trail.

Land uses in the study area were grouped into a series of lettered analysis areas identified in Figure 2.2.7-2. Each of these analysis areas is considered acoustically equivalent.

Area A: Area A is located west of West Frontage Road and I-80 and south of Gilman Street. Tom Bates Regional Sports Complex, as well as the Bay Trail (Activity Category C) are in this area. This area is flat and no natural or man-made noise barriers are located between the roadways and Area. A

Area B: Area B is located west of I-80 and north of Gilman Street. The stable area of Golden Gate Fields (Activity Category E) is in this area. While there are no formal frequent human use areas located within this location, horse trainers train their horses at a carousal in front of the stables. However, because this activity does not fall with those described in Activity Category C and the City of Berkeley has zoned this area as commercial, this area is classified as Activity Category E. Area B is flat and no natural or man-made noise barriers are located between the roadways and the land use.

Area C: Area C is located east of Eastshore Highway, as well as I-80, and south of Gilman Street. This area is mainly industrial (Activity Category F) with a commercial establishment (Activity Category E) on Gilman Street. There are no formal frequent human use areas located within this location. Area C is flat and no natural or man-made noise barriers are located between the roadway and the land uses.

Area D: Area D is located south of Gilman Street between 2nd Street and 4th Street. This area is a mix of commercial land uses, including a restaurant (Activity Category E), as well as industrial land uses (Activity Category F). There are no formal frequent human use areas located within this location. Area D is flat and no natural or man-made noise barriers are located between the roadway and the land uses.

Area E: Area E is located north of Gilman Street between 2nd Street and 4th Street. This area contains industrial and retail land uses (Activity Category F). There are no formal frequent human use areas located within this location. Area E is flat and no natural or man-made noise barriers are located between the roadway and the land uses.

Area F: Area F is located east of Eastshore Highway, as well as I-80, and north of Gilman Street. This area is a mix of commercial (Activity Category E) and industrial (Activity Category F) land uses. There are no formal frequent human use areas located within this location. Area F is flat and no natural or man-made noise barriers are located between the roadways and the land uses.

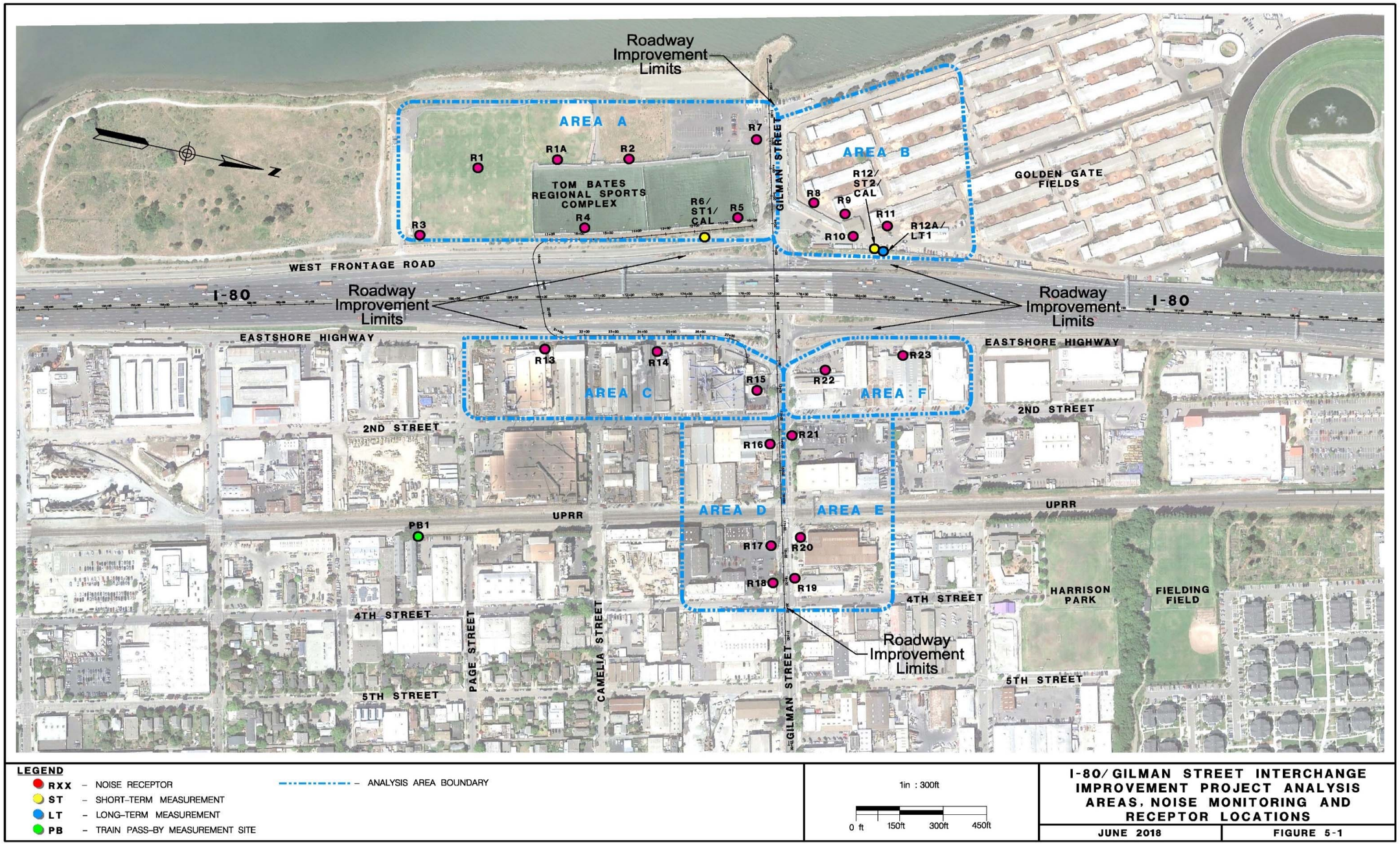

Figure 2.2.7-2: Noise Monitoring and Receptor Locations

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Following established methods for a traffic noise study, the short-term measurements, together with the measured traffic conditions, vehicle mix, and site-specific geographical information, were then used to determine existing noise levels in the study area. Calculated and measured noise levels were compared to assess any differences, to calibrate or validate the FHWA Traffic Noise Model for use in determining noise levels with and without the project, and to consider any applicable noise abatement measures.

Environmental Consequences

Project-Level Impacts

The proposed project is a Type 1 project. A Type 1 project is a project that involves construction of a highway on a new location, the physical alteration of an existing highway, the addition of through-traffic lanes, or restriping existing pavement. Under Title 23 CFR 772.11, noise abatement must be considered for Type 1 projects if the project is predicted to result in a traffic noise impact.

Noise modeling was completed to determine the future (2040) predicted noise levels at receptors in the study area. Table 2.2.7-2 shows the results of this modeling for the Build Alternative. If the predicted noise level approaches or exceeds the NAC or is predicted to substantially exceed the existing noise level, an impact would occur and abatement measures for those locations are considered in the *Noise Abatement Decision Report* (August 2018).

Table 2.2.7-2: Existing (2014) and Predicted Future (2040) Noise Levels

Area/ Receptor ID	Existing Noise Level (dBA)	Predicted 2040 Noise Level with No Build Alternative (dBA)	Predicted 2040 Noise Level with Build Alternative (dBA)	Activity Category (Noise Abatement Criteria)	Approach or Exceeds Noise Abatement Criteria?
A / R 1	62	62	62	C (67)	No
A / R 1A	62	62	62	C (67)	No
A / R 2	63	63	63	C (67)	No
A / R 3	68	68	68	C (67)	Yes
A / R 4	69	69	69	C (67)	Yes
A / R 5	65	65	65	C (67)	No
A / R 6	67	67	67	C (67)	Yes
A / R 7	59	59	59	C (67)	No
B / R 8	56	56	56	E (72)	No
B / R 9	56	56	56	E (72)	No
B / R 10	68	68	68	E (72)	No

Table 2.2.7-2: Existing (2014) and Predicted Future (2040) Noise Levels

Area/ Receptor ID	Existing Noise Level (dBA)	Predicted 2040 Noise Level with No Build Alternative (dBA)	Predicted 2040 Noise Level with Build Alternative (dBA)	Activity Category (Noise Abatement Criteria)	Approach or Exceeds Noise Abatement Criteria?
B / R 11	69	69	69	E (72)	No
B / R 12	70	70	70	E (72)	No
B / R 12A	71	71	71	E (72)	Yes
C / R 13	72 / 72[1]	72 / 72[1]	72 / 72[1]	F (--)	--
C / R 14	67 / 67[1]	67 / 67[1]	67 / 67[1]	F (--)	--
C / R 15	64 / 66[1]	64 / 66[1]	65 / 67[1]	E (72)	No
D / R 16	68 / 70[1]	68 / 70[1]	68 / 70[1]	F (--)	--
D / R 17	66 / 73[1]	66 / 73[1]	65 / 73[1]	E (72)	No
D / R 18	66 / 70[1]	66 / 70[1]	65 / 69[1]	E (72)	No
E / R 19	66 / 70[1]	66 / 70[1]	67 / 70[1]	F (--)	--
E / R 20	64 / 75[1]	64 / 75[1]	64 / 75[1]	F (--)	--
E / R 21	67 / 69[1]	67 / 69[1]	67 / 69[1]	F (--)	--
F / R 22	64 / 65[1]	64 / 65[1]	64 / 65[1]	F (--)	--
F / R 23	70 / 70[1]	70 / 70[1]	70 / 70 [1]	(E 72)	No

[1] Noise levels include train noise. Noise impacts are based on design year build traffic noise levels. Train noise is not considered in determining project impacts.

Area A

The traffic noise modeling results indicate traffic noise levels at Tom Bates Regional Sports Complex represented by Receptors R1 through R5, as well as two locations of the Bay Trail represented by Receptors R6 and R7 (Activity Category C), are predicted to range from 59 to 69 dBA L_{eq}(h) in the design year. There is no anticipated change in noise levels between the Build and No Build conditions. The results also indicate there is no noise increase between existing conditions and the design year; therefore, the expected noise levels in the design year are not forecasted to result in a substantial increase in noise. However, because the expected noise levels in the design year are forecasted to approach or exceed the NAC (67 dBA L_{eq}[h]) at two areas of the sports complex represented by Receptors R3 and R4 and one location along the trail represented by Receptor R6, traffic noise impacts are expected to occur, and noise abatement must be considered for this area.

Area B

The traffic noise modeling results indicate traffic noise levels at the horse stable area of Golden Gate Fields represented by Receptors R8 through R12A (Activity Category E) in Area B would be in the range of 56 to 71 dBA L_{eq}(h) in the design year. There is no anticipated change in noise levels between the Build and No Build conditions. The results also indicate there would be no increase in noise between existing conditions and the design-year conditions. Because the expected noise levels in the design year are not forecasted to approach or exceed the NAC (72 dBA L_{eq}[h]) at the horse stable area and a substantial increase in noise would not occur, no traffic noise impacts are predicted in Area B. Receptors R12 and R12A, which were noise measurement locations, are located in parking stalls and are not representative of the horse stables; therefore, even though Receptor R12A is predicted to approach the NAC, the impact does not require noise abatement.

Area C

The traffic noise modeling results in Table 2.2.7-2 indicate traffic noise levels at the commercial establishment represented by Receptor R15 (Activity Category E) is predicted to be 67 dBA L_{eq}(h) in the design year. Industrial land uses represented by Receptors R13 and R14 (Activity Category F) are predicted to be in the range of 67 to 72 dBA L_{eq}(h) in the design year. There is a 1-dB increase in noise levels anticipated between the Build and No Build conditions at Receptor R15. The results also indicate the increase in noise between existing conditions and the design year is predicted to range between 0 and 1 dB. Because the expected noise levels in the design year are not forecasted to approach or exceed the NAC (72 dBA L_{eq}[h]) at the commercial establishment, there is no NAC for Activity Category F uses, and a substantial increase in noise would not occur, no traffic noise impacts are predicted in Area C.

The increase in traffic noise levels in the design year at Receptor R15 is likely due to the increase in traffic volumes on the nearby roundabout, which brings traffic closer to the receptor.

The train noise modeling results indicate that train noise levels in Area C are predicted to range from 52 to 63 dBA L_{eq}(h) with combined traffic and train noise levels of 67 to 72 dBA L_{eq}(h) in the design year. The addition of train noise increases the overall noise levels by 2 dB at Receptor R15 in Area C. This is due to the location of receptors away from the train tracks and buildings between the receptors and train tracks as shown in

Figure 2.2.7-2. Train noise is not considered when determining impacts because train noise is not related to the project.

Area D

The traffic noise modeling results in Table 2.2.7-2 indicate traffic noise levels at the commercial establishments represented by Receptors R17 and R18 (Activity Category E) are predicted to be 65 dBA L_{eq}(h) in the design year. Industrial land uses represented by Receptor R16 (Activity Category F) are predicted to be 68 dBA L_{eq}(h) in the design year. There is a 1-dB decrease in noise levels anticipated between the Build and No Build conditions at Receptors R17 and R18. The results also indicate there is no increase in noise between existing conditions and the design-year conditions. Because the expected noise levels in the design year are not forecasted to approach or exceed the NAC (72 dBA L_{eq}[h]) at the commercial establishment, there is no NAC for Activity Category F uses, and a substantial increase in noise would not occur, no traffic noise impacts are predicted in Area D.

The decrease in traffic noise levels in the design year at Receptors R17 and R18 is due to the horizontal shift to the north of the travel way on Gilman Street, which pushes the traffic farther from this receptor. The shift in the travel way is to make room for the bicycle lane.

The train noise modeling results indicate that train noise levels in Area D are predicted to range from 67 to 72 dBA L_{eq}(h) with combined traffic and train noise levels of 69 to 73 dBA L_{eq}(h) in the design-year. The addition of train noise increases the overall noise levels by 2 to 8 dB in this area where Receptor R17 experiences the additional 8 dB in Area D. This is due to the very close proximity of the train tracks to the receptor. While the overall noise levels including train noise at Receptor R17 is predicted to exceed the noise abatement criterion (72 dBA L_{eq}[h]) at the commercial establishment, this area is not considered impacted. Train noise is not considered when determining impacts because train noise is not related to the project.

Area E

The traffic noise modeling results in Table 2.2.7-2 indicate traffic noise levels at the retail establishment represented by Receptor R19 and industrial land uses represented by Receptors R20 and 21 (Activity Category F) are predicted to range from 64 to 67 dBA L_{eq}(h) in the design year. There is a 1-dB increase in noise levels anticipated between the Build and No Build conditions at Receptor R19. The results also indicate the increase in noise between existing conditions and the design year is expected to

range from 0 to 1 dB. Because there is no NAC for Activity Category F uses and a substantial increase in noise would not occur, no traffic noise impacts are predicted in Area E.

The increase in traffic noise levels in the design year at Receptor R19 is due to the horizontal shift to the north of the travel way on Gilman Street, which brings the traffic closer to these receptors. The shift in the travel way is to make room for the bicycle lane.

The train noise modeling results indicate that train noise levels in Area E are predicted to range from 66 to 74 dBA L_{eq}(h) with combined traffic and train noise levels of 69 to 75 dBA L_{eq}(h) in the design year. The addition of train noise increases the overall noise levels by 2 to 11 dB in this area where Receptor R20 experiences the additional 11 dB in Area E. This is due to the close proximity of the train tracks to the receptor. Train noise is not considered when determining impacts because train noise is not related to the project.

Area F

The traffic noise modeling results in Table 2.2.7-2 indicate traffic noise levels at the commercial establishment represented by Receptor R23 (Activity Category E) are predicted to be 70 dBA L_{eq}(h) in the design year. Industrial land uses represented by Receptor R22 (Activity Category F) are predicted to be 64 dBA L_{eq}(h) in the design year. There is no anticipated change in noise levels between the Build and No Build conditions. The results also indicate there would be no increase in noise between existing conditions and the design-year conditions. Because the expected noise levels in the design year are not forecasted to approach or exceed the NAC (72 dBA L_{eq}[h]) at the commercial establishment, there is no NAC for Activity Category F uses, and a substantial increase in noise would not occur, no traffic noise impacts are predicted in Area F.

The train noise modeling results indicate that train noise levels in Area F are predicted to range from 55 to 56 dBA Leq(h) with combined traffic and train noise levels of 65 to 70 dBA Leq(h) in the design year. The addition of train noise increases the overall noise levels by 1 dB at Receptor R22 in Area F. This is due to the location of receptors away from the train tracks and buildings between the receptors and train tracks as shown in Figure 2.2.7-2. Train noise is not considered when determining impacts because train noise is not related to the project.

Construction Impacts

During the construction phases of the project, noise from construction activities may intermittently dominate the noise environment in the immediate area of construction. Table 2.2.7-3 summarizes noise levels produced by construction equipment commonly used on roadway construction projects. As indicated, equipment involved in construction is expected to generate noise levels ranging from 80 to 88 dBA at a distance of 50 feet. Noise produced by construction equipment would be reduced over distance at a rate of approximately 6 dB per doubling of distance.

Table 2.2.7-3: Construction Equipment Noise

Equipment	Maximum Noise Level (dBA at 50 feet)
Scrapers	88
Bulldozers	85
Heavy Trucks	88
Backhoe	80
Pneumatic Tools	85
Concrete Pump	82

Source: Federal Transit Administration, 2006

Construction noise varies greatly depending on the construction process, type and condition of equipment used, and layout of the construction site. Many of these factors are traditionally left to the contractor's discretion, which makes it difficult to accurately estimate levels of construction noise. Construction noise estimates are approximate because of the lack of specific information available at the time of the assessment. Temporary construction noise impacts would be unavoidable at areas located immediately adjacent to the proposed project alignment.

Noise associated with construction is controlled by Caltrans Standard Specifications Section 14-8.02 "Noise Control," which states to control and monitor noise resulting from work activities and to not exceed 86 dBA at 50 feet from the job site activities from 9:00 p.m. to 6:00 a.m.

Typically, work taking place within Caltrans right-of-way is not subject to local noise ordinances; however, Caltrans will work with the contractor to meet local requirements where feasible.

There would be some work during night-time hours to avoid temporary roadway closures for tasks that could interfere with traffic or create safety hazards.

The different construction phases are described as follows:

- Phase 1 – Day work: Demo curb and gutter, asphalt pavement removal, grading, construct curb and gutter, construct new pavement, most utility and Caltrans signal relocations
- Phase 2 – Night work (Caltrans ramps): Demo curb and gutter, asphalt pavement removal, grading, construct curb and gutter, construct new pavement
- Phase 3 – Day work: Demo curb and gutter, asphalt pavement removal, grading, construct curb and gutter, construct new pavement
- Phase 4 – Night work (West Gilman Street intersection): Demo curb and gutter, asphalt pavement removal, grading, construct curb and gutter, construct new pavement
- Phase 5 – Night work (East Gilman Street intersection): Demo curb and gutter, pavement grinding, grading, construct curb and gutter, construct new pavement
- Phase 6 – Day work: Roadway finishes and landscaping, guard rail
- Pedestrian Overcrossing – (Conducted during all phases): Approaches, foundations, substructure, superstructure, steel installation, pedestrian and bicycle overcrossing deck, retaining wall and stairs

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 special impact tools. FHWA's Roadway Construction Noise Model was used to calculate the maximum and average noise levels anticipated during the construction phases at the receptor location as well as at a distance of 50, 100, 200, and 500 feet. This construction noise model includes representative sound levels for the most common types of construction equipment and the approximate usage factors of such equipment that were developed based on an extensive database of information gathered during construction of the Central Artery/ Tunnel Project in Boston, Massachusetts (CA/T Project or "Big Dig"). The usage factors represent the percentage of time that the equipment would be operating at full power. Vehicles and equipment anticipated during each phase of construction were input into the Roadway Construction Noise Model to calculate noise levels at a distance of 50 feet.

Table 2.2.7-4 presents the construction noise levels estimated for each major phase of the project. It is anticipated the same construction equipment would be used for Phases 1 through 5.

Table 2.2.7-4: Predicted Noise Levels by Construction Phase at Receptor Locations

Receptor	Land Use	Construction Phases 1-5		Construction Phase 6		Bicycle and Pedestrian Overcrossing	
		Maximum Noise Level (L_{max}, dBA)	Hourly Average Noise Level (L_{eq}, dBA)	Maximum Noise Level (L_{max}, dBA)	Hourly Average Noise Level (L_{eq}, dBA)	Maximum Noise Level (L_{max}, dBA)	Hourly Average Noise Level (L_{eq}, dBA)
R5	Sports Complex	84	81	80	75	80	79
R6	Trail	95	93	90	85	90	90
R10	Stables	83	81	79	74	65	65
R13	Industrial	93	91	89	84	83	82
R15	Commercial	86	84	81	76	70	69
R18	Restaurant	89	88	85	80	59	59
R21	Industrial	92	90	88	82	65	65
R23	Commercial	89	88	85	80	62	61

Phases 1 through 5 are anticipated to exceed the maximum allowable noise limits for commercial and industrial land uses by 1 to 8 dBA between the daytime hours of 7:00 a.m. and 7:00 p.m. at the receptor locations, assuming the construction activities are short-term. However, based on the drop off at a rate of 6 dB per doubling of distance, no construction noise impacts are anticipated at distances of approximately 80 feet and greater. In addition, construction noise impacts by up to 4 dBA are anticipated during Phase 6 at some of the commercial and industrial receptor locations, and no impacts are anticipated during the pedestrian and bicycle overcrossing construction during daytime hours. No construction noise impacts are anticipated at the stable areas between the daytime hours of 7:00 a.m. and 7:00 p.m. for construction Phases 1 through 6 or the pedestrian and bicycle overcrossing construction.

Construction activities are anticipated to exceed the allowable noise limits at commercial land uses by as much as 24 and 29 dBA during the hours of 7:00 p.m. through 10:00 p.m. and 10:00 p.m. through 7:00 a.m., respectively, and by as much as 23 dBA at industrial land uses during the hours of 7:00 p.m. through 7:00 a.m. at the receptor locations. Construction noise impacts are anticipated at the stable areas by as much as 18 and 23 dBA during the hours of 7:00 p.m. through 10:00 p.m. and 10:00 p.m. through 7:00 a.m., respectively. However, human activity at commercial,

including the stable areas, and industrial land uses would be at a minimum during these hours, and impacts are not likely. To avoid and minimize impacts to the stable areas, AMM NOI-1 would prohibit night work from occurring within or adjacent to Golden Gate Fields property. Additionally, construction activities adjacent to Golden Gate Fields is anticipated to occur during the horse racing off-season.

There are no specified criteria for land uses such as Tom Bates Regional Sports Complex or the Bay Trail; therefore, the sports complex and trail would only be subject to the limits defined by Caltrans Standard Specifications, in which construction activities are anticipated to exceed the allowable limits by 9 dBA at the trail. Construction noise impacts are not anticipated at the sports complex based on the receptor location, but they would exceed the allowable limits by 3 dBA at 50 feet from construction activities. However, most of the complex is much more than 50 feet from the construction activities, and the Standard Specifications only limit noise levels between the hours of 9:00 p.m. and 6:00 a.m., and because the operating hours of the sports complex are from 8:00 a.m. to 11:00 p.m., construction noise impacts are not likely at the sports complex.

It is possible that certain construction activities could cause intermittent localized concern from vibration in the study area.

Project Features

The following project features would be included with the Build Alternative:

PF NOI-1: Construction activities shall be minimized in the study area during evening, nighttime, weekend, and holiday periods. Noise impacts are typically minimized when construction activities are performed during daytime hours; however, nighttime construction may be desirable (e.g., in commercial areas where businesses may be disrupted during daytime hours) or necessary to avoid major traffic disruption.

PF NOI-2: 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-3: The Resident Engineer will be responsible to collect and respond to any complaints related to construction noise.

Avoidance, Minimization, and/or Mitigation Measures

Noise abatement is considered where noise impacts are predicted in areas of frequent human use that would benefit from a lowered noise level.

A noise barrier is the only form of noise abatement considered for this project. The noise barrier evaluated has been evaluated for feasibility based on achievable noise reduction (5 dB or more). For a noise barrier determined to be acoustically feasible, it was determined if the Caltrans acoustical design goal (a 7-dB reduction in noise or greater) could be achieved, then reasonable cost allowances were calculated by multiplying the number of benefited receptors by $95,000.

For any noise barrier to be considered reasonable from a cost perspective, the estimated cost of the noise barrier should be equal to or less than the total cost allowance calculated for the barrier. The cost calculations of the noise barrier must include all items appropriate and necessary for construction of the barrier, such as traffic control, drainage modification, retaining walls, landscaping for graffiti abatement, and right-of-way costs. Construction cost estimates are compared to reasonableness allowances to identify which wall configurations are reasonable from a cost perspective.

Area A

Because the future predicted noise levels in the design year are expected to approach or exceed the NAC (67 dBA L_{eq}[h]) for exterior recreations area uses at two areas of Tom Bates Regional Sports Complex represented by Receptors R3 and R4, and one location of the Bay Trail represented by Receptor R6, a traffic noise impact is forecasted to occur, and noise abatement must be considered for this area.

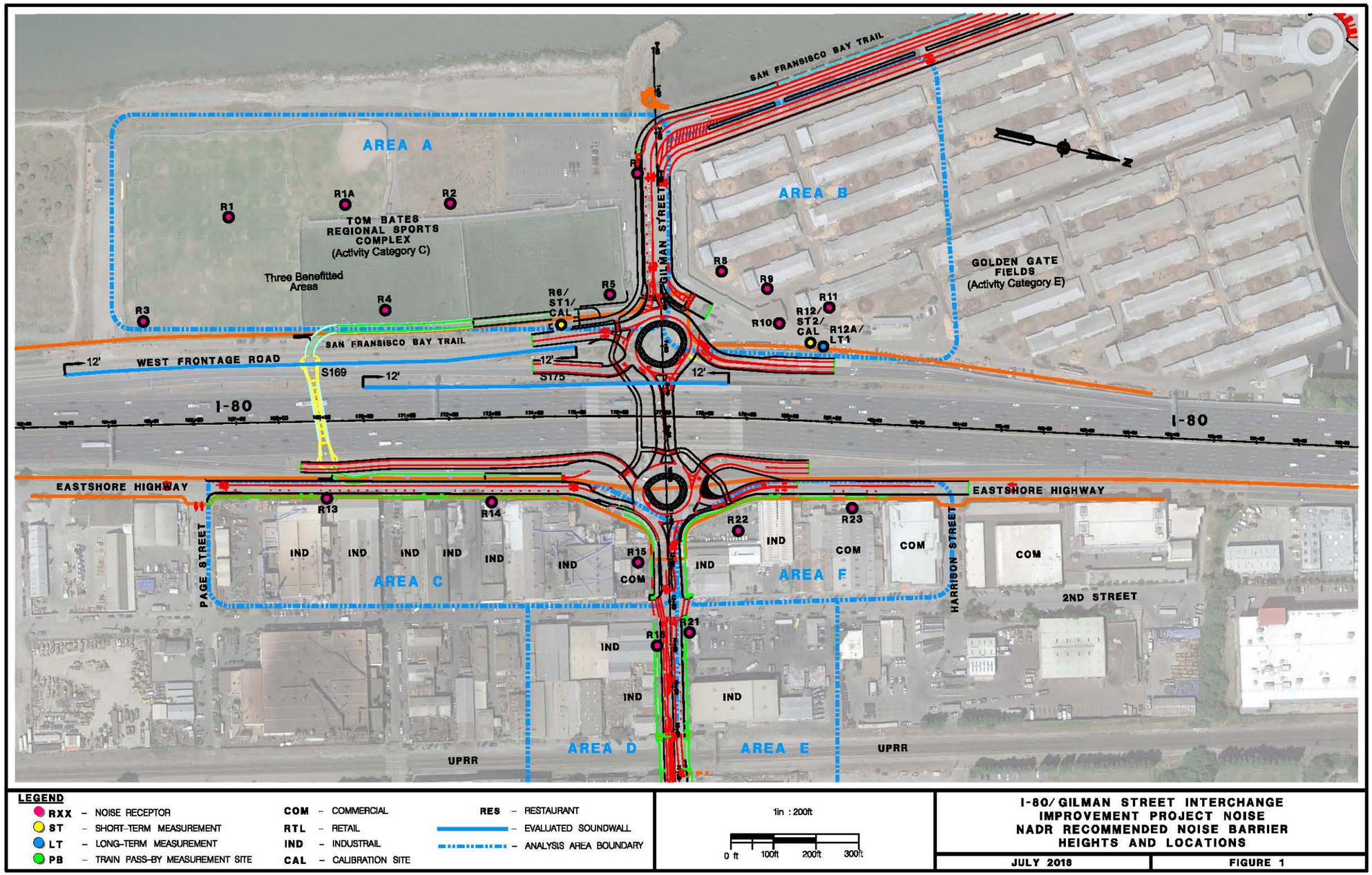

Figure 2.2.7-3: Noise Receptor and Barrier Locations

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Soundwalls S169 and S175: Soundwalls S169 and S175 would work as a system to abate noise. Soundwall S169 would be located on the shoulder of the westbound I-80 on-ramp and would replace the existing safety barrier separating the westbound I-80 on-ramp from West Frontage Road. Soundwall S175 would be located on the shoulder of the westbound I-80 mainline. These soundwalls would provide feasible noise abatement for three outdoor use areas represented by Receptors R2, R3, and R4. Soundwalls S169 and S175 would also meet the design goal by providing 7 dB in traffic noise reduction at Receptor R4. Figure 2.2.7-3 shows the receptor and barrier locations.

Although Receptor R6 is impacted, Soundwalls S169 and S175 would not provide feasible abatement (5-dB noise reduction feasibility goal) for this receptor. This is due to the proximity of West Frontage Road to Receptor R6, which the soundwalls do not block.

An alternate location for Soundwall S169 was considered at the right-of-way line; however, this location would interfere with the proposed pedestrian and bicycle overcrossing and was removed from consideration.

Table 2.2.7-5 summarizes the range of reasonable allowances for the feasible noise abatement measure considered.

Table 2.2.7-5: Summary of Reasonableness Determination Data – Soundwalls S169 and S175[a]

Barrier I.D. S169 and S175	8-Foot Barrier	10-Foot Barrier	12-Foot Barrier	14-Foot Barrier	16-Foot Barrier
Number of Benefitted Receptors	1	1	3	3	5[b]
Reasonable Allowance per Benefitted Receptor	$95,000	$95,000	$95,000	$95,000	$95,000
Total Reasonable Allowance	$95,000	$95,000	$285,000	$285,000	$475,000[b]

[a] An NADR was prepared that identifies noise barrier construction cost information and the noise barriers that are reasonable from a cost perspective.

[b] Per the Highway Design Manual, the maximum height of a noise barrier should not exceed 14 feet when located 15 feet or less from edge of traveled way and the data for total reasonable allowance is provided for informational

The reasonable total cost allowance calculated based on the published Caltrans annual Construction Price Index for Soundwalls S169 and S175 would be $285,000 and would be approximately 1,200 and 660 feet in length, respectively. The current estimated construction cost of the recommended 12-foot-high soundwalls is $3,683,000. Because

the current estimated cost of Soundwalls S169 and S175 far exceeds the reasonable allowance, these noise barriers are not recommended for construction.

Areas B, C, D, E, and F

No traffic noise impacts are predicted for the receivers in Areas B, C, D, E, and F; noise abatement does not need to be considered in these areas. Additionally, there are no NACs for the industrial land uses in these areas; therefore, noise abatement is not required in these areas.

Construction Measures

Noise associated with construction is controlled by Caltrans Standard Specifications Section 14-8.02 "Noise Control." According to requirements of this specification, construction noise cannot exceed 86 dBA at 50 feet from the jobsite activities from 9:00 p.m. to 6:00 a.m. In addition, the project features identified above will be implemented to minimize noise disturbances at sensitive receptors during periods of construction.

The following measures will avoid and minimize noise impacts:

AMM NOI-1: 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. Each internal combustion engine used for any purpose on the job or related to the job shall be equipped with a muffler of a type recommended by the manufacturer. No internal combustion engine should be operated on the jobsite without an appropriate muffler. Idling equipment will be turned off.

AMM NOI-2: 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.

The following measure will avoid and minimize impacts to Golden Gate Fields stables:

AMM NOI-3: Work hours along the internal access road within Golden Gate Fields property would only occur from 10:00 a.m. to 5:00 p.m., and night work would be prohibited from occurring within or adjacent to Golden Gate Fields property.

2.3 Biological Environment

2.3.1 Natural Communities

This section 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, fish passage, 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 (FESA) are discussed below in Section 2.3.4, Threatened and Endangered Species. Wetlands and other waters are also discussed below in Section 2.3.2, Wetlands and Other Waters.

Affected Environment

This section summarizes natural communities from the NES (November 2018), an addendum to the NES (June 2019), the Delineation of Waters of the United States Report (August 2017), and an addendum to the Delineation of Waters of the United States Report (November 2018) that were completed for this project.

Biological Study Area

The Biological Study Area (BSA) includes all project elements, including the design footprint, utility relocations, staging areas, access, any temporary construction easements needed for the project, and the immediately adjacent area in urban and paved areas (see Figure 2.3.1-1). Most of the BSA is classified as urban habitat and is comprised of industrial, commercial, and recreational properties. Non-native landscape and invasive species are common. Within the BSA, most of the urban vegetation is limited to ornamental plantings, as well as lawns/turf associated with Tom Bates Regional Sports Complex and Harrison Park. Landscaped environments are unlikely to provide suitable habitat for special-status plants due to disturbed soil conditions, use of pesticides, hardscape development, and the predominance of exotic landscape species that out-compete native vegetation for resources.

Figure 2.3.1-1: Biological Study Area

Trees within the urban habitat include native and non-native species consisting of acacia *(Acacia* sp.), apple *(Malus* sp.), birch sp. *(Betula* sp.), blue gum eucalyptus *(Eucalyptus globulus),* maple *(Acer* sp.), myoporum *(Myoporum* sp.), olive *(Olea europaea),* pittosporum *(Pittosporum* sp.), plum *(Prunus* sp.), London planetree *(Platanus hybrida),* evergreen pear *(Pyrus kawakamii),* and California sycamore *(Platanus racemosa).* The landscaped tree areas could provide foraging, roosting, and nesting habitat for birds, including special-status or protected wildlife species.

Designated Sensitive Natural Communities

The California Department of Fish and Wildlife's (CDFW) Natural Community Conservation Planning program originated from Fish and Game Code Section 2800. The purpose of the Natural Community Conservation Planning program was to combine CDFW's efforts with private and public partners to take a broad-based ecosystem approach to planning for the protection and perpetuation of California's biological diversity. The goal of the Natural Community Conservation Planning program is to identify and provide regional protection of plants, wildlife, and their habitats. Sensitive natural communities that have been mapped to date as a result of the VegCAMP effort are included in the California Natural Diversity Database (CNDDB). There are no CDFW-designated sensitive natural communities within or adjacent to the BSA.

Annual Grassland

Non-native or naturalized annual grasses and forbs have largely replaced pre-colonial grasslands on rolling hills and flat plains in California. Grasses germinate in the fall but do not grow vigorously until temperatures increase. By summer, fields typically contain a large amount of dead plant material. Many annual grass species grow alongside other habitats, such as oak woodland, perennial grassland, and vernal pools.

One large area of annual grassland habitat is present within the BSA, located south of the proposed staging area adjacent to Tom Bates Regional Sports Complex. It is an open field south of the parking lot, which was uncultivated during field surveys. This area is accessible to the public, and based on historical aerial imagery, it is maintained on a regular basis.

Non-native grasses found in the BSA consisted of common wild oats *(Avena fatua),* ripgut brome *(Bromus diandrus),* foxtail chess *(Bromus madritensis),* soft brome *(Bromus hordeaceus),* Italian rye grass *(Festuca perennis),* and foxtail barley *(Hordeum murinum).* Other non-native herbaceous species observed included wild

radish *(Raphanus sativus),* bedstraw *(Galium* ssp.), and bull mallow *(Malva nicaeensis).* Native species observed included common yarrow *(Achillea millefolium),* California poppy *(Eschscholzia californica),* lupine *(Lupinus* sp.), vetch *(Vicia* ssp.), and coyote brush *(Baccharis pilularis).*

Annual grassland provides foraging, breeding, and resting areas for a wide variety of birds, mammals, and reptiles. Several grassland-associated wildlife species were observed during field surveys, including brewer's blackbird *(Euphagus cyanocephalus),* white-crowned sparrow *(Zonotrichia leucophrys),* and American crow *(Corvus brachyrhynchos).* No special-status plant or wildlife species were observed in the annual grassland habitat during field surveys.

Willow Riparian

Riparian habitat occupies areas along the banks of rivers, streams, lakes, springs, and floodplains. These areas generally contain nutrient-rich alluvial soils, have high water tables, and are subject to periodic flooding. One or more species of deep-rooted deciduous trees, shrubs, and herbs grow in these habitats. Riparian habitat within the BSA is limited to the banks immediately adjacent to Codornices Creek.

Willow riparian habitats are dominated by one or more species of willow *(Salix* sp.). Within the BSA, arroyo willow *(S. lasiolepis)* is the dominant species. However, scattered coast live oak *(Quercus agrifolia)* also occur. The understory consists of annual grasses with few snowberry plants *(Symphoricarpos* sp.). An active bushtit *(Psaltriparus minimus)* nest was observed within this habitat along Codornices Creek, and the adults were seen foraging for and feeding the hatchlings. Special-status species that inhabit riparian areas include the Western pond turtle *(Emys marmorata),* San Francisco dusky-footed woodrat *(Neotoma fuscipes annectens),* and Western red bat *(Lasiurus blossevillii).* However, the level of human disturbance and activity in this area decreases the likelihood that this area provides suitable habitat for special-status species.

Estuarine

Estuarine habitats are located in coastal waterbodies where a river or a creek enters the ocean. As opposed to a saline ocean or a freshwater lake, estuaries often contain a range of salinities, with increasing salt concentrations closer to the ocean and decreasing salt concentrations upstream. Estuaries are highly productive ecosystems, supporting large numbers of invertebrates, fish, and birds. They provide habitat for the reproduction, feeding, resting, and cover of mammals and birds. Estuaries also provide shelter for

large numbers of waterfowl and shorebirds, especially during winter. Eelgrass *(Zostera),* a type of submerged aquatic vegetation, is an important component of estuarine systems. There are no known eelgrass beds within the BSA; however, eelgrass beds are located beyond the western boundary of the BSA in the waters of San Francisco Bay near Golden Gate Fields. Estuarine habitat is located in the far western portion of the BSA, just beyond the rock slope protection that forms the existing shoreline of San Francisco Bay.

Wildlife that can occur in estuarine habitats could include gulls, waterfowl, marine mammals, fish, and shorebirds in transitional areas between estuarine and terrestrial habitats. Special-status wildlife that may occur in this habitat type include, but are not limited to, salmon *(Salmonidae),* sturgeon *(Acipenseridae),* and brant *(Branta bernicla).*

Essential Fish Habitat

The entire San Francisco Bay is classified as Essential Fish habitat for species management under the Pacific Coast Salmon Fishery Management Plan (FMP) (Coho and Chinook salmon), the Coastal Pelagic Species FMP, and the Pacific Coast Groundfish FMP. Pelagic species include Pacific sardine *(Sardinops sagax),* northern anchovy *(Engraulis mordax),* Pacific herring *(Clupea pallasii pallasii),* and jacksmelt *(Atherinopsis californiensis).* Species managed under the Pacific Coast Groundfish FMP include English sole *(Parophrys vetulus).* Furthermore, estuaries and seagrass communities within San Francisco Bay are further defined as a Habitat Area of Particular Concern under the Pacific Coast Groundfish FMP.

Habitat Connectivity

Habitat connectivity within and near the BSA is limited due to the presence of the cities of Berkeley and Albany. The industrial and commercial areas within the BSA, in addition to the residential areas to the east of the BSA, limit habitat connectivity between the Berkeley Hills and the coastal plain adjacent to San Francisco Bay. However, the riparian and aquatic habitat associated with Codornices Creek provides a mostly uninterrupted east-west dispersal corridor for wildlife, although several culverts may impede or limit connectivity for both aquatic and terrestrial species.

The Gilman Street watershed consists entirely of underground drainage culverts. Although fish or other aquatic species may incidentally enter these underground culverts, they do not provide connectivity to any upstream aquatic habitat of ecological value.

The rocky shoreline of San Francisco Bay, as well as the UPRR corridor, may provide marginal opportunities for north-south movement of wildlife, though these areas are fairly disturbed and regularly trafficked by humans.

Environmental Consequences

Project-Level Impacts

No Build Alternative

The No Build Alternative does not propose any construction or disturbance in the BSA; therefore, this alternative would not result in permanent impacts to natural communities.

Build Alternative

Project implementation would result in minor impacts to sensitive habitats or natural communities. The riparian corridor along Codornices Creek would not be impacted by the proposed project. Therefore, there would be no impacts to willow riparian habitat within the BSA. There is also no proposed work within annual grassland areas. Work along the shoreline of San Francisco Bay is limited to the area immediately surrounding the Gilman Street outfall. This work will impact Essential Fish Habitat but would be limited to outfall construction, its associated rock slope protection, and sediment removal.

Updated tree surveys identified 146 trees within the BSA. Tree species are predominantly exotic species used for landscaping. Construction would remove approximately 47 trees, which represents an increase from the total in the original draft environmental document which identified 15 trees for removal. The increase is associated with maturation of some trees within the project corridor in the time since the original survey and refinements in project scope and design that included landscaping design refinements along the Gilman Street Extension. Within Caltrans' right-of-way, two cypress trees *(Hesperocyparis macrocarpa)* and two acacia trees would be removed from the I-80 off-ramps. Within the city of Berkeley, seven evergreen pear trees *(Pyrus kawakamii)* would be removed from Eastshore Highway, and five evergreen pear trees would be removed along 2nd Street. Three landscaping trees would be removed along West Frontage Road. Along Gilman Street Extension, 26 eucalyptus trees would be removed. Two landscaping trees would be removed along Gilman Street.

Implementation and construction of the Build Alternative would not conflict with the provisions of any habitat conservation plan or local biological resource protection ordinances.

Given the high level of existing development within the BSA and minimal opportunity for regional wildlife movement, no permanent impacts to wildlife movement are anticipated to result.

Construction Impacts

No Build Alternative

There would be no construction with the No Build Alternative; therefore, no construction impacts would occur.

Build Alternative

Any potential temporary impacts to natural communities would be avoided with the incorporation of minimization measures listed below.

Project Features

The following project features will be implemented by the proposed project:

PF NC-1: Adjacent to the riparian area along Codornices Creek and San Francisco Bay, project limits will be delineated with high-visibility fencing to avoid ground disturbance adjacent to work and access areas.

PF NC-2: Implement project site BMPs as follows:

- Access routes and the number and size of staging, access, and work areas will be limited to existing paved, gravel, or other previously compacted surfaces as identified in the project plans.
- Routes and boundaries will be clearly marked prior to initiating ground disturbance.
- Temporary impacts to water quality during construction will be avoided or minimized by implementing temporary construction site BMPs. These will be implemented during construction to prevent any off-site movement of construction materials, sediment, or debris. Permanent erosion control BMPs will be implemented prior to, during, and after construction to prevent

silt and sediment from entering drainage facilities and discharging to the bay.

PF NC-3: A copy of all relevant permits will be included within the construction bid package of the proposed project. The Resident Engineer or designee and Contractor will be responsible for implementing the conditions of all biological resources permits.

Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, and/or mitigation measures are proposed for natural communities.

2.3.2 Wetlands and Other Waters

Regulatory Setting

Wetlands and other waters are protected under a number of laws and regulations. At the federal level, the Federal Water Pollution Control Act, more commonly referred to as the CWA (33 U.S.C. 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 nontidal 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/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 managed by USACE with oversight by the EPA.

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 EPA's Section 404(b)(1) Guidelines (40 CFR 230), and whether permit approval is in the public interest. The Section 404 (b)(1) Guidelines (Guidelines) were developed by EPA in conjunction with 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 that 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 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 FHWA and/or Caltrans, as assigned, cannot undertake or provide assistance for new construction located in wetlands unless the head of the agency finds: (1) that there is no practicable alternative to the construction and (2) the proposed project includes all practicable measures to minimize harm. A Wetlands Only Practicable Alternative Finding must be made.

At the state level, wetlands and waters are regulated primarily by the SWRCB, the RWQCBs, and CDFW. In certain circumstances, the Coastal Commission (or BCDC or the Tahoe Regional Planning Agency) may also be involved. Sections 1600-1607 of the California Fish and Game Code require any agency that proposes a project that will substantially divert or obstruct the natural flow of or substantially change the bed or bank of a river, stream, or lake to notify CDFW before beginning construction. If CDFW determines that the project may substantially and adversely affect fish or wildlife resources, a Lake or Streambed Alteration Agreement will be required. CDFW jurisdictional limits are usually defined by the tops of the stream or lake banks, or the outer edge of riparian vegetation, whichever is wider. Wetlands under jurisdiction of USACE may or may not be included in the area covered by a Streambed Alteration Agreement obtained from 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 WDRs and may be required even when the discharge is already permitted or exempt under the CWA. In compliance with Section 401 of the CWA, the RWQCBs also issue water quality certifications for activities that 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, for more details.

Affected Environment

Potentially jurisdictional waters are summarized in the *Delineation of Waters of the United States* (August 2017), its addendum report (November 2018), and the NES (November 2018). An approved jurisdictional determination (JD) form will be used for the Build Alternative.

A delineation of jurisdictional waters and wetlands within the BSA was conducted on May 18, 2016, in accordance with regulation set forth in 33 CFR Part 328 and the USACE guidance documents as referenced in the *Delineation of Waters of the United States* (August 2017).

The BSA is in the Richmond USGS 7.5 Minute quadrangle in Berkeley. It is bound by San Francisco Bay to the west, Albany city limits to the north, 6th Street to the east, and Jones Street to the south (see Figure 2.3.2-1). Land use within and adjacent to the study area is a mix of industrial, commercial, and recreational development. The study area is relatively flat, sloping from east to west toward San Francisco Bay.

No creeks, streams, or rivers were identified within the study area. Two swales were noted, but USACE did not take jurisdiction over these features because they were constructed for the purpose of stormwater treatment. A depressional area, approximately 130 feet long, was noted within Tom Bates Regional Sports Complex and near the Bay Trail. This feature appeared to be man-made and lacked wetland hydrology. In consultation with the project engineers and the PDT, the BSA was revised to exclude this feature. A revised map was submitted to USACE on January 10, 2018. The report with the revised map concluded that no wetlands were located within the study area, and USACE issued a verified, approved JD based on the map revision on March 16, 2018.

The study area was subsequently expanded to address stakeholder requests in late 2017. An addendum report (November 2018) to the *Delineation of Waters of the United States* report was prepared to cover the expanded study area. The revised BSA includes Gilman Street and the shoreline of San Francisco Bay to the west, Gilman Street to the east of the original study area, 4th Street, Harrison Street, and 5th Street (see Figure 2.3.2-2). The study area lies within the cities of Berkeley and Albany.

A field review within the expanded study area occurred in April 2018. This area was reviewed with USACE in October 2018. No streams or wetlands were documented; however, 1.79 acres of Section 404 regulated waters of the U.S. and 1.64 acres of Section 10 Rivers and Harbors Act (RHA) regulated waters, both associated with San Francisco Bay, were noted. The bay is also a waters of the State. Figure 2.3.2-3 shows the locations of these resources. USACE issuance of a verified jurisdictional map for the additional study area covered under the addendum report is pending. There are no CDFW-designated sensitive natural communities within or adjacent to the BSA.

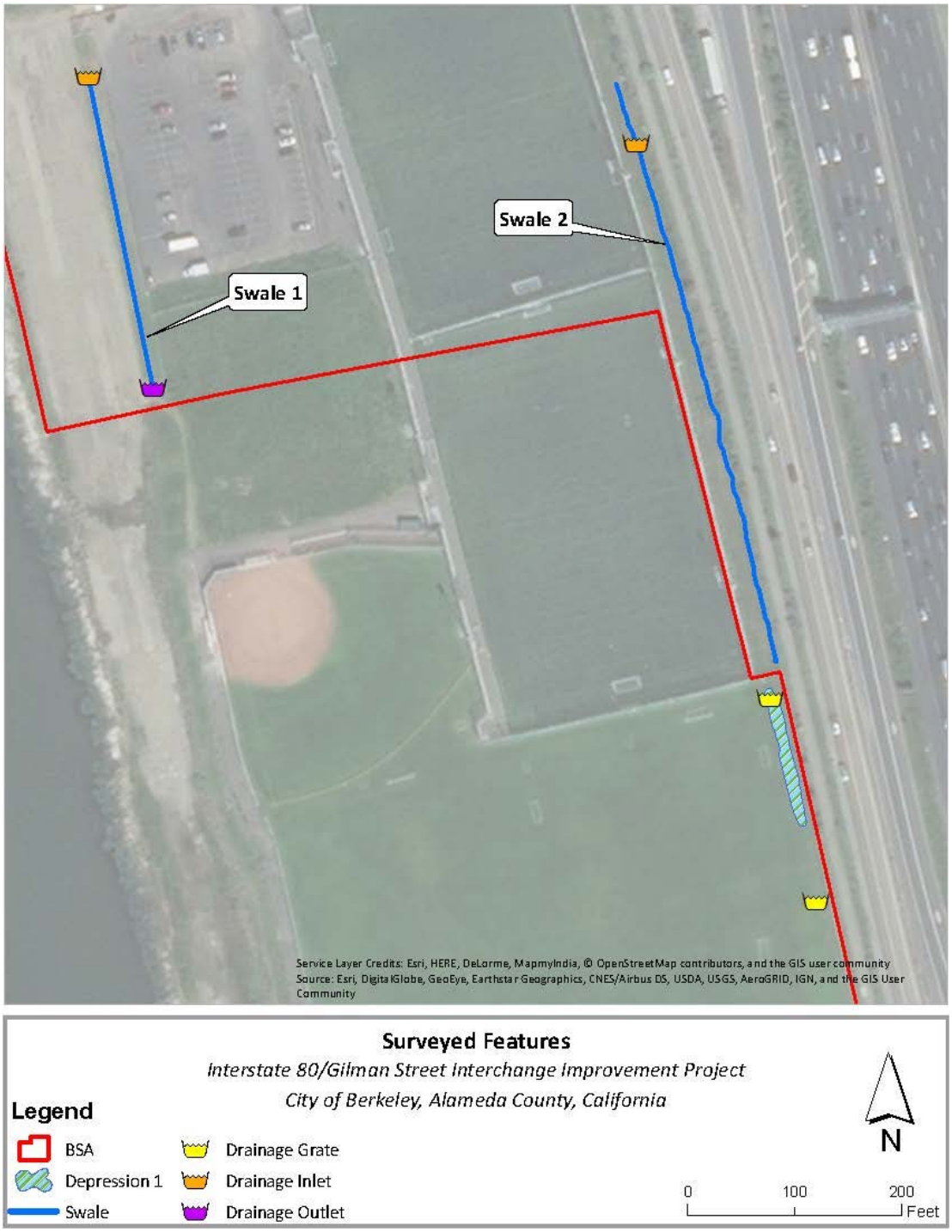

Figure 2.3.2-1: Delineation of Waters of the United States Report (August 2017) Study Area

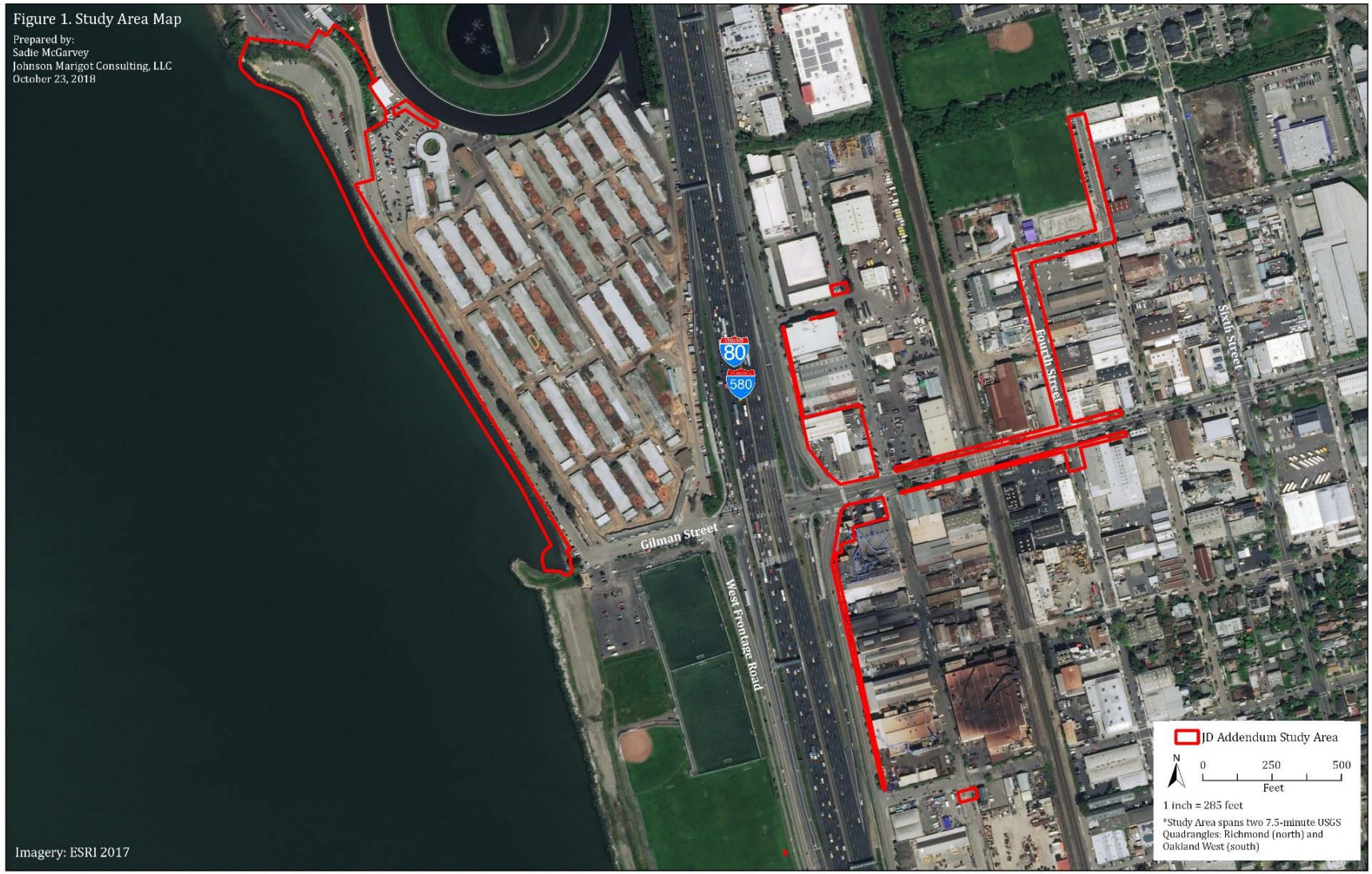

Figure 2.3.2-2: Addendum *Delineation of Waters of the United States* (May 2018) Study Area

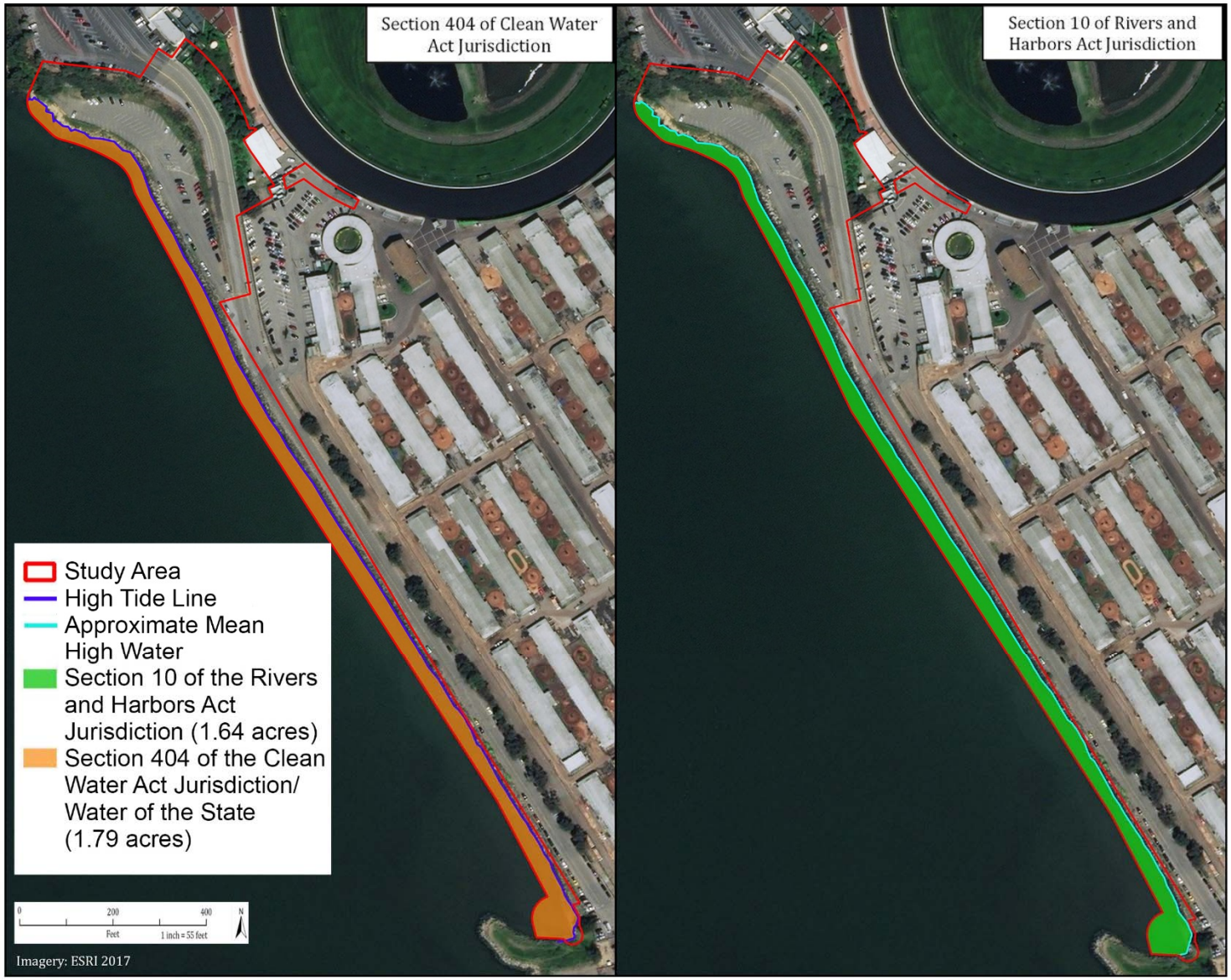

Figure 2.3.2-3: Potential Jurisdictional Features in the Study Area

The conclusions of the *Delineation of Waters of the United States* report and its addendum are based on conditions observed at the time of their associated field Surveys. USACE will make the final determination on the jurisdictional status of the identified resources.

Environmental Consequences

Fieldwork for the draft *Delineation of Waters of the United States* report was performed in 2016. The report was subsequently submitted to USACE, who issued an approved JD based on the revised BSA map. The approved JD was dated March 16, 2018, under File Number 2017-00207S. Additionally, a wetland delineation addendum was prepared in 2018 that encompassed areas that had been added to the BSA since the original wetland delineation. The revised approved JD was issued by the USACE on November 19, 2018. Coordination with USACE is provided in the NES. Chapter 4, Comments and Coordination, also details agency coordination to date.

Two alternatives were evaluated against potential resource impacts: the No Build Alternative and the Build Alternative. Chapter 1, Proposed Project, provides a detailed description of the alternatives analysis for additional reference.

Project-Level Impacts

No Build Alternative

The No Build Alternative does not propose any disturbance within the BSA; therefore, this alternative would not result in permanent impacts to jurisdictional waters.

Build Alternative

No stream or wetland impacts are proposed as part of the Build Alternative. Construction is proposed within San Francisco Bay. Within the BSA, approximately 1.79 acres of San Francisco Bay is jurisdictional under Sections 401 and 404 of the CWA, and 1.64 acres of San Francisco Bay is jurisdictional under Section 10 of the RHA. Table 2.3.2-1 summarizes the project's proposed impacts to this resource. Permanent impacts to San Francisco Bay under CWA jurisdiction will total 0.2197 acre (65 cubic yards of fill and 100 cubic yards of excavation), while permanent impacts under RHA jurisdiction will total 0.2157 acre (40 cubic yards of fill and 100 cubic yards of excavation).

Table 2.3.2-1: Impacts on Waters of the United States

Jurisdictional Feature	Impact Source	Impact Type	CWA Sections 404 and 401	RHA Section 10
San Francisco Bay	Cofferdam	Temporary, fill/disturbance	0.030 acre 170 CY	0.024 acre 155 CY
	Sediment removal	Permanent, grading	0.210 acre 100 CY	0.210 acre 100 CY
	Remove/replace headwall	Permanent, cut	0.001 acre 5 CY	0.000 acre 0 CY
	Remove/replace rock slope protection	Permanent, cut/fill	0.0087 acre 60 CY	0.0057 acre 40 CY
CY – cubic yards				

Per the *Location Hydraulic Study Report* (May 2018) and its addendum report (November 2018), San Francisco Bay provides natural and beneficial values, including aquatic species habitat, waterfowl habitat, scenic beauty, outdoor recreation, aquaculture, flood moderation, and groundwater recharge. The proposed permanent impacts are minor in nature and are not expected to impact any of these values.

Due to the proposed work within San Francisco Bay, this project is required to obtain the following permits and approvals related to impacts to water resources listed below:

- CWA Section 404 permit from USACE, including areas regulated under Section 10 of the RHA
- CWA Section 401 Water Quality Certification from the San Francisco Bay RWQCB
- BCDC permit

Compensatory mitigation, if required, would be determined during the process of obtaining permits and approvals in the design phase from the agencies identified in the bullet points above.

Construction Impacts

No Build Alternative

There would be no construction associated with the No Build Alternative; therefore, no construction impacts would occur.

Build Alternative

No streams or wetlands would be impacted by construction activities. San Francisco Bay would be temporarily impacted during construction (Table 2.3.2-1). A cofferdam would be used to isolate construction of the proposed tidal flap gate. Temporary impacts under CWA jurisdiction would total 0.030 acre (170 cubic yards [CY] of fill), while temporary impacts under RHA jurisdiction would total 0.024 acre (155 CY of fill). The cofferdam would be completely removed upon completion of construction.

Project Features

The following project features will be implemented to protect jurisdictional waters within, and adjacent to, the study area:

PF WL-1: The potential for adverse effects to water quality will be avoided by implementing temporary and permanent BMPs outlined in the Caltrans' Stormwater Guide. An SWPPP will be developed for the project and will comply with the Caltrans SWMP. The SWPPP will reference the Caltrans Construction Site BMP Manual, which includes protection measures that are regularly incorporated into projects to prevent and minimize pollutant discharges.

PF WL-2: A water quality inspector will inspect the site after a rain event to ensure that the stormwater BMPs are adequate. Corrective action will be taken per Caltrans Standard Specifications for any identified deficiencies.

Avoidance, Minimization, and/or Mitigation Measures

Under the Build Alternative, no avoidance, minimization, and/or mitigation measures are required because project impacts would be minimal with implementation of the project features identified above.

Wetlands Only Practicable Alternative Finding

Wetlands and other waters are protected under many laws and regulations, one of which is the Executive Order for the Protection of Wetlands (EO 11990). EO 11990 regulates the activities of federal agencies with regards to wetlands. It essentially provides that a federal agency cannot undertake or provide assistance for new construction located in wetlands unless it finds: (1) that there is no practicable alternative to the construction and (2) the proposed project includes all practicable measures to minimize harm to wetlands.

The proposed project would not impact wetlands. Given the proximity of the San Francisco Bay to the project area, there is no alternate alignment that would completely avoid impacts to this resource. The No Build Alternative was also found to not be practicable because it would not meet the proposed project's purpose and need. Therefore, there is no practicable alternative to avoid impacts to this waterway.

2.3.3 Animal Species

Regulatory Setting

Many state and federal laws regulate impacts to wildlife. USFWS, NOAA Fisheries Service, and CDFW are responsible for implementing these laws. This section discusses potential impacts and permit requirements associated with animals not listed or proposed for listing under the federal or state Endangered Species Act. Species listed or proposed for listing as threatened or endangered are discussed in Section 2.3.4, Threatened and Endangered Species. All other special-status animal species are discussed here, including CDFW fully protected species and species of special concern, and USFWS or NOAA Fisheries Service candidate species.

Federal laws and regulations relevant to wildlife include the following:

- NEPA
- Migratory Bird Treaty Act
- Fish and Wildlife Coordination Act

State laws and regulations relevant to wildlife include the following:

- CEQA
- Sections 1600 – 1603 of the California Fish and Game Code
- Sections 4150 and 4152 of the California Fish and Game Code

Affected Environment

This section summarizes the NES (August 2018). Based on the species lists generated by the CNDDB, NOAA Fisheries, and USFWS, 66 wildlife species were evaluated for potential occurrence within the proposed study area. After review of existing literature, additional databases, and biological surveys, only 18 of these species have potential to occur within the BSA. Of these 18 species, 7 were federally threatened or endangered and are discussed in Section 2.3.4, Threatened and Endangered Species. Eleven special-status animal species (federally protected and species of special concern) potentially occur within the BSA (see Table 2.3.3-1).

Biological surveys were performed on March 17 and June 8, 2016, and April 25-26, 2018, to determine the presence or absence of special-status animal species and their habitat. The entire BSA was surveyed on foot. All observed wildlife was noted, and photographs were taken to document available habitat.

Table 2.3.3-1: Potential for Special-Status Animal Species to Occur within the Biological Study Area

Scientific Name Common Name	Status Federal/State		Habitat Requirements (Descriptions from CNDDB)	Potential to Occur within the BSA	Effect Finding for Federally Listed Species
Reptiles					
Emys marmorata Western pond turtle	--	SSC	A thoroughly aquatic turtle found in ponds, marshes, rivers, streams, and irrigation ditches.	**Low.** There is suitable habitat along Codornices Creek, but there are no CNDDB records of these turtles in Codornices Creek. However, the potential for these turtles to disperse along Codornices Creek could not be ruled out entirely.	N/A
Birds					
Branta bernicla Brant	--	SSC (winter and staging)	Requires well-protected, shallow marine waters with intertidal eelgrass beds, primarily within bays and estuaries. At high tide, they need sheltered open water or protected beaches for loafing. Distribution is closely tied to abundance of eelgrass. Brant often feed close to mudflats, sandbars, or spits used as gritting sites. Brant migrate to the Arctic in the summer.	**Moderate.** There are no records for this species in the CNDDB. However, eelgrass beds are located just beyond the limits of the BSA, and brant are known to occur along the eastern shore of San Francisco Bay. There is potential for brant to roost or loaf along the shoreline within the BSA.	N/A
Circus cyaneus Northern harrier	--	SSC	Coastal salt and fresh-water marsh. Nest and forage in grasslands, from salt grass in desert sink to mountain swamps or wetlands. Nests on ground in shrubby vegetation, usually at marsh edge; nests are built of a large mound of sticks in wet areas.	**Moderate.** The nearest CNDDB record (#5) is for a nest approximately 0.5 mile south of the BSA within McLaughlin Eastshore State Park in 2002. Additionally, there is a more recent record for a nesting pair in the same area from 2008. Although harriers may nest near the BSA, there is no suitable nesting habitat within the BSA.	N/A

Table 2.3.3-1: Potential for Special-Status Animal Species to Occur within the Biological Study Area

Scientific Name Common Name	Status Federal/State		Habitat Requirements (Descriptions from CNDDB)	Potential to Occur within the BSA	Effect Finding for Federally Listed Species
Elanus leucurus White-tailed kite	--	FP	Rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland. Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	**Moderate.** Frequently observed near McLaughlin Eastshore State Park and have been documented nesting near the BSA. The nearest CNDDB occurrence (#59) was approximately 0.5 mile southwest within the Berkeley Marina in 1994.	N/A
Falco peregrinus anatum American peregrine falcon	--	FP	Near wetlands, lakes, rivers, or other water; on cliffs, banks, dune, mounds; also, human-made structures.	**Moderate.** Falcons are regularly observed along the eastern shore of San Francisco Bay, including the waterfront near Gilman Street. Falcons could roost in buildings or other tall structures near the BSA, such as the San Francisco-Oakland Bay Bridge, but nesting within the BSA is not likely.	N/A
Asio flammeus Short-eared owl	--	SSC	Nests in freshwater and saltwater swamp lands, lowland meadows; irrigated alfalfa fields. Tule patches/tall grass needed for nesting/daytime seclusion.	**Low.** No marshland with tall vegetation to provide secluded nesting habitat in or directly adjacent to the BSA. There are no CNDDB records within 5 miles of the BSA. However, these owls have been documented in McLaughlin Eastshore State Park and Point Isabel Regional Shoreline during winter, suggesting that the primary habitat use is for wintering rather than nesting.	N/A
Geothlypis trichas sinuosa Saltmarsh common yellowthroat	--	SSC	Inhabits fresh and salt water marshes of the San Francisco Bay Region. Requires thick, continuous cover down to water surface for foraging; tall grasses, tule patches, and willows for nesting.	**Low.** Could nest within the western limits of the BSA, adjacent to San Francisco Bay. The nearest CNDDB record (#81) from 1989 is located approximately 4 miles south, near the I-80 toll plaza.	N/A

Table 2.3.3-1: Potential for Special-Status Animal Species to Occur within the Biological Study Area

Scientific Name Common Name	Status Federal/State		Habitat Requirements (Descriptions from CNDDB)	Potential to Occur within the BSA	Effect Finding for Federally Listed Species
Melospiza melodia pusillula Alameda song sparrow	--	SSC	Resident of salt marshes bordering south arm of San Francisco Bay. Inhabits Salicornia (pickleweed) marshes; nests low in Grindelia bushes (high enough to escape high tides) and in pickleweed.	**Low.** Could occur within the western limits of the BSA, adjacent to San Francisco Bay. There are six CNDDB records within a 5-mile radius of the BSA. The nearest CNDDB record (#20) is from 1942 and approximately 1 mile to the south, west of the Berkeley Aquatic Park.	N/A
Mammals					
Antrozous pallidus Pallid bat	--	SSC	Deserts, grasslands, shrublands, woodlands, and forests. Most common in open, dry habitats with rock areas for roosting. Very sensitive to disturbance of roosting sites. Also known to roost in crevices of bridges and buildings.	**Low.** There are several CNDDB records within 5 miles of the BSA for bats included in the Museum of Vertebrate Zoology. All of the collections were from the 1940s.	N/A
Corynorhinus townsendii Townsend's big-eared bat	--	SSC	Roosts in man-made structures such as old buildings and bridge crevices.	**Low.** Although suitable roosting habitat in the form of old buildings and bridge crevices are present in the BSA, this species is highly sensitive to human disturbance. The nearest CNDDB record (#293) is 4.5 miles east of the BSA for specimens collected in Strawberry Canyon in 1938.	N/A
Lasiurus blossevillii Western red bat	--	SSC	Roosts primarily in trees, 2 to 40 feet above ground, from sea level up through mixed conifer forests. Prefers habitat edges and mosaics with trees that are protected from above and open below with open areas for foraging.	**Low.** These bats could roost in tall trees within the BSA, particularly along Codornices Creek; however, there are no CNDDB records within 5 miles of the BSA.	N/A
Notes: California Species of Special Concern (SSC) and Fully Protected (FP)					

No special-status animal species were observed during the biological surveys. Common animal species encountered during the biological surveys are listed next. Fourteen bird species were noted, several of which are adapted to dwelling in urban areas. These species were as follows: mallard *(Anas platyrhynchos),* whimbrel *(Numenius phaeopus),* rock pigeon *(Columba livia),* western gull *(Larus occidentalis),* Canada goose *(Branta canadensis),* Anna's hummingbird *(Calypte anna),* American crow *(Corvus brachyrhynchos),* chestnut-backed chickadee *(Poecile rufescens),* bushtit *(Psaltriparus minimus),* European starling *(Sturnus vulgaris),* white-crowned sparrow *(Zonotrichia leucophrys),* golden-crowned sparrow *(Zonotrichia atricapilla),* red-winged blackbird *(Agelaius phoeniceus),* and Brewer's blackbird *(Euphagus cyanocephalus).* Two butterfly species, monarch butterfly *(Danaus plexippus)* and western tiger swallowtail *(Papilio rutulus),* were observed. The California ground squirrel *(Otospermophilus beecheyi)* was also noted.

Within the BSA, the bay is a nearshore estuarine environment that supports a variety of fish species. It is only deep enough to support small marine mammals during high tidal stages. The BSA also lacks haul-outs for marine mammals (i.e., areas where mammals can temporarily leave the water for rest or reproduction). Therefore, marine mammals are generally not anticipated to be present within the BSA, although they could occur in close proximity to it. No marine mammals were observed during biological resources surveys. Based on this, no harassment or take of marine mammals are anticipated.

Environmental Consequences

Project-Level Impacts/Construction Impacts

No Build Alternative

The No Build Alternative does not propose any disturbance within the BSA; therefore, this alternative would not result in permanent impacts to special-status animal species.

Build Alternative

Special-Status Wildlife

Reptiles

One special-status reptile species, the western pond turtle, may occur within the BSA. Pond turtles are associated with permanent or nearly permanent water (e.g., ponds, lakes, streams). This species was not observed during the biological resource surveys. It may use Codornices Creek as a dispersal corridor. No work is proposed within this stream, and the nearest work to it would be pavement rehabilitation along 5th Street.

Because of this, the western pond turtle has a low potential of occurring within the study area, and a take of this species is unlikely.

Birds

Seven special-status birds have potential to nest within, or around, the BSA. These are as follows: brant *(Branta bernicla),* northern harrier *(Circus cyaneus),* white-tailed kite *(Elanus leucurus),* American peregrine falcon *(Falco pereginus anatum),* short-eared owl *(Asio flammeus),* saltmarsh common yellowthroat *(Geothlypis trichas sinuosa),* and Alameda song sparrow *(Melospiza melodia pusillula).* No special-status birds were observed within the BSA during the biological surveys conducted on March 17 and June 8, 2016, and April 25-26, 2018.

Brant winter in areas with abundant intertidal plants (especially eelgrass). Brant and eelgrass have been noted just beyond the western limits of the BSA near Golden Gate Fields. Within the BSA, wintering brant may roost or preen on the rock slope protection along the shoreline or on exposed sandbars during low tide. Because of this, brant have a moderate potential to be located within the BSA. The presence of humans, noise, and other construction activities would likely cause this species to move farther way from the shoreline and seek alternative habitat. Because brant do not breed within the BSA, there is no potential for nest presence or abandonment. No take of this species is anticipated.

Northern harrier may use the BSA for foraging, which typically occurs over wetlands and grasslands. No suitable nesting habitat was observed within the BSA. Based on foraging habitat, northern harriers have a moderate potential to occur within the study area. Construction is unlikely to result in a take because foraging within the BSA likely occurs infrequently, and nesting within the BSA is unlikely. Work along the shoreline of San Francisco Bay would be limited to the area immediately surrounding the tidal flap gate with no work proposed in the grassland areas, further decreasing the risk of a take.

White-tailed kite forage above wetlands and grasslands and, as a result, may forage within the BSA. No suitable nesting habitat was observed within the BSA. White-tailed kite have a moderate potential to occur within the study area. Construction is unlikely to result in a take because foraging within the BSA likely occurs infrequently, and nesting within the BSA is unlikely. Work along the shoreline of San Francisco Bay would be limited to the area immediately surrounding the tidal flap gate with no work proposed in the grassland areas, further decreasing the risk of a take.

American peregrine falcons could use buildings as nesting habitat. However, this species prefers to nest on tall structures and rocky cliffs, which are absent within the BSA. Peregrine falcons forage in open habitats. This species is regularly observed along San Francisco Bay, including the waterfront near Gilman Street. However, nesting is unlikely within the BSA. American peregrine falcons have a moderate potential to occur within the study area. Construction is unlikely to result in a take because foraging within the BSA likely occurs infrequently, and nesting within the BSA is unlikely. Work along the shoreline of San Francisco Bay would be limited to the area immediately surrounding the tidal flap gate with no work proposed in the grassland areas, further decreasing the risk of a take.

Short-eared owls inhabit open habitats including marshes and grasslands. This species has been documented near the BSA during the winter. Short-eared owls have a low potential to occur within the study area. These owls nest off the ground and are vulnerable to disturbance when nesting. Because the BSA is frequently used for recreation by humans and their pets, there is no suitable nesting habitat (areas not subject to frequent disturbance) in the BSA. Construction is unlikely to result in a take because foraging within the BSA likely occurs infrequently, and nesting within the BSA is unlikely. Work along the shoreline of San Francisco Bay would be limited to the area immediately surrounding the tidal flap gate with no work proposed in the grassland areas, further decreasing the risk of a take.

The saltmarsh common yellowthroat inhabits marshes and wetlands within the San Francisco Bay. These habitat types are not located within the BSA. This species has been documented to nest along the shoreline of the San Francisco Bay. However, there are no records of nesting within the BSA where nesting habitat is marginal. The shoreline within the BSA is frequently used for recreation by humans and their pets and is therefore subject to frequent disturbance. This species requires thick, continuous cover down to water surface for foraging as well as tall grasses for nesting. Work along the shoreline is limited to modifications of the existing Gilman Street outfall. This area has existing rock slope protection along the shoreline with limited vegetation. The saltmarsh common yellowthroat, therefore, has a low potential to occur within the study area, making a take of this species unlikely.

The Alameda song sparrow inhabits salt marshes bordering San Francisco Bay. No marshes were documented within the BSA. There is historical record of this species within the BSA. However, no sightings have occurred since 1942. Nesting occurs in thick vegetation, which is not prevalent near the proposed outfall where portions of the

bank are currently armored with stone. Because of this, the Alameda song sparrow was rated as having a low potential to occur within the study area; therefore, it is unlikely to be impacted.

The Migratory Bird Treaty Act and California Fish and Game Code protect the occupied nests and eggs of migratory birds, in addition to the parental birds and dependent juveniles. Birds nest in a variety of places, including trees, shrubs, man-made structures, and the ground. The proposed project would include a preconstruction survey for all nesting birds by a qualified Caltrans-approved biologist. This would be done prior to commencing construction activities during the nesting season (February 1 to September 30). A qualified Caltrans-approved and agency-approved biological monitor will be present during all work within San Francisco Bay associated with installation of the tidal flap gate and its associated cofferdam.

Mammals

Three special-status bat species have potential to occur in the study area: pallid bat *(Antrozous pallidus)*, Townsend's big-eared bat *(Corynorhinus townsendii*), and western red bat. No bats, or indications of roosting such as guano accumulations, were observed during the biological surveys. It is unlikely that special-status bats would roost in the area due to the high degree of human use, including a transient homeless encampment beneath the I-80 overpass. However, trees, vegetation, the I-80 overpass, and stables within Golden Gate Fields could provide suitable roosting habitat for special-status bats within the BSA. Because of this, the potential for bats cannot be entirely ruled out.

The Build Alterative would require the removal of trees. Tree-roosting bats, including the western red bat, are generally found in riparian areas. No work is proposed within the Codornices Creek riparian corridor. Preconstruction surveys would protect against impacts to roosting bats in the unlikely event that a landscape tree containing bats is slated for removal. If bats are found, the project would implement exclusion devices determined in consultation with CDFW. No work is proposed to the I-80 overpass, further limiting impacts to structure roosting bats such as the pallid bat and Townsend's big-eared bat.

Project Features

The following project features will be implemented prior to construction to minimize potential impacts related to special-status animal species. Additionally, PF NC-1 would minimize impacts to animal species.

PF AS-1: Before commencing construction, a qualified Caltrans-approved biologist will conduct an education program for all project personnel. Species to be covered will include but not be limited to green sturgeon, special-status salmonids, brant, western snowy plover, California least tern, bats, and nesting birds. The program will also include information on the protected species and the habitats likely to be found within or adjacent to the BSA, requirements of federal and state laws pertaining to these species, identification of measures implemented to conserve the species and habitats within the study area, and distribution of a fact sheet conveying this information to the personnel who may enter the BSA.

PF AS-2 Trees, shrubs, and native vegetation will be preserved in place to the extent practicable.

Avoidance, Minimization, and/or Mitigation Measures

The following measures will be implemented prior to construction to minimize potential impacts related to special-status animal species:

AMM AS-1 The work in San Francisco Bay will be limited to the smallest area possible to complete the proposed construction activities.

AMM AS-2: Conduct preconstruction surveys and biological monitoring:

a) Preconstruction surveys for nesting birds will be conducted by a qualified Caltrans-approved biologist no more than 72 hours prior to commencing construction activities during the nesting season (February 1 to September 30). Surveys will cover any potential nesting substrates within 300 feet of construction activity. If an active nest is found during surveys, the qualified Caltrans-approved biologist (who shall be knowledgeable about the behavior of nesting birds) shall consult with CDFW and USFWS regarding appropriate action to comply with State and federal laws. Active nest sites shall be designated as ESAs and protected (while occupied) during project construction with the installation of a high-visibility fence barrier surrounding each nest site or other appropriate markers. A qualified Caltrans-approved biologist shall develop buffer recommendations that are site specific and at an appropriate distance, that protects

normal bird behavior to prevent nesting failure or abandonment. The buffer distance recommendation shall be developed after field investigations that evaluate the bird(s) apparent distress in the presence of people or equipment at various distances and shall be approved by CDFW and/or USFWS. The qualified Caltrans-approved biologist shall monitor the behavior of the birds (adults and young, when present) at the nest site to ensure that they are not disturbed by project construction work. Nest monitoring shall continue during construction until the young have fully fledged (have completely left the nest site and are no longer being fed by the parents) as determined by the qualified Caltrans-approved biologist in consultation with CDFW and/or USFWS.

b) If it is necessary to prevent birds from nesting at a specific location within the construction area, a nesting bird exclusion plan will be prepared by the contractor. It will specify what Caltrans-approved exclusion measures can be used under what conditions. The exclusion plan will be approved by Caltrans and/or CDFW and/or USFWS prior to implementation.
c) No more than 48 hours prior to tree removal, a qualified Caltrans-approved biologist will conduct a preconstruction survey of trees slated for removal for crevices and cavities that can provide bat roosting habitat or support active bat roosts. If active roosts are identified, the project will implement exclusion devices determined in consultation with CDFW.
d) Within 48 hours prior to any work around the 60-inch culvert outfall into San Francisco Bay, including installation of the cofferdam, removal of rock slope protection, and sediment excavation, a qualified Caltrans-approved biologist will conduct preconstruction surveys for special-status species and marine mammals that may occur in the area.
e) A qualified Caltrans-approved and agency-approved biological monitor will be present during all work within San Francisco Bay associated with modifying the outfall of the 60-inch culvert. The biological monitor will be present for installation, operation, and removal of the cofferdam, as well as for installation of the flap gate after cofferdam removal and sediment excavation.

f) If a protected species is discovered during preconstruction surveys or during construction within the BSA, the qualified Caltrans-approved biologist will notify the Resident Engineer, who has the authority to stop all construction work on the site until the appropriate corrective measures have been conducted, and it is determined that the animal will not be harmed. Caltrans will notify USFWS, NOAA Fisheries, and/or CDFW as required in resource agency permits and approvals.

AMM AS-3: Protect Fish, Aquatic Species, and Birds:

a) Installation of the sheet pile cofferdam will use methods that result in minimal hydroacoustic impacts, such as vibratory or push methods. Impact methods, such as pile driving, will not be used.

b) Installation and removal of the cofferdam will only occur during low tides to minimize potential impacts on aquatic species. Removal of the cofferdam will likely occur during a single low tide. However, installation of the cofferdam is anticipated to take several days, creating the potential for fish to become stranded within the partially installed cofferdam during normal tidal cycles, which can attract birds. The qualified Caltrans-approved biologist will work with the contractor to install the cofferdam while minimizing the potential for fish stranding. Immediately upon completing the installation of the cofferdam, the qualified Caltrans-approved biologist will translocate any stranded fish outside of the dewatered area. Therefore, no take is anticipated. Translocation methods and areas suitable for the translocation of fish will be determined in coordination with NOAA Fisheries and/or CDFW, as appropriate.

AMM AS-4: Evaluate and Replace Trees:

- Tree removal or alterations will be avoided wherever possible.
- Prior to any tree removals or alterations, a survey will be conducted to identify potential structural issues that could result in safety hazards and ensure remaining trees can withstand strong winds.
- To minimize impacts to nesting bird habitat, all native trees removed within the project footprint will be replaced by native

trees at a 1:1 ratio. All other trees removed will be replaced in-kind or with trees of other native species to the extent possible. Trees will be planted close to the original removal location if possible, or at a minimum, within the same city/right-of-way.

2.3.4 Threatened and Endangered Species

Regulatory Setting

The primary federal law protecting threatened and endangered species is the FESA: 16 U.S.C. Section 1531, *et seq.* See also 50 CFR Part 402. This act and later amendments provide for the conservation of endangered and threatened species and the ecosystems upon which they depend. Under Section 7 of this act, federal agencies, such as FHWA (and Caltrans, as assigned), are required to consult with the United States Fish and Wildlife Service (USFWS) and 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, the California Endangered Species Act (CESA), California Fish and Game 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. CDFW is the agency responsible for implementing CESA. Section 2080 of the California Fish and Game Code prohibits "take" of any species determined to be an endangered species or a threatened species. Take is defined in Section 86 of the California Fish and Game Code 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, CDFW may also authorize impacts to CESA species by issuing a Consistency Determination under Section 2080.1 of the California Fish and Game Code.

Another federal law, the Magnuson-Stevens Fishery Conservation and Management Act of 1976, was established to conserve and manage fishery resources found off the coast, as well as anadromous species and Continental Shelf fishery resources of the United States, by exercising (a) sovereign rights for the purposes of exploring, exploiting, conserving, and managing all fish within the exclusive economic zone established by Presidential Proclamation 5030, dated March 10, 1983, and (b) exclusive

fishery management authority beyond the exclusive economic zone over such anadromous species, Continental Shelf fishery resources, and fishery resources in special areas.

Affected Environment

This section discusses threatened and endangered species with the potential to occur within the BSA as evaluated in the NES (November 2018). The findings of the NES were based on extensive research and field surveys conducted on March 17 and June 8, 2016, and from April 25-26, 2018.

After literature review and database searches, it was determined that no federally threatened or endangered plant species have the potential to occur within the BSA. In addition, none were documented during the field reviews.

Seven threatened or endangered animal species have potential to be within the BSA (Table 2.3.4-1). These are as follows: green sturgeon *(Acipenser medirostris),* steelhead – Central California Coast distinct population segment (DPS) *(Oncorhynchus mykiss irideus),* steelhead – Central Valley DPS *(Oncorhynchus mykiss irideus),* chinook salmon – Central Valley Spring Run evolutionarily significant unit (ESU) *(Oncorhynchus tshawytscha),* chinook salmon – Sacramento River Winter Run ESU *(Oncorhynchus tshawytscha),* western snowy plover *(Charadrius nivosus* ssp. *nivosus),* and California least tern *(Sternula antillarum browni).* None of these animal species were observed during the field surveys.

Critical habitat is designed by USFWS and NOAA Fisheries to protect areas that are essential to the survival of federally listed species. Critical habitat for green sturgeon, steelhead, and chinook is present within the BSA and is associated with San Francisco Bay (Figure 2.3.4-1).

Green sturgeon – southern DPS is listed as a federally threatened fish species. It migrates into rivers for spawning between March and July. This species concentrates in coastal estuaries during the late summer and early fall. San Francisco Bay lies within the critical habitat for this species. Population declines have been attributed to harvesting, habitat loss and degradation, and entrainment (being pulled into water withdrawal pipes). Sedimentation is also a threat to this species. Temporary and permanent impacts to San Francisco Bay are anticipated to be minor. In addition, there is a low potential for the entrapment of this species when the cofferdam is installed. If entrapment occurs, this species would be relocated outside of the cofferdam.

Table 2.3.4-1: Summary of Federally Endangered and Threatened Animal Species with Potential to Occur in the BSA

Scientific Name Common Name	Status	Potential to Occur	Critical Habitat in BSA	Effect Finding for Federally Listed Species	Incidental Take Permit for State Listed Species
Invertebrates					
Haliotis cracherodii Black abalone	FE	None	No	No effect. Not present.	N/A
Callophrys mossii bayensis San Bruno elfin butterfly	FE	None	No	No effect. Not present.	N/A
Plebejus icarioides missionensis Mission blue butterfly	FE	None	No	No effect. Not present.	N/A
Speyeria callippe callippe Callippe silverspot butterfly	FE	None	No	No effect. Not present.	N/A
Euphydryas editha bayensis Bay checkerspot butterfly	FT	None	No	No effect. Not present.	N/A
Fish					
Acipenser medirostris Green Sturgeon – Southern DPS	FT	Low	Yes	May affect, but not likely to adversely affect.	N/A
Oncorhynchus kisutch Coho salmon – Central California Coast ESU	FE, SE	None	No	No effect. Not present.	No
Oncorhynchus mykiss irideus Steelhead – Central California Coast DPS	FT	Low	Yes	May affect, but not likely to adversely affect.	N/A
Oncorhynchus mykiss irideus Steelhead –Central Valley DPS	FT	Low	Yes	May affect, but not likely to adversely affect.	N/A
Oncorhynchus tshawytscha Chinook Salmon – Central Valley Spring Run ESU	FT, ST	Low	No	No effect. No potential for take.	No
Oncorhynchus tshawytscha Chinook Salmon – Sacramento River Winter Run ESU	FE, SE	Low	Yes	May affect, but not likely to adversely affect.	No
Hypomesus transpacificus Delta smelt	FT, SE	None	No	No effect. Not present.	No
Sprinchus thaleichthys Longfin smelt	FC, ST, SSC	None	No	No effect. Not present.	No

Table 2.3.4-1: Summary of Federally Endangered and Threatened Animal Species with Potential to Occur in the BSA

Scientific Name Common Name	Status	Potential to Occur	Critical Habitat in BSA	Effect Finding for Federally Listed Species	Incidental Take Permit for State Listed Species
Thaleichthys pacificus Eulachon	FT	None	No	No effect. Not present.	N/A
Eucyclogobius newberryi Tidewater goby	FE, SSC	None	No	No effect. Not present	No
Amphibians					
Ambystoma californiense California tiger salamander	FT, ST, SSC	None	No	No effect. Not present.	No
Rana draytonii California red-legged frog	FT, SSC	None	No	No effect. Not present.	No
Reptiles					
Lepidochelys olivacea Olive ridley sea turtle	FE, FT	None	No	No effect. Not present.	N/A
Caretta caretta North Pacific loggerhead sea turtle	FT	None	No	No effect. Not present.	N/A
Chelonia mydas East Pacific green sea turtle	FT	None	No	No effect. Not present.	N/A
Dermochelys coriacea Leatherback sea turtle	FE	None	No	No effect. Not present.	N/A
Masticophis lateralis euryxanthus Alameda whipsnake	FT, ST	None	No	No effect. Not present.	No
Birds					
Rallus longirostris obsoletus Ridgway's rail	FE, SE, FP	None	No	No effect. Not present.	No
Charadrius nivosus ssp. nivosus Western Snowy Plover	FT, SSC	Low	No	No effect. No potential for take.	No
Sternula antillarum browni California Least Tern	FE, SE, FP	Low	No	No effect. No potential for take.	No
Coccyzus americanus Yellow-billed cuckoo	FT, SE	None	No	No effect. Not present.	No

Table 2.3.4-1: Summary of Federally Endangered and Threatened Animal Species with Potential to Occur in the BSA

Scientific Name Common Name	Status	Potential to Occur	Critical Habitat in BSA	Effect Finding for Federally Listed Species	Incidental Take Permit for State Listed Species
Mammals					
Reithrodontomys raviventris Salt-marsh harvest mouse	FE, SE, FP	None	No	No effect. Not present.	No
Arctocephalus townsendii Guadalupe fur seal	FT, ST	None	No	No effect. Not present.	No
Enhydra lutris nereis Southern sea otter	FT, FP	None	No	No effect. Not present.	No
Balaenoptera musculus Blue whale	FE	None	No	No effect. Not present.	N/A
Balaenoptera physalus Fin whale	FE	None	No	No effect. Not present.	N/A
Balaenoptera borealis Sei whale	FE	None	No	No effect. Not present.	N/A
Megaptera novaeangliae Humpback whale	FE	None	No	No effect. Not present.	N/A
Eubalaena japonica North Pacific right whale	FE	None	No	No effect. Not present.	N/A
Orcinus orca Southern resident killer whale	FE	None	No	No effect. Not present.	N/A
Physeter macrocephalus Sperm whale	FE	None	No	No effect. Not present.	N/A

Notes:
FT = federally threatened
FE = federally endangered
FC = federal candidate
FP = fully protected
ST = state threatened
SE = state endangered
SSC = California Species of Special Concern

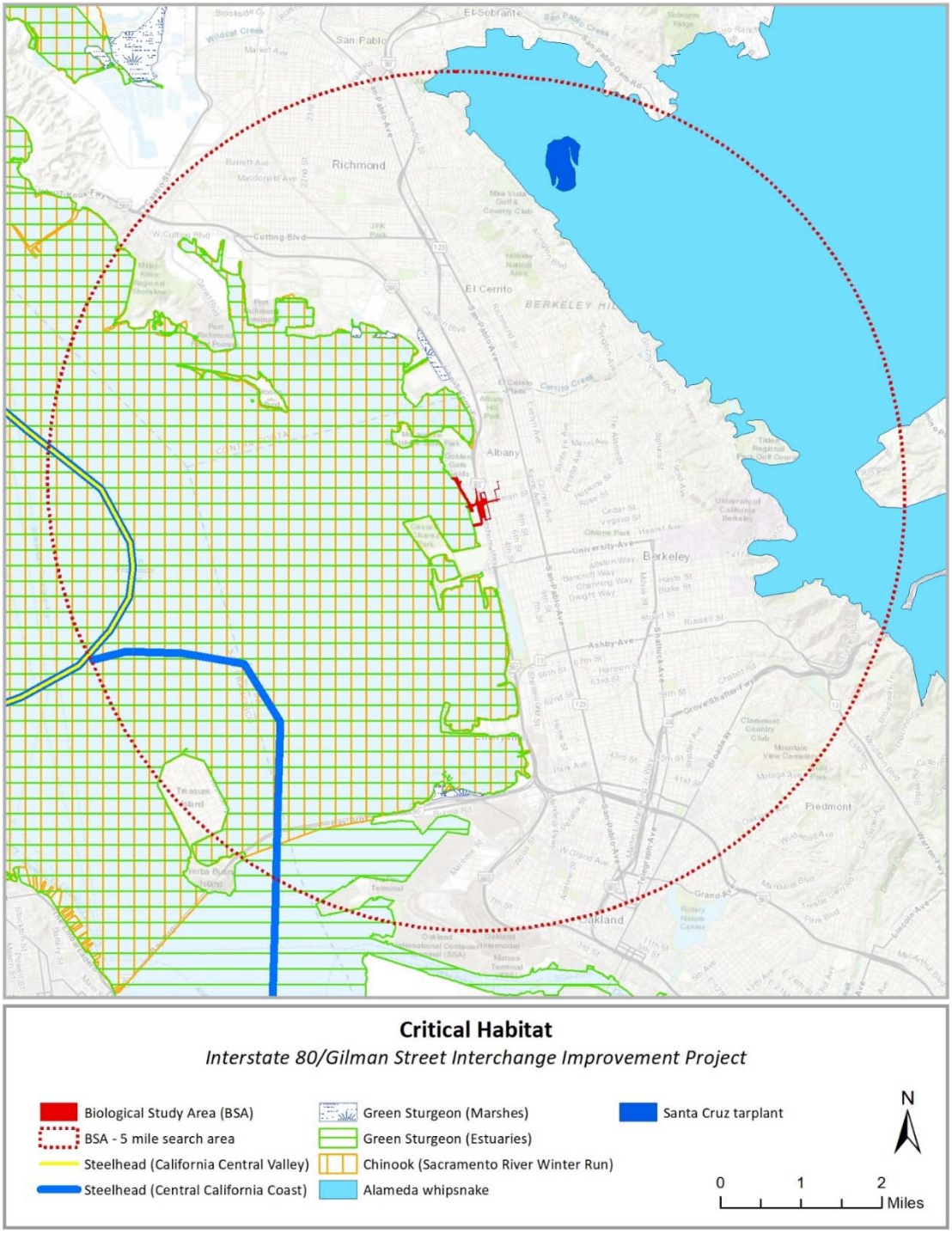

Figure 2.3.4-1: Critical Habitat within the BSA

Steelhead – Central California Coast DPS is a federally listed threatened fish species. The Central California Coast DPS includes all naturally spawned populations in the drainages of the San Francisco and San Pablo bays and their tributaries eastward to Chipps Island at the confluence of the Sacramento and San Joaquin rivers. Based on literature review and database searches, there is potential for this species to occur in the BSA. Impacts to this species would be the same as those listed for the green sturgeon.

Steelhead – Central Valley DPS is a federally listed threatened fish species. The Central Valley DPS includes all naturally spawned populations in the Sacramento and San Joaquin rivers and their tributaries, but not the San Francisco and San Pablo bays. As with the Central California Coast DPS, literature review and database searches indicated there is potential for this species to occur within the BSA. Potential impacts to this species would be the same as described for green sturgeon.

Chinook salmon – Central Valley Spring Run ESU is a federally threatened fish species. It is also a State threatened species. This species migrates from spawning streams in the Central Valley in January and February. They migrate to the sea within a few months of hatching. Based on literature review and database searches, critical habitat for this species is not present within the BSA. Potential impacts to this species are unlikely.

Chinook salmon – Sacramento River Winter Run ESU is a federally listed endangered species. It is also a State endangered species. It includes all species that naturally spawn within the Sacramento River and its tributaries. Spawning occurs between mid-April and August. Based on a literature review and database searches, there is potential for this species to occur within the BSA. Potential impacts to this species would be the same as described for green sturgeon.

Western snowy plover is a federally listed threatened bird species. It nests in depressions along sandy beaches, salt pans in lagoons, estuaries, dredged material disposal sites, and levees. This species is highly sensitive to human disturbance. A literature review and database searches indicate there is low potential for this species to occur within the BSA. Nesting within the BSA is unlikely because the intertidal zone is submerged during high tides and is disturbed by humans and pets during low tides. Snowy plovers forage near their nests, further reducing the likelihood of encountering this species. Although nesting is not anticipated, nesting bird surveys prior to construction would further minimize potential impacts to this species.

The California least tern is a federally listed endangered species. It is also a State endangered species. The California least tern's range once spanned the central and southern California Pacific coast. The nearest known least tern colony is approximately 6.5 miles south of the BSA. After nesting season, most of the population departs the San Francisco Bay region and is absent from the BSA vicinity by the end of August. Database searches indicate that there is low potential for this species to occur within the BSA, particularly along the shoreline of San Francisco Bay where California least terns may forage for fish. Foraging is believed to be sporadic. Nesting near the Gilman Street outfall is unlikely because this area is submerged during high tide. During low tide, this area is disturbed by humans and their pets. Although nesting is not anticipated, surveys prior to construction would further minimize potential impacts to this species.

Essential fish habitat (San Francisco Bay) is present in the BSA. This habitat is protected by the Magnuson-Stevens Fishery Conservation and Management Act, which is administered by NOAA Fisheries. This relates to species managed under the Pacific Coast Salmon FMP (coho and chinook salmon) and for species managed under the Coastal Pelagic Species FMP and Pacific Coast Groundfish FMP. These FMPs include some species that are not federally listed, such as Pacific sardine, northern anchovy, Pacific herring, jacksmelt, and English sole.

Caltrans conducted Section 7 consultation with NOAA Fisheries. Technical assistance was initiated on August 11, 2018 and August 17, 2018 via phone and e-mail by Caltrans biologist, Matthew Rechs. Preliminary information, including a map of the BSA and a diagram of the cofferdam at the Gilman Street outfall, was provided to Darren Howe, Caltrans NOAA Fisheries Service liaison. NOAA Fisheries Service requested a copy of the NES. Based on the initial call, the liaison indicated the project may qualify for a letter of concurrence on a "may affect, but not likely to adversely affect" finding. The NES was submitted to the liaison on August 28, 2018. An informal consultation meeting was held in September 2018. During the meeting, the NOAA liaison requested the preparation and submission of a Biological Assessment to support the effect finding. The Biological Assessment was submitted February 22, 2019. A field review was held on March 7, 2019. NOAA staff reviewer Ryan Bernstein requested additional information on March 8, 2019. Requested information was provided on April 4, 2019. On May 3, 2019, Ryan Bernstein requested results of sediment contamination testing, which Caltrans provided on May 6, 2019. A conference call with NOAA and the project development team was held on May 17, 2019. The letter of concurrence on a "may affect, but not likely to adversely affect" finding for green sturgeon, steelhead, and chinook was subsequently issued by NOAA on May 23, 2019.

Environmental Consequences

Project-Level and Construction Impacts

No Build Alternative

The No Build Alternative would not affect federally listed species because no construction or habitat removal would occur.

Build Alternative

Impacts to critical habitat for the Central Valley steelhead, central California coast steelhead, Sacramento River winter run chinook salmon, and green sturgeon would be the same for each species within the BSA. This is limited to San Francisco Bay, which is a water of the U.S. Impacts are anticipated to be minimal. Permanent impacts would be limited to the removal and replacement of the existing headwall, wingwalls, and rock slope protection. Sediment removal (100 cubic yards over 0.21 acre) within the bay is also proposed. Temporary impacts would consist of the installation and operation of a sheet pile cofferdam, which would result in a temporary loss in habitat and sediment turbidity. Project features and BMPs would reduce impacts on jurisdictional waters and critical habitat. Based on the minimal permanent loss of habitat, the proposed project may affect, but is not likely to adversely modify, critical habitat for these fish species.

Under the Magnuson-Stevens Fishery Conservation and Management Act, any impact that reduces either the quality or quantity of Essential Fish Habitat is considered an "adverse impact". Therefore, the Build Alternative will have an adverse impact on Essential Fish Habitat. NOAA noted that the anticipated project effects would be localized and minimal in nature. No Essential Fish Habitat specific conservation measures were recommended by NOAA.

Project features and BMPs would diminish the potential for adverse water quality effects by implementing controls during construction to prevent the off-site movement of sediment and other construction related pollutants. Work would be slowed or stopped in San Francisco Bay when it results in a potential to exceed water quality objectives. Additionally, installation of the flap gate on the Gilman Street outfall would not impede fish passage because there are no existing surface waterbodies within the Gilman Street watershed that provide suitable habitat for salmonids or sturgeon. Four fish species are recommended for a "may affect, but not likely to adversely affect" finding and one is recommended for a "no effect" finding (see Table 2.3.4-1).

Both federally listed bird species are recommended for a "no effect" finding. Agency consultation and coordination, including NOAA, can be found in Section 4.2, Consultation and Coordination with Public Agencies. Project features and avoidance and minimization measures are proposed to prevent a take of a federally listed animal species.

The proposed project would not result in a take of western snowy plovers or result in nest abandonment because the BSA lacks suitable nesting habitat, and plovers commonly forage near their nests. Preconstruction nesting surveys should further limit potential impacts to this species. Because of this, the effect finding for western snowy plover was "no effect" (see Table 2.3.4-1).

The proposed project would not result in a take of California least terns. There are no existing colonies within the BSA. Foraging within the BSA is likely sporadic and is unlikely to occur near the Gilman Street outfall with highly productive foraging areas located north of the BSA. Preconstruction nesting surveys should further limit potential impacts to this species. Because of this, the effect finding for the California least tern was "no effect" (see Table 2.3.4-1).

Penalties for violating the take prohibition of CESA range from $25,000 to $50,000 for each violation, 1-year imprisonment, or both fine and imprisonment. However, CESA contains several exceptions to the take prohibition, and CDFW may permit the take with an Incidental Take Permit of candidate, threatened, or endangered species for individuals or businesses carrying out otherwise lawful activities.

Project Features

The following project features will be implemented by the proposed project:

PF TE-1: The names and qualifications of biological monitors will be submitted for agency approval prior to initiating construction activities. Caltrans- and agency-approved biologists will be onsite during work within San Francisco Bay, including installation and removal of the cofferdam, as well as installation of the flap gate on the 60-inch culvert, or as otherwise required by regulatory agency permits and approvals.

PF TE-2: Implement project site BMPs as identified in PF NC-2 and as follows:

- All food and food-related trash items such as wrappers, cans, bottles, and food scraps must be disposed of in securely closed containers and removed once a week from a construction or project site.
- No pets, such as dogs or cats, owned by project personnel will be allowed anywhere in the BSA during work to prevent harassment, mortality of special-status species, or destruction of habitat.
- All equipment will be maintained such that there will be no leaks of automotive fluids such as gasoline, oils, or solvents, and a Spill Response Plan will be prepared.
- Hazardous materials such as fuels, oils, and solvents will be stored in sealable containers in a designated location that is at least 100 feet from aquatic habitats and storm drain inlets.
- No firearms will be allowed except for those carried by authorized security personnel, or local, state, or federal law enforcement officials.

Avoidance, Minimization, and/or Mitigation Measures

Measures AMM AS-1, AMM AS-2, AMM AS-3, and AMM AS-4 will be implemented by the proposed project and address impacts to threatened and endangered species.

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2.3.5 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 United States. The order defines invasive species as "any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem whose introduction does or is likely to cause economic or environmental harm or harm to human health." 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

This section discusses invasive species with the potential to occur within the BSA as discussed in the *Delineation of Waters of the United States* (August 2017), its addendum report (May 2018), and the NES (August 2018).

Transportation corridors provide ample opportunities for invasive species to spread and establish. Invasive species can be transported via vehicles or moved site to site during spraying and mowing operations. Seed can be inadvertently introduced during construction from contaminated equipment or construction materials (e.g., mulch, imported soil or gravel, sod). In erosion control, landscape, or wildflower projects, some invasive plant species might be planted deliberately.

The California Invasive Plant Council Invasive Plant Inventory is based on information submitted by members, land managers, botanists, and researchers throughout the state, as well as published sources. The inventory highlights nonnative plants that are serious problems in wildlands (i.e., natural areas that support native ecosystems). The Invasive Plant Inventory categorizes plants as High, Moderate, or Limited based on the species' negative ecological impact in California. Plants categorized as "High" have severe ecological impacts. Plants categorized as "Moderate" have substantial and apparent, but not severe, ecological impacts. Plants categorized as "Limited" are invasive, but their ecological impacts are minor on a statewide level.

Nineteen nonnative invasive plant species were identified within the BSA that have moderate- or high-risk impacts on native plant populations. Five are ranked as having high (severe) impacts. The high-risk species are: foxtail chess, hottentot fig

(Carpobrotus edulis), pampas grass *(Cortaderia jubata)*, sweet fennel *(Foeniculum vulgare)*, English ivy *(Hedera helix)*, and Himalayan blackberry *(Rubus armeniacus)*.

Environmental Consequences

Project-Level Impacts/Construction Impacts

No Build Alternative

The No Build Alternative does not propose any construction or other disturbance in the BSA. Therefore, this alternative would not result in long-term impacts related to the introduction or spread of invasive species to or from the BSA.

Build Alternative

Implementation of the Build Alternative would have the potential to spread invasive species. Clearing, grubbing, and earthwork in areas with invasive species could spread seeds and propagules of these species. Construction equipment can transport invasive species as it enters, or exits, the study area. Invasive species could be included in seed mixtures or construction materials. Wind erosion could also transport invasive seed offsite.

To reduce the spread of invasive plant species, this project would comply with EO 13112 and guidance from FHWA. None of the species on the California list of invasive species is used by Caltrans for erosion control or landscaping. Project features would require the contractor to contain invasive plant material and dispose of it in a manner that would not promote the spread of any invasive species. After construction, disturbed areas would be seeded with a native seed mix, or covered, until the end of the project.

Project Features

The following project features will be implemented to prevent the spread of invasive species.

PF IS-1: 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. The contractor will be responsible for obtaining all permits, licenses, and environmental clearances for properly disposing of materials. Areas subject to noxious weed removal or disturbance will be replanted with a local native seed mix. If seeding

is not possible, the area will be covered to the extent practicable with heavy, black plastic solarization material until the end of the project. The project will be managed to reduce and minimize the propagation of invasive weeds.

PF IS-2: Fugitive dust emissions will be controlled to prevent wind from transporting invasive species seed outside of the study area.

PF IS-3: The landscaping included in the project will not use species listed on the California list of invasive species.

Avoidance, Minimization, and/or Mitigation Measures

No avoidance and minimization efforts for invasive plants are proposed because implementation of the above-listed project features and Caltrans Standard Specifications would reduce the potential for spreading invasive vegetation.

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2.4 Construction

This section discusses the general processes that would be utilized for construction of the Build Alternative. Impacts on the environmental resources are discussed in each resource section (see Sections 2.1 through 2.3).

Construction Sequence

To understand the temporary construction impacts associated with the proposed project, a typical construction sequence is provided.

Project construction would commence after all right-of-way has been acquired. The construction sequence would begin with site clearing of all improvements, followed by utility relocation, facility construction, and landscaping/finishing work. Construction of the Build Alternative is estimated to take approximately 24 months.

A generic construction sequence for a project of this type and scale is described below for purposes of impact assessment. The actual construction process would be determined by the contractor.

Temporary laydown and staging areas would be required for field trailers, storage and equipment, and construction activities near the project site.

Step 1: Mobilization and Staging

The first step is preparing the site for construction. The project site would be surveyed, and various permits required for construction would be obtained. Mobilization and staging would occur after all required preconstruction surveys were conducted and the required permits were obtained.

Step 2: Site Clearing and Demolition

Following mobilization and staging, the site would be cleared of conflicting structures and vegetation to prepare for construction. Asphalt and concrete from roads and sidewalks would be removed and disposed.

Step 3: Utility Relocation

Utilities that would interfere with construction would be relocated or encased for continuing service by the utility provider. This work would involve coordinating with relevant utility companies, such as those for electric and gas power, water and wastewater distribution, stormwater, and cable television. Each utility would be restored or replaced near its former location in accordance with design plans.

Step 4: Road Improvements

Road construction would involve site excavation, grading, and pavement installation.

Excavation and Grading

Construction of the Build Alternative would require excavation and grading. Approximately 12,100 CY of excess earthwork would be excavated and disposed of offsite. An estimated 526 truck trips would be required to remove these excess materials. The offsite disposal site is assumed to be a maximum of 40 miles from the construction area for an estimated 80-mile round-trip per truckload; therefore, disposal of excess fill would require approximately 42,000 truck miles of travel.

Traffic Management

Temporary lane and ramp closures and detours would occur. It is anticipated that temporary closure of existing bicycle or pedestrian facilities would occur at times and may require temporary rerouting of transit service due to intersection work. A TMP would be developed and implemented as part of the project construction planning phase. The TMP would address potential impacts to circulation of all modes (i.e., transit, bicycles, pedestrians, and private vehicles). Roadway and/or pedestrian access to all occupied businesses and respective parking lots would be maintained during project construction. The TMP would include an evaluation of potential impacts because of diverting traffic to alternate routes, and it would also include measures to minimize, avoid, and/or mitigate impacts to alternate routes, such as agreements with local agencies to provide enhanced infrastructure on arterial roads or intersections to deal with detoured traffic. The TMP may provide contracting with local agencies for traffic personnel, especially for special event traffic through or near the construction zone.

Construction Staging Areas

The anticipated construction staging areas available include areas within the existing roadway right-of-way construction limits. Additional staging areas may be needed west of the project on Gilman Street in one or two parking lots owned by EBRPD. These potential additional staging areas would be subject to additional permits and owner permissions to be secured by the contractor before the staging area could be used.

Construction Hours

Construction work for the Build Alternative would be done primarily during daylight hours from 7:00 a.m. to 6:00 p.m.; however, there may be some work during night-time hours to avoid temporary roadway closures for tasks that could interfere with traffic or create safety

hazards. Examples of these tasks include striping operations, traffic control setup, installation of falsework, storm drain crossings, and asphalt pavement mill and overlay.

Project Features

The following project features would be implemented as part of the Build Alternative

PF CON-1: Adhere to Caltrans's standard specifications for noise control and dust abatement and construction BMPs for noise and fugitive dust control.

PF CON-2: The contractor will be responsible for securing all work zones in and around the construction sites, including staging areas within Caltrans and City of Berkeley right-of-way. Security of the project work zones will be the responsibility of the contractor until completion of construction.

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2.5 Cumulative Impacts

Regulatory Setting

Cumulative impacts are those that result from past, present, and reasonably foreseeable future actions, combined with potential impacts of this proposed project. A cumulative effect assessment looks at the collective impacts posed by individual land use plans and projects. Cumulative impacts can result from individually minor but collectively substantial impacts taking place over a period of time.

Cumulative impacts to resources in the study area may result from residential, commercial, industrial, and highway development, as well as from agricultural development and the conversion to more intensive agricultural cultivation. These land use activities can degrade habitat and species diversity through consequences such as displacement and fragmentation of habitats and populations, alteration of hydrology, contamination, erosion, sedimentation, disruption of migration corridors, changes in water quality, and introduction or promotion of predators. They can also contribute to potential community impacts identified for the project, such as changes in community character, traffic patterns, housing availability, and employment.

CEQA Guidelines Section 15130 describes when a cumulative impact analysis is necessary and what elements are necessary for an adequate discussion of cumulative impacts. The definition of cumulative impacts under CEQA can be found in Section 15355 of the CEQA Guidelines. A definition of cumulative impacts under NEPA can be found in 40 CFR, Section 1508.7.

Cumulative Impact Analysis

No Build Alternative

No construction would occur under the No Build Alternative. Existing conditions would be perpetuated, and the impacts associated with the Build Alternative identified in Chapter 2 would not occur. This includes the beneficial aspects of the Build Alternative, such as improving air quality by reducing traffic congestion and improving recreational resources by extending the Bay Trail and other pedestrian and bicycle improvements throughout the project.

Build Alternative

A cumulative analysis is required for any resource significantly impacted by a proposed project. Based on the analysis presented in Chapters 2 and 3, none of the proposed project impacts would significantly impact resources. Several resources (land use,

community impacts, growth, and plant species) would have no impact under the Build Alternative, and a few resources would be directly (or indirectly) impacted at a less than significant level (utilities/emergency services, traffic and transportation/pedestrian and bicycle facilities, visual/aesthetics, cultural resources, hydrology and floodplain, water quality and stormwater runoff, geology, soils, and seismicity, hazardous waste/materials, air quality, noise, natural communities, wetlands and other waters, animal species, threatened and endangered species, and invasive species). However, a cumulative analysis is also required for any impacted resources that are in poor health, declining health, or at risk. Each resource category was evaluated, and one resource category, water quality, was identified as being in poor health. One resource category, construction traffic management, was identified as being at risk.

Water Quality

The Build Alternative would add impervious surface area and potentially discharge construction and postconstruction-related stormwater pollutants to San Francisco Bay, Schoolhouse Creek, and Codornices Creek. Per the *Water Quality Assessment Report* (August 2018), two of these waterbodies are on the CWA 303(d) list of water quality limited segments: San Francisco Bay (Central Basin) and Codornices Creek. Codornices Creek is listed as impaired for temperature and trash. San Francisco Bay (Central Basin) has 11 listed impairments as follows: chlordane, DDT, dieldrin, dioxin compounds, furan compounds, invasive species, mercury, PCBs, dioxin-like PCBs, selenium, and trash. The Build Alternative could potentially discharge PCBs and trash into San Francisco Bay.

Codornices Creek is located along the northern border of the project study area. It would receive stormwater runoff from 5th Street, where the improvements under the Build Alternative are limited to pavement striping. The Build Alternative, therefore, would not impact the water quality of this poor-quality resource. Because of this, no further evaluation of potential cumulative impacts to Codornices Creek was conducted. San Francisco Bay would have direct and indirect impacts and is subject to a cumulative impact analysis.

In the San Francisco Bay Area, the RWQCB issues 5-year municipal stormwater permits to cities, counties, and flood control districts. The most recent permit was issued in November 2015. This specified BMPs to reduce or eliminate stormwater pollution. It imposed the following stormwater reduction requirements: reduce trash discharge by 70 percent by 2017, mercury by 50 percent by 2018, and PCBs by 90 percent by 2030. The permit also specified reductions in sediment from construction sites and that all new developments should divert stormwater through a biofiltration system prior to a storm drain.

The Build Alternative is located within Alameda County; therefore, it is subject to the stormwater permit requirements issued by the RWQCB. Based on this, Alameda

County was identified as the resource study area for San Francisco Bay's cumulative impact analysis (Figure 2.5-1). Cities within the county, including Berkeley and Albany, have joined together to form the Alameda Countywide Clean Water Program. This program is subject to NPDES Permit Number CAS612008 issued by Order Number R2-2009-0074 (October 14, 2009) and amended by Order Number R2-2011-0083 (November 28, 2011). The member agencies of the Alameda Countywide Clean Water Program regularly inspect commercial and industrial facilities and construction sites (private and public) for compliance. This ensures proper operational procedures and management practices are employed to prevent impairment of local waterways.

Industry moved heavily into the San Francisco Bay Area during World War II, and cities developed rapidly along the Bay's shoreline. Both cities and industries discharged untreated waste into the bay. The Dickey Water Pollution Act created the SWRCB to set statewide policy for pollution control. The act also established nine RWQCB for each of the major California watersheds. Each RWQCB has responsibility for overseeing and enforcing the State's pollution abatement program. California has also assumed responsibility for enforcing the federal CWA. This includes setting water quality standards and issuing discharge permits. Current challenges related to the Bay's water quality include, but are not limited to, continuing development of its associated watershed, stormwater discharges, and ailing sewer systems.

In addition to its impairments listed on the 303(d) list, the current health of the Bay was evaluated using the *State of the Estuary Report 2015* published by the San Francisco Estuary Partnership. This partnership was established in 1988 by the State of California and EPA under the CWA National Estuary Program. It is a collaboration of local, state, and federal agencies, non-government organizations, academia, and business leaders working to protect San Francisco Bay. The 2015 report rated the health of various parameters on an ascending scale from poor to fair to good. Overall, the Bay was rated as stable (neither improving or deteriorating from historic levels). Fish consumption was rated as "fair" with mercury and PCBs noted as primary concerns. Contamination concerns varied among fish species. Salmon and trout generally had contaminants below the threshold of concern, while bass had high levels of contamination. San Francisco Bay was rated as "good" for swimming. It also received a "fair" rating for aquatic life habitat. The report noted that the pollutants posing the greatest threats to aquatic life in the bay were mercury, invasive species, pesticides, and trash. High mercury levels currently threaten several bird species. The report also concluded that monitoring and regulatory programs are important for addressing ongoing water quality challenges.

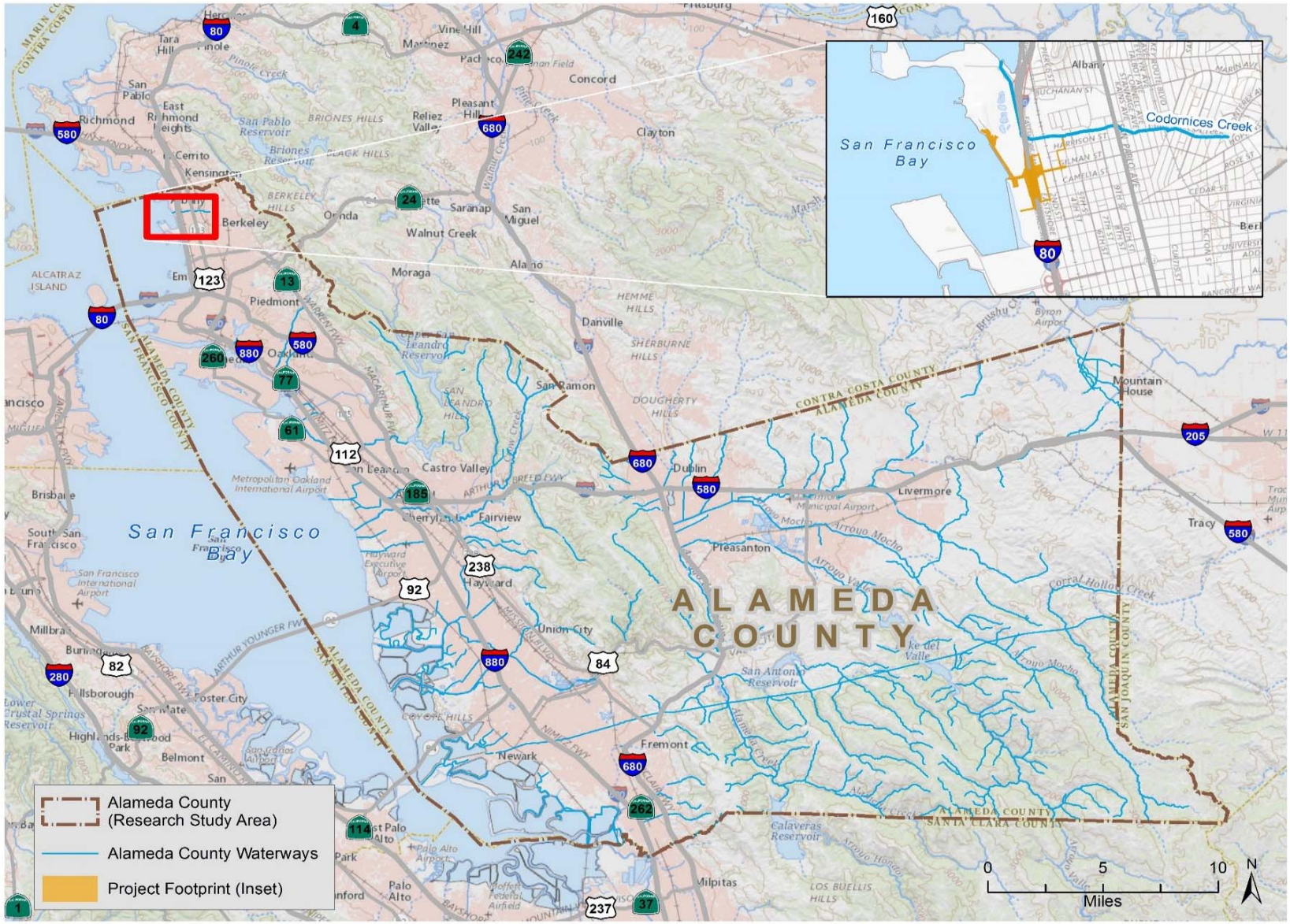


Figure 2.5-1: Resource Study Area Map

Alameda County has a large number of current, planned, and future projects. Alameda County includes 14 incorporated cities and 6 unincorporated communities. Only projects with the potential to impact water quality were evaluated as part of this cumulative analysis. Evaluating the current and future projects associated with each of these communities is beyond the scope of this cumulative analysis, especially in comparison to the minor direct and indirect impacts anticipated to San Francisco Bay under the Build Alternative. As such, all major projects within a 1-mile radius were researched (Table 2.5-1) with only a cursory review of the remaining resource study area to identify major projects.

Table 2.5-1: Major Projects within 1-Mile of the Study Area

Name	Jurisdiction (Location)	Proposed Uses	Status
Transportation Projects			
University Ave Overcrossing (Increase Vertical Clearance Project, EA 2K830)	City of Berkeley	This project would increase the vertical clearance at the I-80/University Avenue Overcrossing to current standard (16.5 feet) by either raising or replacing the existing structure. This would require raising or replacing the on- and off-ramps, as well as the overcrossing structure to match the new elevation. Four build alternatives are under consideration: Alternative 1 Raise Existing Structure, Alternative 2 Replace Existing Structure (Signalization of Eastbound Intersections with Left-Turn Access), Alternative 3 Replace Existing Structure (Double Roundabout), and Alternative 4 Replace Existing Structure (Single Roundabout)(Hybrid 1).	Proposed – Planning
Interstate 80/ Ashby Avenue (SR-13) Interchange Improvements	City of Berkeley and City of Emeryville	The project would reconstruct the Ashby Avenue interchange, which is bordered by Frontage Road and the San Francisco Bay to the west, an industrial/ commercial/residential section of Emeryville to the southeast, and Berkeley's Aquatic Park to the northeast. This project would include: • A new bridge to replace existing bridges • A new interchange • Provision of pedestrian and bicycle access over I-80 at the Ashby Avenue interchange	Proposed – Project approval and environmental document to be completed in fall 2020.

Table 2.5-1: Major Projects within 1-Mile of the Study Area

Name	Jurisdiction (Location)	Proposed Uses	Status
Park and Recreation Projects			
Aquatic Park Improvement Program	City of Berkeley	The project consists of a series of capital improvements to Aquatic Park that would improve the hydrology and water quality of the lagoons, wetland and upland habitat, and user amenities. Phase I addresses water quality and some of the habitat improvements. Phases 2 through 4 would further improve the upland habitat and provide user amenities.	Proposed – Planning and Design Phase (Draft Environmental Impact Report 2012, Final Environmental Impact Report under preparation)
Proposed Fieldhouse at Tom Bates Regional Sports Complex	City of Berkeley	The preliminary vision of the fieldhouse building consists of a restroom, a meeting room, and a storage area, with priority on ease of access from the fields, minimal impact to parking, and enhanced security.	Proposed – Planning and Design Phase
McLaughlin Eastshore State Park Brickyard Construction	City of Berkeley	Plans are in development for walking trails, picnic areas, restrooms, and parking.	Under Construction – Construction summer 2019, completion spring 2020
Berkeley Marina Capital Improvement Program	City of Berkeley	A series of projects are in progress at the Berkeley Waterfront. The University Avenue realignment and reconfiguration will improve the road that is the gateway to the Waterfront. Evaluations of the Berkeley Pier are in progress, studying options that would allow this resource to be reopened to the public. A new public restroom, windsurfing area, and landscaped parking lot are under construction at the South Cove Sailing Basin. The Bay Trail is being extended to the Adventure Playground.	Proposed, Planning, and Under Construction – Design and Construction
Albany Beach Restoration and Public Access Project	Cities of Albany and Berkeley	The project involves construction of a 4,983-foot-long (0.94-mile) segment of the Bay Trail between the termini of Buchanan and Gilman streets; expansion of a recreational beach; and improvement of associated park facilities. The project is currently in Phases 2 and 3, which are expected to be completed in 2018. Phase 2 is focused on improving the Albany Beach area. Phase 3 is focused on extending the Bay Trail between Buchanan and Gilman streets west of Golden Gate Fields.	Under Construction – Phase 1 (Albany Neck improvements) completed Phases 2 and 3 scheduled to be completed in 2019

Table 2.5-1: Major Projects within 1-Mile of the Study Area

Name	Jurisdiction (Location)	Proposed Uses	Status
Residential Projects			
600 Addison Street	City of Berkeley	The project applicant is requesting approval of a master use permit to allow redevelopment of the project site with up to 475,000 gross square feet of research and development uses and office uses with associated parking, circulation, utility, and landscaping improvements. In addition, the project is requesting the conversion of approximately 8,000 square feet of protected warehouse space that was previously removed from the site.	Proposed – Notice of Preparation review ended November 27, 2017
Multi-Use Development Projects			
1900 Fourth Street	City of Berkeley	Redevelopment of the site with a mix of residential and commercial uses totaling 207,590 gross square feet, as well as associated parking and circulation (148,200 gross square feet), open space and landscaping (16,090 square feet), and utility improvements. Approximately 118,370 square feet of residential uses (135 dwelling units) would be located on the second level and above; commercial uses would total approximately 33,080 gross square feet and would be located on the ground level.	Proposed – Draft Environmental Impact Report (end of review March 2017); Second application for 1900 Fourth Street (ZP2018-0052) submitted March 8, 2018.
1320 Ninth Street	City of Berkeley	Create a laboratory/manufacturing facility within existing warehouse.	Proposed – Permit Issued
2100 San Pablo Avenue Residential Care Facility for the Elderly	City of Berkeley	The mixed-use project involves demolishing the existing two single-story commercial buildings, and constructing 75,064 square feet, including 96 residential units (67 studio suits, 20 one-bedroom suites, and 9 two-bedroom suites), group dining and activity rooms, admission offices, staff lounge, wellness and meditation rooms, caregiver stations, a lobby/great room, and a cafeteria. Outdoor space would include a center courtyard measuring 2,174 square feet and outdoor decks on each floor measuring 5,049 total square feet. The proposed commercial component of the project would be on the ground floor fronting San Pablo Avenue. Construction would occur over approximately 18 to 22 months.	Proposed – Negative Declaration, review ended November 13, 2017

Table 2.5-1: Major Projects within 1-Mile of the Study Area

Name	Jurisdiction (Location)	Proposed Uses	Status
1740 San Pablo Avenue Mixed-Use Project	City of Berkeley	The project would demolish the existing buildings on the project site and construct a new 5-story mixed-use building. The proposed building would have the following characteristics: 5 stories and 59.5 feet in height, 48 dwelling units, 3 live work units, and an approximately 800-square-foot cafe, 42,073 square feet of gross floor area, a parking garage with 53 parking spaces, including 6 electronic vehicle charging ready spaces, and 48 bicycle spaces.	Proposed – Negative Declaration (January 2018)

Sources: City of Berkeley Planning Department, 2016 and 2018; ceqanet.com, 2016 and 2018; City of Albany Planning Department, 2018; City of Berkeley Parks Recreation and Waterfront Department, 2018; East Bay Regional Park District, 2018; Caltrans 2018; Alameda CTC 2018, BCDC 2018.

Caltrans alone has 28 active projects within Alameda County. These include the Bay Bridge, Alameda County Express Lanes (I-580/680), the Dumbarton Bridge, SR 84 Niles Canyon Safety Improvements, rehabilitation projects along I-580, and corridor improvements along I-880 and I-680.

The Alameda CTC plans, funds, and delivers transportation projects within Alameda County. It manages numerous active capital projects with a combined total value of more than $3 billion. Their website lists two bicycle and pedestrian projects, five local street projects, two multimodal arterial corridor projects, two Port of Oakland infrastructure projects, and four transit projects within the resource study area. Alameda CTC also lists several highway improvement capital projects by corridor as itemized below:

- I-80 corridor: I-80/Ashby interchange improvement and I-80 integrated corridor mobility
- I-680 corridor: I-680 express lanes from SR 84 to Alcosta and I-680 Sunol express lanes
- I-880 corridor: Oakland-Alameda access project, I-880 interchange improvements, and I-880 north safety and operational improvements
- SR 84 corridor: SR 84 expressway and SR 84 widening and interchange improvements
- SR 262 cross connector (Mission Boulevard)
- Smart Corridors operations and management

- Local Streets and Roads Projects: Castro Valley Local Area Traffic Circulation Improvement, Dublin Boulevard – North Canyons Parkway Extension, Dumbarton Corridor Improvements (Central Avenue Overpass), East 14th Street/Hesperian Boulevard/150th Avenue Intersection Improvement, and I-880 to Mission Boulevard East-West Connector Project
- Multimodal Arterial Corridor Projects: East 14th Street/Mission and Fremont Boulevard Multimodal Corridor and San Pablo Avenue Multimodal Corridor Project
- Port of Oakland Infrastructure Projects: 7th Street Grade Separation and Port Arterial Improvements and 7th Street Grade Separation East
- Transit Projects: Altamont Commuter Express Rail Fact Sheet, East Bay Bus Rapid Transit, I-580 Corridor/BART to Livermore Studies, Iron Horse Transit Route

The Alameda County Planning Department provides an online listing of major planned projects. These include several surface mine projects, wind and solar farms, mixed use, townhomes, and subdivision construction projects, and a winery expansion. Their website notes that projects include residential, industrial, and commercial projects that are reviewed for compliance with local, state, and federal requirements.

The potential exists for cumulative impacts from a combination of the Build Alternative and other projects previously referenced within Alameda County. However, because the proposed project and other concurrent or planned projects would be subject to stormwater permit requirements and must each implement their own BMPs, cumulative impacts to water quality are not anticipated. Through compliance with the municipal stormwater permit, stormwater discharged by these projects should meet (or exceed) the County's requirements to improve water quality within San Francisco Bay.

Protection and enhancement of existing and potential beneficial resource uses are primary goals of water quality planning. The San Francisco Bay RWQCB Basin Plan (2017) lists the following existing beneficial uses of the bay: industrial service and process supply, commercial and sports fishing, shellfish harvesting, estuarine habitat, fish migration and spawning, preservation of rare and endangered species, wildlife habitat, contact and non-contact water recreation, and navigation. The Basin Plan does not list the Bay as being used for municipal or domestic water supply. Chapters 2 and 3 outline how recreation, wildlife habitat, and endangered species would not be significantly impacted by the Build Alternative.

Regarding stormwater quality, the Build Alternative would implement BMPs to remove pollutants (including trash, mercury, and PCBs) from stormwater before it discharges into San Francisco Bay. Full treatment for all new impervious surfaces is proposed, which would prevent negative impacts to water quality. An underground separation device would be evaluated for use on Gilman Street within the City of Berkeley to separate trash, mercury, and PCBs. Trash inserts would be incorporated to further remove litter and solids from stormwater. Other postconstruction stormwater BMPs for the project would be evaluated and may include bioretention devices, basins, media filters, and tree well filters. The *Stormwater Data Report* (August 2018) provides conceptual BMP locations within the study area and the treatment area associated with each measure.

BMPs would be used during construction to prevent negative impacts to water quality. This includes appropriate erosion/sediment control measures and site management practices such as a material management and spill prevention plan. The Build Alternative would also implement source control measures, such as markers on storm drain inlets, protecting existing vegetation, and proper plant selection and pesticide management for new landscaping. With implementation of the project features, the Build Alternative would not have an impact to water quality.

Construction Traffic Management

As stated above, Caltrans has 28 active projects within Alameda County, and Alameda CTC and Caltrans are in the planning stages for multiple highway improvement capital projects within the I-80 corridor. Depending on delivery schedules, several of the projects along the I-80 corridor may occur within a similar timeframe.

Caltrans, Alameda CTC, and the cities of Berkeley, Albany, Emeryville, and Oakland would coordinate to develop a regional TMP that would address and minimize impacts to traffic in the region due to construction of multiple planned transportation improvements.

Conclusion

The Build Alternative would not have a cumulatively significant impact on any impacted resources. All potential impacts will be minimized through the proposed project features, avoidance, and minimization measures presented in Chapter 2. Based on this cumulative impact analysis, no mitigation measures are proposed.

Chapter 3 California Environmental Quality Act (CEQA) Evaluation

3.1 Determining Significance under CEQA

The proposed project is a joint project by Caltrans and FHWA and is subject to state and federal environmental review requirements. Project documentation, therefore, has been prepared in compliance with both CEQA and NEPA. FHWA's responsibility for environmental review, consultation, and any other actions required by applicable federal environmental laws for this project are being, or have been, carried out by Caltrans pursuant to 23 U.S.C. 327 and the Memorandum of Understanding (MOU) 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 Environmental Impact Statement, or a lower level of documentation, will be required. NEPA requires that an Environmental Impact Statement 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 Environmental Impact Statement, it is the magnitude of the impact that is evaluated, and no judgment of its individual significance is deemed important for the text. NEPA does not require that a determination of significant impacts be stated in the environmental documents.

CEQA, on the other hand, does require Caltrans to identify each "significant effect on the environment" resulting from the project and ways to mitigate each significant effect. If the project may have a significant effect on any environmental resource, then an Environmental Impact Report must be prepared. Each and every significant effect on the environment must be disclosed in the Environmental Impact Report and mitigated if feasible. In addition, the CEQA Guidelines list a number of "mandatory findings of significance," which also require the preparation of an Environmental Impact Report. There are no types of actions under NEPA that parallel the findings of mandatory significance of CEQA. This chapter discusses the effects of this project and CEQA significance.

3.2 CEQA Environmental Checklist

This checklist identifies physical, biological, social, and economic factors that might be affected by the proposed project. In many cases, background studies performed in connection with the project 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 project, and standardized measures that are applied to all or most Caltrans projects such as BMPs and measures included in the Standard Plans and Specifications or as Standard Special Provisions, are considered to be an integral part of the project and have been considered prior to any significance determinations documented below; see Chapters 1 and 2 for a detailed discussion of these features. The annotations to this checklist are summaries of information contained in Chapter 2 to provide the reader with the rationale for significance determinations; for a more detailed discussion of the nature and extent of impacts, please see Chapter 2. This checklist incorporates by reference the information contained in Chapters 1 and 2.

3.2.1 Aesthetics

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☐	☒

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

CEQA Significance Determinations for Aesthetics

The project study area is not designated as an official state or county scenic highway.

a, b, c) No Impact

The proposed project would have no impact on a scenic vista because the study area does not include any scenic vistas. The project would have no impact on scenic resources. The proposed Build Alternative would likely change the visual character and quality. Aesthetic treatment, decorative paving landscape plantings, and light shielding would prevent degradations to visual quality of public views.

d) Less Than Significant Effect

The proposed project includes new lighting which will be above the line of sight for pedestrians and motorists. Nighttime glare is likely. This would not be a significant impact based on the existing lighting already located within the project footprint.

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 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 nonagricultural 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 PRC Section 12220(g)), timberland (as defined by PRC 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 nonagricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

CEQA Significance Determinations for Agriculture and Forest Resources

a, b, c, d, e) No Impact

No farmlands, agricultural lands, or timberlands are located adjacent to I-80 within the project vicinity, thus no farmland, agricultural lands, or timberland would be converted from implementation of the project. No further analysis is required.

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 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?	☐	☐	☒	☐
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?	☐	☐	☐	☒

CEQA Significance Determinations for Air Quality

a, d) No Impact

The project would not conflict or obstruct implementation of the air quality plan or create objectionable odors.

b, c) Less Than Significant

The proposed project would be expected to improve traffic flow and relieve congestion in the I-80/Gilman Street interchange area, which would be expected to reduce vehicle idling and associated emissions. Thus, it is anticipated that completion of the proposed project would result in beneficial air quality impacts; however, the project site is in the San Francisco Bay Area Air Basin, under jurisdiction of the BAAQMD. The Basin is currently in nonattainment for federal O_3 and $PM_{2.5}$ and nonattainment for State O_3, PM_{10}, and $PM_{2.5}$ standards.

3.2.4 Biological Resources

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by CDFW, USFWS, or NOAA Fisheries?	☐	☐	☐	☒
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 CDFW or USFWS?	☐	☐	☐	☒
c) Have a substantial adverse effect on federally protected wetlands (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?	☐	☐	☐	☒

CEQA Significance Determinations for Biological Resources

a, b, c, d, e, f) No Impact

Five federally listed endangered or threatened fish species have the potential to occur within the proposed project area. The effect finding for four of these species is "may affect, but not likely to adversely affect." The remaining species had a "no effect" finding. Permanent impacts to the critical habitat for these species, San Francisco Bay, have been minimized and would be limited to removal and replacement of the existing

headwall, wingwalls, and rock slope protection at the Gilman Street outfall. Sediment excavation within the bay is also proposed. Proposed project features and BMPs would further diminish the potential for adverse effects to these species. This includes a qualified biological monitor approved by Caltrans and regulatory agencies, who would be onsite during work within the bay, and an education program for project personnel covering species of concern. Two federally listed threatened or endangered bird species have the potential to occur within the proposed project area. The effect finding for each was "no effect" with no potential for a take. Project features, including preconstruction nesting surveys, should further limit potential impacts to bird species. The project would not conflict with local policies or ordinances protecting biological resources or the provisions of an adopted Habitat Conservation Plan or other approved plan.

3.2.5 Cultural Resources

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource pursuant to §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?	☐	☐	☒	☐

CEQA Significance Determinations for Cultural Resources

a) No Impact

The project, as designed, would have no temporary or permanent impacts to the built environment property (the Manasse Block Tannery) listed on the Berkeley Local Landmarks Registry and determined eligible for the NRHP and the CRHR under CEQA located within the project APE.

b, c) Less Than Significant

Extended Phase I testing identified one prehistoric archaeological site, CA-ALA-690 within the APE. While the subsurface testing identified the likely boundary of the prehistoric site, there is the potential for discovery of archaeological artifacts within the

project area. CA-ALA-690 is assumed eligible for the purposes of the project for the NRHP and the CRHR and would be protected from unintended adverse project impacts by the establishment of a vertical ESA during construction and the use of an archaeological monitor within a designated Archaeological Monitoring Area (AMA) in archaeologically sensitive areas adjacent to the known site boundaries for CA-ALA-690. The project would have a less than significant impact on archaeological resources with the application of a Post Review Discovery Plan, ESA Action Area, and Monitoring Plan and the following measures:

If cultural materials are discovered during construction, all earth moving activities within and around the immediate discovery area will be diverted until a qualified archaeologist can assess the nature and significance of the find. Unintentional adverse effects upon archaeological resources will be avoided by implementing the Post Review Discovery and Monitoring/ESA Action Plan prepared for the project, to include the following:

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

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

3.2.6 Energy

Would the 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) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	☒

CEQA Significance Determinations for Energy

a, b) No Impact

The project would not result in wasteful, inefficient, or unnecessary consumption of energy resources and would not conflict with or obstruct any state or local plans for renewable energy or energy efficiency.

3.2.7 Geology and Soils

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
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?	☐	☐	☐	☒

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☒	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒

CEQA Significance Determinations for Geology and Soils

a ii, iii, c, d) Less than Significant

The project site is underlain by potentially liquefiable soils in the upper 15 to 20 feet. The as-built logs of test borings show the site to be underlain by approximately 10 feet of fill over 10 feet of bay mud and then soft to stiff clays. It is anticipated that any liquefaction potential would be limited to the upper 20 feet of the site soils. Some of the project components would be placed below the liquefaction zone. Foundations for the pedestrian and bicycle overcrossing would be located on cast-in-drilled-hole piles 120 feet below the existing ground surface. Retaining walls for the pedestrian bridge would be excavated 50 feet below the ground surface. 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.

a i, iv, b, e, f) No Impact

The project site lies adjacent to an Alquist-Priolo Earthquake Fault Zone; however, the site is situated approximately 2.4 miles southwest of the Hayward Fault Zone (Northern Section). The project site has no known history of subsidence, rock falls/landslides, or embankment failures due to seismic activity.

No impacts to paleontology resources are expected based on the low sensitivity of the geological units within the study area and the planned construction methods.

3.2.8 Greenhouse Gas Emissions

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

3.2.9 Hazards and Hazardous Materials

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☐	☒
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☐	☒
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☒	☐
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?	☐	☐	☐	☒
f) Impair implementation of or physically interfere with an adopted emergency response 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?	☐	☐	☐	☒

CEQA Significance Determinations for Hazards and Hazardous Materials

a, b, c, e, f, g) No Impact

The project would not create a hazard to the public or environment through the transport, use, or disposal of hazardous materials. The project would not create a hazard to the public through the release of hazardous materials into the environment. There are no schools within the study area. The project is not located within an airport land use plan, public airport, or private airstrip. The proposed project is designed to accommodate emergency response vehicles during and after construction.

d) Less Than Significant

Impacts from historical releases of chemicals from USTs to soil or groundwater in the project site vicinity could occur if contaminated media are encountered during excavations or trenching to install light pole foundations, relocate utilities and drainage systems, and foundations for retaining walls and the pedestrian bridge overcrossing of I-80. Groundwater is first encountered at depths of 4 to 20 feet near the project site and may be encountered during installation or relocation of these utilities, systems, and

structures. In addition, sediment removal within the San Francisco Bay may encounter contaminated sediment.

3.2.10 Hydrology and Water Quality

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☐	☒
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 or through the addition of impervious surfaces, in a manner which would:				
(i) result in 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; or	☐	☐	☐	☒
(iv) impede or redirect flood flows?	☐	☐	☒	☐
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☒
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☐	☒

CEQA Significance Determinations for Hydrology and Water Quality

a, b, c ii, c iii, d, e) No Impact

The project would not violate any water quality standards or WDRs. The project would not deplete groundwater supplies. The project would not substantially alter drainage patterns, create runoff water or otherwise substantially degrade water quality. The project would not place housing within a 100-year floodplain, expose people or structures to a risk of a failure of a levee or dam, or inundation by seiche, tsunami, or mudflow. The project would not conflict with or obstruct implementation of water quality control or sustainable groundwater management plans.

c i, c iv) Less Than Significant

The project would add just less than 1 acre of impervious surface area. There would be minimal fill in the study area. The project proposes to balance cut and fill in the FEMA coastal floodplain, Zone AE. The project does not propose any changes that would affect the 100-year WSE because the floodplain is a Zone VE coastal floodplain where flooding is caused by tidal influence and storm surges.

3.2.11 Land Use and Planning

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Physically divide an established community?	☐	☐	☐	☒
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒

CEQA Significance Determinations for Land Use and Planning

The project would improve vehicle, pedestrian, and bicycle access and safety in and around West Berkeley neighborhoods. Following construction of the two roundabouts, City of Berkeley right-of-way would be transferred to Caltrans. The project would be consistent with the City of Berkeley's Circulation Master Plan and General Plan, BCDC's Bay Plan, as well as regional transportation plans.

a, b) No Impact

The proposed project is a transportation improvement project that would be constructed at an existing interchange; therefore, it would not divide an established community. The West Berkeley Circulation Master Plan Report of 2009 (Master Plan) identified the I-80/Gilman Street interchange as an area of concern due to its all-time traffic delay and its need for operational improvements. The project is consistent with local plans and policies, including BCDC's Bay Plan. Due to the area's dense urban development, there are no active habitat conservation plans or natural community conservation plans in the project study area.

3.2.12 Mineral Resources

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
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?	☐	☐	☐	☒

CEQA Significance Determinations for Mineral Resources

a, b) No Impact

The proposed project would be constructed in already heavily disturbed soils comprised mostly of engineered fill. As a result, no impacts to mineral resources would be expected from construction of the project

3.2.13 Noise

Would the project result in:	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 project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b) Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☐	☒
c) For a project located 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 or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

CEQA Significance Determinations for Noise

a) Less Than Significant

Existing and predicted noise levels exceed the NAC at three receivers in the study area. However, there is no noise increase between existing conditions and the design year; therefore, the predicted noise levels would not result in a substantial increase in noise.

b, c) No Impact

The project would not result in a permanent increase in ambient noise levels above existing levels. No vibration impacts would be expected because no pile driving would be required for the project. There are no airports located near the project study area.

3.2.14 Population and Housing

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

CEQA Significance Determinations for Population and Housing

The proposed project is intended to address existing and predicted traffic conditions and would not affect growth or development patterns in the area. Based on currently available information, no displacement of housing units is anticipated because the area is comprised predominantly of manufacturing and industrial uses.

a, b) No Impact

The project would not induce substantial population growth or result in any relocations.

3.2.15 Public Services

Would the 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?	☐	☐	☐	☒

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

CEQA Significance Determinations for Public Services

a) No Impact

The proposed project would not require construction or alteration of new governmental facilities or other public services.

3.2.16 Recreation

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
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?	☐	☐	☐	☒

CEQA Significance Determinations for Recreation

There are two recreational facilities adjacent to the project site; Tom Bates Regional Sports Complex and the Bay Trail. The proposed project would improve the level and safety of access between Gilman Street (east of I-80) to the San Francisco Bay shoreline area, while the level of use would be consistent with local and regional recreation planning goals, including the Bay Trail Plan and the Bay Plan. As a result, the proposed project would not be expected to adversely affect existing recreational facilities or require new or expanded recreational facilities.

a, b) No Impact

The project would improve access to Tom Bates Regional Sports Complex and the level of use of the facility with no increase to the deterioration of the facilities as some of the facilities would be improved as a result of this project (i.e., the Bay Trail, lighting improvements, additional landscaping). The improvements to the facility would remain consistent with local and regional recreation planning goals.

3.2.17 Transportation

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☐	☒
b) Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	☐	☒
c) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
d) Result in inadequate emergency access?	☐	☐	☐	☒

CEQA Significance Determinations for Transportation

a, b, c, d) No Impact

The proposed interchange improvement project is included in multiple local transportation planning and funding initiatives, and it would support Alameda County's ongoing congestion management program. The project would also improve pedestrian and bicycle plans access and safety by incorporating dedicated pathways within the project study area. The project's double roundabout design would reduce hazards in the area by simplifying and improving navigation and traffic operations through the study area. Under the Build Alternative, there would be sufficient space for an emergency vehicle to pass other vehicles in the roundabout. Drivers would be educated about how to properly respond when an emergency vehicle is approaching the roundabout.

3.2.18 Tribal Cultural Resources

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
a) Listed or eligible for listing in the CRHR, or in a local register of historical resources as defined in PRC Section 5020.1(k), or	☐	☐	☐	☒
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1. In applying the criteria set forth in subdivision (c) of PRC Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☐	☐	☒

CEQA Significance Determinations for Tribal Cultural Resources

a, b) No Impact

There are no tribal cultural resources identified within the study area as defined by PRC 21074. AB 52 outreach was conducted as part of this project. None of the tribes contacted requested AB 52 consultation or indicated the presence of AB 52 resources within the project's APE. A summary of AB 52 consultation outreach and Native American tribal responses can be found in Chapter 2.

3.2.19 Utilities and Service Systems

Would the 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, of which could cause significant environmental effects?	☐	☐	☒	☐
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?	☐	☐	☐	☒
c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
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?	☐	☐	☐	☒

CEQA Significance Determinations for Utilities and Service Systems

The proposed project would not result in the construction of any new structures and would not require new water or wastewater treatment facilities. Any construction-related materials or debris, including asphalt, would be disposed of or recycled at an appropriately certified landfill or transfer station facility.

An existing EBMUD recycled water transmission line would be relocated and extended as part of the project. Approximately 1,100 feet of a new 12-inch recycled water transmission pipeline within Eastshore Highway from Page Street to Gilman Street and approximately 1,050 feet of pipeline within Gilman Street from 2nd Street to the Buchanan Street extension are part of the project.

b, c, e) No Impact

The project would not exceed wastewater treatment requirements. EBMUD provides water service for Berkeley residents and businesses, including the project study area. The project would comply with all regulations regarding solid waste.

a, d) Less Than Significant

An existing EBMUD recycled water transmission line would be relocated and extended as part of the project. The project would incorporate permanent treatment BMPs such as bioretention or biofiltration for stormwater management purposes. Temporary construction site BMPs would be implemented to reduce stormwater impacts associated with construction activities. Stormwater generated from the site would continue to drain to the City of Berkeley's storm sewer system as it does currently. The EBMUD line has been redesigned to avoid an NRHP- and CRHR-eligible archaeological resource. Implementation of a vertical ESA would fully protect the resource from any impacts as a standard condition during construction; and the use of an archaeological monitor within a designated Archaeological Monitoring Area (AMA) in archaeologically sensitive areas adjacent to the known site boundaries for CA-ALA-690 would further ensure no project related impacts occur to the site; therefore, the project would have no impact on this resource. Unidentified resources encountered during the installation of the waterline would be handled under the procedures outlined in the Post Review Discovery Plan and Monitoring/ESA Action Plan, and the following measures:

3.2.20 Wildfire

	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?	☐	☐	☐	☒

	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☐	☒

CEQA Significance Determinations for Wildfire

a, b, c, d) No Impact

The project would not impair emergency management plans or exacerbate wildfire risks. The project would not require installation of infrastructure that would exacerbate wildfire risks. The project would not expose people or structures to significant risks due to downslope flooding or landslides as a results of post-fire slope instability or drainage changes.

3.2.21 Mandatory Findings of Significance

	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Does the project have the potential to substantially 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?	☐	☐	☐	☒

	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	☐	☒
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☐	☒

CEQA Significance Determinations for Mandatory Findings of Significance

a, b, c) No Impact

The project would have no impacts on listed species or their habitat. The project would not have cumulative impacts. The project does not have environmental effects that would cause substantial adverse effects.

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 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 (1,1,1,2-tetrafluoroethane), and HFC-152a (difluoroethane).

In the United States, 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 covers the activities and policies aimed at reducing GHG emissions to limit or “mitigate” the impacts of climate change. Adaptation, on the other hand, is concerned with planning for and responding to impacts resulting from climate change (such as adjusting transportation design standards to withstand more intense storms and higher sea levels).

3.3.1 Regulatory Setting

This section outlines federal and State efforts to comprehensively reduce GHG emissions from transportation sources.

[3] https://www.epa.gov/ghgemissions/us-greenhouse-gas-inventory-report-1990-2014.
[4] https://www.arb.ca.gov/cc/inventory/data/data.htm.

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.

NEPA (42 U.S.C. Part 4332) requires federal agencies to assess the environmental effects of their proposed actions prior to deciding on the action or project.

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 Energy Policy Act of 1992 (EPACT92) (102nd Congress H.R.776.ENR): With this act, Congress set goals, created mandates, and amended utility laws to increase clean energy use and improve overall energy efficiency in the United States. EPACT92 consists of 27 titles detailing various measures designed to lessen the nation's dependence on imported energy, provide incentives for clean and renewable energy, and promote energy conservation in buildings. Title III of EPACT92 addresses alternative fuels. It gave the United States Department of Energy administrative power to regulate the minimum number of light-duty alternative fuel vehicles required in

[5] https://www.fhwa.dot.gov/environment/sustainability/resilience/.
[6] https://www.sustainablehighways.dot.gov/overview.aspx.

certain federal fleets beginning in fiscal year 1993. The primary goal of the Program is to cut petroleum use in the United States by 2.5 billion gallons per year by 2020.

Energy Policy Act of 2005 (109th Congress H.R.6) (2005–2006): This act sets forth an energy research and development program covering: (1) energy efficiency; (2) renewable energy; (3) oil and gas; (4) coal; (5) Indian energy; (6) nuclear matters and security; (7) vehicles and motor fuels, including ethanol; (8) hydrogen; (9) electricity; (10) energy tax incentives; (11) hydropower and geothermal energy; and (12) climate change technology.

Energy Policy and Conservation Act of 1975 (42 U.S.C. Section 6201) and Corporate Average Fuel Standards: This act establishes fuel economy standards for on-road motor vehicles sold in the United States. Compliance with federal fuel economy standards is determined through the Corporate Average Fuel Economy program based on each manufacturer's average fuel economy for the portion of its vehicles produced for sale in the United States.

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 FCAA and must be regulated if these gases could be reasonably anticipated to endanger public health or welfare. Responding to the Court's ruling, 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.

EPA in conjunction with the National Highway Traffic Safety Administration (NHTSA) issued the first of a series of GHG emission standards for new cars and light-duty vehicles in April 2010[7] and significantly increased the fuel economy of all new passenger cars and light trucks sold in the United States. The standards required these vehicles to meet an average fuel economy of 34.1 miles per gallon by 2016. In August 2012, the federal government adopted the second rule that increases fuel economy for the fleet of passenger cars, light-duty trucks, and medium-duty passenger vehicles for model years 2017 and beyond to average fuel economy of 54.5 miles per gallon by 2025. Because NHTSA cannot set standards beyond model year 2021 due to statutory obligations and the rules' long timeframe, a mid-term evaluation is included in the rule.

[7] https://one.nhtsa.gov/Laws-&-Regulations/CAFE-%E2%80%93-Fuel-Economy

The Mid-Term Evaluation is the overarching process by which NHTSA, EPA, and ARB will decide on Corporate Average Fuel Economy and GHG emissions standard stringency for model years 2022–2025. NHTSA has not formally adopted standards for model years 2022 through 2025; however, 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 Donald 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.

State

With the passage of legislation, including State Senate and Assembly bills and executive orders, California has been innovative and proactive in addressing GHG emissions and climate change.

AB 1493, Pavley Vehicular Emissions: Greenhouse Gases, 2002: This bill requires 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 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 passage of AB 32 in 2006 and SB 32 in 2016.

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

[8] http://www.nbcnews.com/business/autos/trump-rolls-back-obama-era-fuel-economy-standards-n734256 and https://www.federalregister.gov/documents/2017/03/22/2017-05316/notice-of-intention-to-reconsider-the-final-determination-of-the-mid-term-evaluation-of-greenhouse.

(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.

EO S-01-07 (January 18, 2007): This order sets forth the low carbon fuel standard for California. Under this EO, the carbon intensity of California's transportation fuels is to be reduced by at least 10 percent by the year 2020. ARB re-adopted the low carbon fuel standard regulation in September 2015, and the changes went into effect 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.

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 CEQA Guidelines for addressing GHG emissions. The amendments became effective March 18, 2010.

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.

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): This order 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): This order establishes an interim statewide GHG emission reduction target of 40 percent below 1990 levels by 2030 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.

SB 32 Chapter 249, 2016: This bill 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.

3.3.2 Environmental Setting

In 2006, the Legislature passed the California Global Warming Solutions Act of 2006 (AB 32), which created a comprehensive, multi-year program to reduce GHG emissions in California. AB 32 required ARB to develop a Scoping Plan that describes the approach 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. The second scoping update plan, California's 2017 Climate Change discussion draft, adopted on December 14, 2017, reflects 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 updated Scoping Plan, ARB released the GHG inventory for California.[9] ARB is responsible for maintaining and updating California's GHG Inventory per Health and Safety Code Section 39607.4. The associated forecast/projection is an estimate of the emissions anticipated to occur in the year 2020 if none of the foreseeable measures included in the Scoping Plan were implemented.

An emissions projection estimates future emissions based on current emissions, expected regulatory implementation, and other technological, social, economic, and behavioral patterns. The projected 2020 emissions provided in Figure 3-1 represent a business-as-usual (BAU) scenario assuming none of the Scoping Plan measures are implemented. The 2020 BAU emissions estimate assists ARB in demonstrating progress toward meeting the 2020 goal of 431 $MMTCO_2e$.[10] The 2018 edition of the GHG emissions inventory found total California emissions of 429 $MMTCO_2e$ for 2016.

[9] 2018 Edition of the GHG Emission Inventory Released (July 2018): https://www.arb.ca.gov/cc/inventory/data/data.htm.

[10] The revised target using Global Warming Potentials from the Intergovernmental Panel on Climate Change Fourth Assessment Report (AR4).

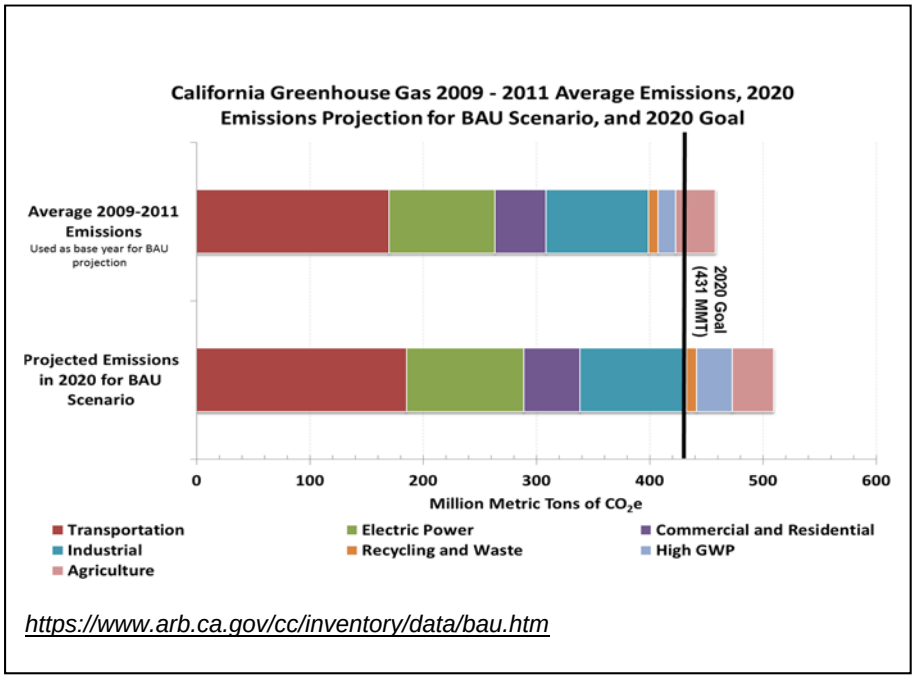


Figure 3-1: 2020 Business as Usual (BAU) Emissions Projection 2014 Edition

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 $MMTCO_2e$.

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.[11] In assessing cumulative impacts, it must be determined if a project's

[11] This approach is supported by the AEP: *Recommendations by the Association of Environmental Professionals on How to Analyze GHG Emissions and Global Climate Change in CEQA Documents* (March 5, 2007), as well as the South Coast Air Quality Management District (Chapter 6: The CEQA Guide, April 2011) and the US Forest Service (Climate Change Considerations in Project Level NEPA Analysis, July 13, 2009).

incremental effect is "cumulatively considerable" (CEQA Guidelines Sections 15064(h)(1) and 15130). To make this determination, the incremental impacts of the project must be compared with the effects of past, current, and probable future projects. To gather sufficient information on a global scale of all past, current, and future projects to make this determination is a difficult, if not impossible, task.

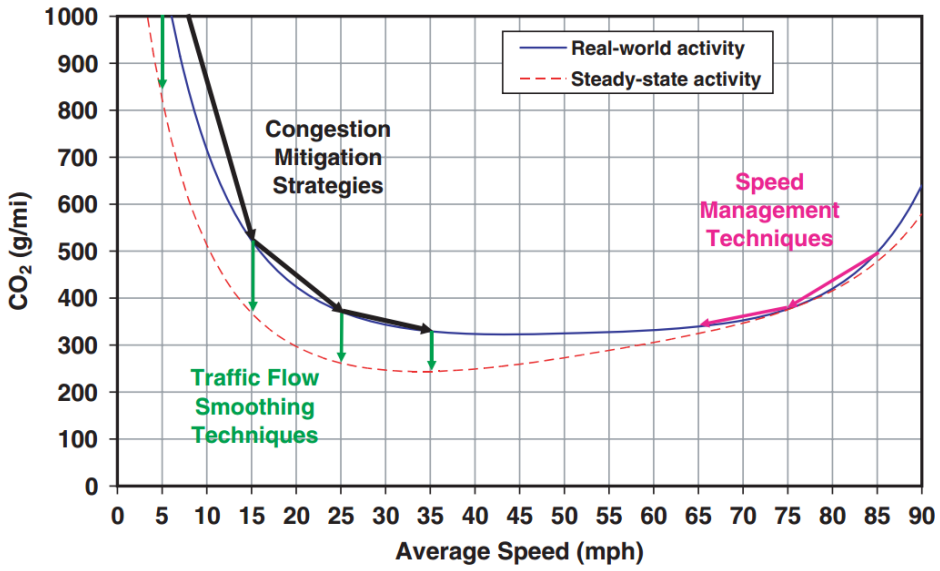
GHG emissions for transportation projects can be divided into those produced during operations and those produced during construction. The following represents a best faith effort to describe the potential GHG emissions related to the proposed project.

Operational Emissions

Four primary strategies can reduce GHG emissions from transportation sources: (1) improving the transportation system and operational efficiencies, (2) reducing travel activity, (3) transitioning to lower GHG-emitting fuels, and (4) improving vehicle technologies/efficiency. To be most effective, all four strategies should be pursued concurrently.

FHWA supports these strategies to lessen climate change impacts, which correlate with efforts that the state of California is undertaking to reduce GHG emissions from the transportation sector.

The highest levels of CO_2 from mobile sources, such as automobiles, occur at stop-and-go speeds (zero to 25 mph) and speeds greater than 55 mph; the most severe emissions occur from zero to 25 mph (see Figure 3-2). To the extent that a project relieves congestion by enhancing operations and improving travel times in high-congestion travel corridors, GHG emissions, particularly CO_2, may be reduced.



Source: Matthew Barth and Kanok Boriboonsomsin, University of California, Riverside, May 2010 (http://uctc.berkeley.edu/research/papers/846.pdf).

Figure 3-2: Possible Use of Traffic Operation Strategies in Reducing On-Road CO_2 Emissions

The purpose of this project is to simplify and improve navigation, mobility, and traffic operations; reduce congestion, vehicle queues and conflicts; improve local and regional bicycle connections and pedestrian facilities; and improve safety at the I-80/Gilman Street interchange. The existing non-signalized intersection configuration with stop-controlled ramp termini would be replaced with two hybrid single-lane roundabouts with multilane portions on Gilman Street at the I-80 ramp terminals. Construction and implementation of this project would not increase capacity. The features of this project are designed to make the traffic flow more smoothly in the study area. Because it will reduce congestion, implementation of the proposed project is likely to reduce emissions when the future build conditions are compared to future no-build conditions. Under the Build Alternative, vehicles are not required to idle as long because drivers are not required to stop while passing through a roundabout. This helps reduce fuel consumption and vehicle emissions. A literature review by the Insurance Institute for Highway Safety found that roundabouts can reduce fuel consumption by 23 to 34 percent and CO_2 emissions by approximately 23 to 37 percent.[12] Although there would likely be long-term GHG benefits associated with improved operation through

[12] http://www.iihs.org/iihs/topics/t/roundabouts/qanda#cite-text-0-19[iihs.org].

smoother pavement surfaces and reduced queuing, construction emissions would be unavoidable.

Adopted in 2013, the *Plan Bay Area 2040* is the area's first RTP to incorporate a State-mandated Sustainable Communities Strategy. The project is included in the RTP/ Sustainable Communities Strategy and the Build Alternative is consistent with regional SB 375 goals. As described in Chapter 1, the Build Alternative is designed to reduce congestion and vehicle time delays. This would decrease GHG emissions, as quantified below. The proposed pedestrian and bicycle facility improvements address the Sustainable Communities Strategy goal of increasing daily walking and bicycling time per person.

Quantitative Analysis

Project-related CO_2 emissions were estimated using CT EMFAC. Annual emissions were calculated by simply multiplying AM and PM peak period emissions within the interchange area by 347 days in a year. It is presumed that the interchange area operates in acceptable traffic conditions during non-peak hours, weekends, and holidays. Changes in pollutant emissions related to improved traffic flow during these time periods and days would be minimal. Therefore, assessing project-related changes in emissions as a function in changes to peak-hour traffic movements is a reasonable methodology for this project.

Table 3-1 shows CO_2 emissions in the existing condition, 2020, and 2040 for the No Build Alternative and Build Alternative. The Build Alternative would result in less CO_2 emissions than under both existing conditions and the No Build Alternative, due to improved traffic flow and reduced delay. The No Build Alternative in 2020 and 2040 would also result in less CO_2 emissions than existing conditions, but this is primarily due to improvements in engine exhaust controls. CH_4 and N_2O would represent a negligible amount of CO_2 equivalent emissions (less than 1 percent).

Table 3-1: Greenhouse Gas Emissions

Alternative	CO_2 Emissions (Metric Tons/Year)
Existing/Baseline (2016)	219
Open to Traffic (2020)	
No Build Alternative	218
Build Alternative	64
20-Year Horizon/Design-Year (2040)	
No Build Alternative	155
Build Alternative	107

Source: Air Quality Report, 2018.

While EMFAC has a rigorous scientific foundation and has been vetted through multiple stakeholder reviews, its emission rates are based on tailpipe emission test data and have limitations. The EMFAC-based CO_2 emissions estimates are used for comparison of alternatives. However, the model does not account for factors such as the vehicle operation mode (e.g., rate of acceleration) and the vehicles' aerodynamics, which would influence CO_2 emissions. ARB's GHG Inventory follows the Intergovernmental Panel on Climate Change guideline by assuming complete fuel combustion, while still using EMFAC data to calculate CH_4 and N_2O emissions.

Construction Emissions

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

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.

Construction emissions were calculated using the Sacramento Metropolitan Air Quality Management District's Roadway Construction Emissions Model (RoadMod) Version 8.1.0. Construction activity for the Build Alternative would generate approximately 1,679.07 tons of CO_2 emissions over the construction period of 24 months, or approximately 757.93 tons per year for 2 years.

Project construction GHG emissions would be controlled through Caltrans Standard Specifications, such as Section 14-9.02, which specifically requires the contractor to comply with all applicable laws and regulations related to air quality, including BAAQMD regulations and local ordinances; restrictions on equipment idling time; and keeping equipment maintained and properly tuned.

3.3.3 CEQA Conclusion

While the project would result in a slight increase in GHG emissions during construction, it is anticipated that the project would not result in any increase in operational GHG emissions. While it is Caltrans' determination that in the absence of further regulatory or scientific information related to GHG emissions and CEQA

significance, it is too speculative to make a significance determination regarding the project's direct impact and its contribution on the cumulative scale to climate change, Caltrans is firmly committed to implementing measures to help reduce GHG emissions. These measures are outlined in the following section.

3.3.4 Greenhouse Gas Reduction Strategies

Statewide Efforts

In an effort to further the vision of California's GHG reduction targets outlined in AB 32 and SB 32, Governor Jerry Brown identified key climate change strategy pillars (concepts) (see Figure 3-3). 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 CH_4, 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: The Governor's Climate Change Pillars: 2030 Greenhouse Gas Reduction Goals

The transportation sector is integral to the people and economy of California. To achieve GHG emission reduction goals, it is vital that we build on our past successes in reducing criteria and toxic air pollutants from transportation and goods movement activities. GHG emission reductions will come from cleaner vehicle technologies, lower-carbon fuels, and reduction of vehicle miles traveled. One of Governor Brown's key pillars sets the ambitious goal of reducing today's petroleum use in cars and trucks by up to 50 percent by 2030.

Governor Brown called for support to manage natural and working lands, including forests, rangelands, farms, wetlands, and soils, so they can store carbon. These lands can remove CO_2 from the atmosphere through biological processes and then sequester carbon in above- and below-ground matter.

Caltrans Activities

Caltrans continues to be involved on the Governor's Climate Action Team as ARB works to implement EOs S-3-05 and S-01-07 and help achieve the targets set forth in AB 32. EO B-30-15, issued in April 2015, and SB 32 (2016), set a new interim target to cut GHG emissions to 40 percent below 1990 levels by 2030. The following major initiatives are underway at Caltrans to help meet these targets.

California Transportation Plan (CTP 2040)

The California Transportation Plan (CTP) is a statewide, long-range transportation plan to meet our future mobility needs and reduce GHG emissions. The CTP defines performance-based goals, policies, and strategies to achieve our collective vision for California's future statewide, integrated, multimodal transportation system. It serves as an umbrella document for all other statewide transportation planning documents.

SB 391 (Liu 2009) requires the CTP to meet California's climate change goals under AB 32. Accordingly, the CTP 2040 identifies the statewide transportation system needed to achieve maximum feasible GHG emission reductions while meeting the State's transportation needs. While Metropolitan Planning Organizations have primary responsibility for identifying land use patterns to help reduce GHG emissions, CTP 2040 identifies additional strategies in Pricing, Transportation Alternatives, Mode Shift, and Operational Efficiency.

Caltrans Strategic Management Plan

The Strategic Management Plan, released in 2015, creates a performance-based framework to preserve the environment and reduce GHG emissions, among other goals. Specific performance targets in the plan that will help reduce GHG emissions include:

- Increasing percentage of non-auto mode share
- Reducing vehicle miles traveled per capita
- Reducing Caltrans' internal operational (i.e., 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 Build Alternative would result in less CO_2 emissions due to improved traffic flow when compared to the No Build Alternative and existing conditions. The No Build Alternative in 2020 and 2040 would also result in less CO_2 emissions than existing conditions, primarily due to improvements in engine exhaust controls. The measures below would address water efficiency, energy efficiency, material use/choice, carbon sequestration, heat island reduction, operational efficiency, fuel consumption, and construction methods and are included in the project to reduce the GHG emissions and potential climate change impacts.

PF GHG-1: A TMP will be developed to minimize disruptions to motor vehicle, transit, bicycle, and pedestrian delays during construction, to minimize detour length and emissions from idling vehicles.

AMM GHG-1: Low plantings will be included along the sides of the Bay Trail and between the new retaining walls as identified in AMM VA-6 and AMM VA-7.

AMM GHG-2: The project will incorporate the use of energy-efficient lighting, such as LED traffic signals.

AMM GHG-3: The dust control plan developed as part of AMM AQ-1 will include measures to efficiently use water.

AMM GHG-4: The project design includes improvements to bicycle and pedestrian infrastructure and system connectivity, to support and encourage these non-motorized modes of travel.

Adaptation Strategies

"Adaptation strategies" refers 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 Council on Environmental Quality, the Office of Science and Technology Policy, and NOAA, released its interagency task force progress report on October 28, 2011,[13] outlining the federal government's progress in expanding and strengthening the nation's

[13] https://obamawhitehouse.archives.gov/administration/eop/ceq/initiatives/resilience.

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.

USDOT issued *U.S. DOT Policy Statement on Climate Adaptation* in June 2011, committing to "integrate consideration of climate change impacts and adaptation into the planning, operations, policies, and programs of DOT in order to ensure that taxpayer resources are invested wisely and that transportation infrastructure, services and operations remain effective in current and future climate conditions."[14]

To further the USDOT Policy Statement, on December 15, 2014, FHWA issued order 5520 (*Transportation System Preparedness and Resilience to Climate Change and Extreme Weather Events*).[15] This directive established FHWA policy to strive to identify the risks of climate change and extreme weather events to current and planned transportation systems. FHWA will work to integrate consideration of these risks into its planning, operations, policies, and programs 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.[16]

State Efforts

On November 14, 2008, then-Governor Arnold Schwarzenegger signed EO S-13-08, which directed several 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

[14] https://www.fhwa.dot.gov/environment/sustainability/resilience/policy_and_guidance/usdot.cfm.
[15] https://www.fhwa.dot.gov/legsregs/directives/orders/5520.cfm.
[16] https://www.fhwa.dot.gov/environment/sustainability/resilience/.

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)[17] was released in June 2012 and included relative sea-level rise projections for the three states, taking into account coastal erosion rates, tidal impacts, El Niño and La Niña events, storm surge, and land subsidence rates; and the range of uncertainty in selected sea-level rise projections. It provided a synthesis of existing information on projected sea-level rise impacts to state infrastructure (e.g., 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, in coordination with local, regional, state, federal, and public and private entities, developed *The California Climate Adaptation Strategy* (December 2009),[18] which summarized the best available science on climate change impacts to California, assessed California's vulnerability to the identified impacts, and outlined solutions that can be implemented within and across state agencies to promote resiliency. The adaptation strategy was updated and rebranded in 2014 as *Safeguarding California: Reducing Climate Risk* (Safeguarding California Plan).

Governor 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, of which Caltrans is a member. First published in 2010, the document provided "guidance for incorporating sea-level rise projections into planning and decision making for projects in California," specifically, "information and

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[17] *Sea Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future* (2012) is available at: http://www.nap.edu/catalog.php?record_id=13389.

[18] http://www.climatechange.ca.gov/adaptation/strategy/index.html.

recommendations to enhance consistency across agencies in their development of approaches to sea level rise."

Climate change adaptation for transportation infrastructure involves long-term planning and risk management to address vulnerabilities in the transportation system from increased precipitation and flooding; the increased frequency and intensity of storms and wildfires; rising temperatures; and rising sea levels. Caltrans is actively engaged 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.

The proximity of the study area to San Francisco Bay and the elevation of the project site would make the area susceptible to inundation from future sea-level rise. According to City of Berkeley's *2014 Local Hazard Mitigation Plan*, West Berkeley is low lying and potentially vulnerable to sea-level rise, especially when rising seas are compounded with severe storms.

The potential implications of sea-level rise at the project site were assessed. The elevation of the project site (9.0-20.0 feet NAVD 88) is relatively low in comparison to the existing 100-year stillwater elevation of 10.2 feet NAVD 88 at the project location. The project site would be susceptible to inundation from future sea-level rise. The sea-level rise for the project was estimated using the following decision framework steps available in the 2018 *State of California Sea-Level Rise Guidance* published by the California Ocean Protection Council (CO-CAT 2018).

- Identify the nearest tidal gauge from the project location
- Evaluate the project lifespan
- For the nearest tide gauge and project lifespan, identify range of sea-level rise projections

For this project, the San Francisco gauge is the closest tidal gauge identified in the 2018 Guidance. The project is expected to have a pavement design life of 20 years. Therefore, year 2040 was selected as the year for sea-level rise projection. Per Table 13 of the 2018 Guidance, the project sea-level rise depth is estimated at 1.0 foot assuming high emissions and using the 5% (1-in-20) chance of occurrence.

After determining the sea-level rise depth, following general implementation steps were performed for this project using the *Caltrans' Guidance on Incorporating Sea Level Rise* (Caltrans 2011).

- Obtain topo maps to determine the correlation between current sea level and planned facility elevations for the proposed project
- Determine if relative sea-level rise will have negative impacts on facility function or operation
- For the listed impacts, determine if adaptive measures will be necessary
- Provide incremental or staged improvements to address sea-level rise

With this projection, the tidal 100-year stillwater elevation at the project location would increase to approximately 11.2 feet NAVD 88. There are local low points at a drain inlet on the southwestern edge of the westbound traffic circle with an approximate elevation of 10.4 feet NAVD 88 and along Gilman Street Extension with an approximate elevation of 9.0 feet NAVD 88. The area around these low points would be especially susceptible to impacts from sea-level rise during the 100-year flood event due to backflow through the drainage system or from overland tidal inundation. In addition, the road surface elevations and the storm drain inlet elevations around the 2nd Street and Gilman Street intersection, the Gilman Street Extension, and the Golden Gate Fields northwest and northeast parking lots range from 9.0 to 15.0 feet NAVD 88. These areas are susceptible to backflow through the storm drain system or overland tidal inundation when accounting for sea-level rise.

High-tide stages and storm surges in conjunction with sea-level rise would cause backflow into the 60-inch RCP storm drain outlet near the bay jetty and into the storm drain system draining Gilman Street and the surrounding area. Therefore, to prevent the effects of backflow due to sea-level rise, a tidal flap gate is proposed to be installed at the existing headwall of the 60-inch RCP at the west end terminus of Gilman Street. The flap gate will reduce backwater caused by high tides by preventing backflow from the bay into the storm drain system. Tides that are high enough to cause flooding will increase in frequency with sea-level rise. The flap gate will not reduce flooding that is caused by stormwater runoff unable to drain to the bay due to a high tide. Therefore, the flap gate will reduce backwater due to tidal action but will not reduce flooding due to precipitation. A flap gate is recommended for this project because it can be maintained from the outside, and trash is not likely to cause frequent malfunctions. The gate will still need to be routinely inspected and maintained to prevent mussel accumulation or blockage from sediment. Resource agency permitting will be required due to the need for construction in the San Francisco Bay. More information about the tidal flap gate is discussed in Section 4.2 of the Location Hydraulic Study (2018).

Avoidance, Minimization, and/or Mitigation Measures

Adaptive measures to reduce risk or exposure of the Gilman Street Extension or Gilman Street would involve considerably greater changes to the roads than what is currently proposed. Raising the surface would require reconstruction of other conforms to other city streets and highway ramps and the mainline highway (potentially), as well as potentially require the relocation of utilities, signage, lighting, and other infrastructure. The cost of these improvements would render the project infeasible due to previously allocated budget. The proposed design has specifically avoided reconstruction of the highway mainline in order to maintain a financially viable project. The project includes the addition of a flap gate to the outfall of the City of Berkeley's large drainage trunk line from Gilman Street to aid in the prevention of drainage backwater conditions. This is a first step to add resiliency to the project and to aid in incorporating other adaptive management strategies to be considered in the future as part of other regional projects.

The following measures will be implemented prior to construction to minimize potential impacts related to sea-level rise.

AMM SLR-1: The placement, relocation, and/or protection of equipment that may be vulnerable to inundation from sea-level rise such as communications and power equipment will be considered during project design.

AMM SLR-2: Corrosion-resistant construction materials will be employed for utilities, power-service connections, foundations, and drainage facilities.

AMM SLR-3: The effects of sea-level rise on emergency event response will be considered during project design. Emergency response procedures, alternative transportation communication protocols, response and enforcement procedures, and recovery procedures will be evaluated.

Chapter 4 Comments and Coordination

4.1 Early Coordination and Consultation

Early and continuing coordination with the general public and public agencies is an essential part of the environmental process. It helps planners determine the necessary scope of environmental documentation and the level of analysis required, and to identify potential impacts and avoidance, minimization, and/or mitigation measures and related environmental requirements. Agency consultation and public participation for this project have been accomplished through a variety of formal and informal methods, including PDT meetings, roundabout design workshops, pedestrian and bicycle overcrossing workshops, local business and public open house meetings, additional stakeholder meetings (e.g., with Golden Gate Fields, Pacific Gas & Electric, Union Pacific Railroad, East Bay Regional Park District, Bay Trail, Albany Strollers and Rollers, the City of Berkeley, the City of Albany, the Alameda County Transportation Commission Bicycle and Pedestrian Advisory Committee), project website updates, and interagency coordination meetings. This chapter summarizes the results of Caltrans, Alameda County Transportation Commission, and City of Berkeley's efforts to fully identify, address, and resolve project-related issues through early and continuing coordination.

Throughout the formal and informal scoping for the proposed project, public participation and stakeholder input refined the project design. Detailed information about public meetings, concerns raised, and public comments can be found in Section 4.4, Public Participation.

4.2 Consultation and Coordination with Public Agencies

As part of the project development process, consultation and coordination with United States Army Corps of Engineers, National Oceanic and Atmospheric Administration, Bay Conservation and Development Commission, Federal Highway Administration, State Historic Preservation Officer, State Water Resources Control Board, Regional Water Quality Control Board, Air Quality Conformity Task Force, East Bay Regional Park District, East Bay Municipal Utility District, AC Transit, and the Bay Trail was conducted as described below.

4.2.1 United States Army Corps of Engineers

Any filling of wetlands or impacts to the waters of the U.S. or navigable waters requires permit review and approval by USACE consistent with Section 404 of the CWA and Section 10 of the RHA. A letter was sent to USACE on April 6, 2017, requesting an approved jurisdictional delineation of waters of the U.S. that fall under federal jurisdiction pursuant to Section 404 of the CWA within the project's BSA. A field review was held on July 18, 2017, to review the wetlands delineation mapping with Caltrans and a representative of USACE. A revised Wetland Delineation Report and a request for an approved JD was submitted to USACE on August 31, 2017. In an e-mail dated December 11, 2017, USACE expressed concerns with the data sheets and, as a result, a memo with additional mapping and supplemental information on the Tom Bates Regional Sports Complex construction as-builts was provided on December 15, 2017. USACE requested a revised figure showing the project BSA within Tom Bates Regional Sports Complex during a phone call with Caltrans on January 9, 2017. The revised figure was submitted to USACE on January 10, 2018, via e-mail. An approved JD was issued to Caltrans on March 16, 2018. The project footprint subsequently changed following issuance of the approved JD and a supplemental Wetland Delineation Report, and request for the approval of a new jurisdictional delineation identifying potential areas subject to Section 404 of the CWA and Section 10 of the RHA was sent to USACE on July 16, 2018. A field review of the additional areas was conducted on October 11, 2018. The USACE representative requested revisions to the map and text. The requested revisions were submitted on November 13, 2018. The revised approved Jurisdictional Determination was issued November 19, 2018.

4.2.2 National Oceanic and Atmospheric Administration

Caltrans provided preliminary information (i.e., a map of the BSA and a diagram of the cofferdam and tidal flap gate location) to the NOAA Fisheries liaison by e-mail on August 17, 2018. The project was briefly discussed, and issuance of a letter of concurrence for a "not likely to adversely affect" determination is anticipated. Caltrans transmitted the NES to the NOAA Fisheries liaison on August 28, 2018. The NOAA fisheries liaison subsequently requested preparation of a Biological Assessment. The Biological Assessment was submitted to NOAA Fisheries on February 22, 2019. A field review was held on March 7, 2019. NOAA staff reviewer Ryan Bernstein requested additional information via e-mail on March 8, 2019. Requested information was provided on April 4, 2019 with follow up information provided on April 21, 2019. The letter of Concurrence on a "may affect, but not likely to adversely affect" finding was issued on May 23, 2019.

4.2.3 San Francisco Bay Conservation and Development Commission

Caltrans briefly discussed this project on a phone call with the BCDC regulatory group on June 4, 2018. BCDC expressed interest in completing a link in the Bay Trail and wanted to know if the project would provide maximum feasible public access. A formal presentation was made to the BCDC regulatory group on January 9, 2019, to go over project features, answer questions, and receive BCDC feedback. BCDC reviewed and provided feedback on preliminary planting plants in April 2019. Early consultation is ongoing.

4.2.4 Federal Highway Administration

FHWA's plans, programs, and projects are required to conform to the applicable SIP for achieving NAAQS. This applies to transportation plans, transportation improvement programs, and projects funded or approved by FHWA or the Federal Transit Administration in areas that do not meet or previously have not met air quality standards for O_3, CO, particulate matter, or NO_2. The study area is exempt from regional conformity analysis requirements, as described in Section 3.2.3, Air Quality. Caltrans requested that FHWA issue a project-level conformity determination for this project on February 19, 2019, confirming that the project conforms to the purpose of the SIP for achieving the NAAQS. FHWA provided project-level conformity concurrence in a letter dated March 15, 2019.

4.2.5 State Historic Preservation Officer

Federally funded transportation projects must follow FHWA and Caltrans procedures for historic preservation. The Programmatic Agreement for compliance with Section 106 of the National Historic Preservation Act would apply to this project. A request for concurrence on NRHP eligibility determinations for built environmental property evaluations and for concurrence on project findings was sent to the SHPO on September 6, 2017. The SHPO responded to Caltrans via e-mail with additional questions on the evaluations and conclusions presented in the HRER. Subsequently, the project designs changed. A revised HPSR package was prepared for the design changes and was submitted to the SHPO on September 11, 2018. The SHPO concurred on the eligibility determinations for eight evaluated properties on November 6, 2018. Pursuant to stipulation VIII.C.4 of the PA, the Caltrans Cultural Studies Office approved the assumption of eligibility of prehistoric site CA-ALA-690 for the purposes of the project on November 26, 2018.

Approval from the Caltrans Cultural Studies office to use a Post Review Discovery Plan, Environmentally Sensitive Action Area, and Archaeological Monitoring Plan was approved on May 17, 2019. SHPO concurrence on a finding of No Adverse Effect – without Standard Conditions for the project was approved on May 30, 2019..

4.2.6 State Water Resources Control Board

Projects that disturb 1 acre or more of soil must obtain coverage under the statewide CGP (SWRCB Order No. 2009-0009-DWQ, amended by 2010-0014-DWQ and 2012-0006-DWQ). To obtain coverage, a Notice of Intent and an SWPPP will be filed with the SWRCB prior to the commencement of construction.

4.2.7 Regional Water Quality Control Board

The project will require a CWA Section 401 Certification from the RWQCB during the final design phase of the project. 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 be in compliance with state water quality standards. The most common federal permits triggering 401 Certification are CWA Section 404 permits issued by USACE. The 401 permit certifications are obtained from the appropriate RWQCB, dependent on the project location, and are required before USACE issues a 404 permit. No consultation or outreach has occurred to date with the RWQCB. Consultation is expected to be initiated early in the design phase following completion of the environmental document.

4.2.8 Air Quality Conformity Task Force

Interagency consultation with the Air Quality Conformity Task Force was conducted on September 28, 2017. This project is not considered a POAQC regarding $PM_{2.5}$ as defined in 40 CFR 93.123(b)(1). A detailed $PM_{2.5}$ hot-spot analysis was not completed because Clean Air Act and 40 CFR 93.116 requirements are met without an explicit hot-spot analysis. The project modifications made since the Air Quality Conformity Task Force meeting in September 2017 have not resulted in a new traffic study, and there has been no change to anticipated truck volumes. As a result, it is not necessary to revise the interagency consultation process. Caltrans requested that FHWA issue a project-level conformity determination for this project on February 19, 2019, confirming that the project conforms to the purpose of the SIP for achieving the NAAQS. FHWA responded in a letter dated March 15, 2019.

4.2.9 East Bay Regional Park District

The PDT discussed the need to use a small portion of Tom Bates Regional Sports Complex and the Bay Trail to accommodate the proposed improvements with EBRPD and the City of Berkeley on February 18, April 27, and May 12, 2016; December 15 and 20, 2017; January 11 and 24, 2018, and March 18, 2019. The PDT described the proposed designs and the proposed project impacts, and prepared project details for construction work that would occur near Tom Bates Regional Sports Complex and the Bay Trail. Staff members from Caltrans and Alameda CTC continue to coordinate with EBRPD and City of Berkeley Parks Recreation and Waterfront Department through periodic meetings to discuss potential project impacts, design updates, and avoidance and minimization measures to be implemented during construction at Tom Bates Regional Sports Complex and the Bay Trail. Caltrans has notified City of Berkeley Parks Recreation and Waterfront Department (agency of jurisdiction) of Caltrans' intent to issue a Section 4(f) *de minimis* finding for Tom Bates Regional Sports Complex and a temporary occupancy determination for the Bay Trail. The City of Berkeley Parks Recreation and Waterfront Department and East Bay Regional Park District concurred with this determination on May 28, 2019.

4.2.10 East Bay Municipal Utility District

Caltrans and Alameda CTC have coordinated with EBMUD regarding extension and relocation of a recycled water transmission line throughout the project development process. Staff members from Caltrans and Alameda CTC continue to coordinate with EBMUD through periodic meetings to discuss project impacts and design updates. Alameda CTC has worked closely with EBMUD to redesign the path of the new waterline so that it will avoid sensitive archaeological resources.

4.2.11 AC Transit

Caltrans and Alameda CTC held a coordination meeting with AC Transit on March 5, 2018 to discuss the project and to get feedback on features that could impact AC Transit operations. Intersection design features, turning templates, a proposed bus stop removal at 4th Street, proposed cycle track implications for transit, and video simulations were reviewed. AC Transit provided feedback on bus sizes and agreed that eliminating the 4th Street bus stop could be removed based on the low ridership numbers for that stop.

4.2.11 Bay Trail

Caltrans and Alameda CTC met with a representative from the Bay Trail on January 22, 2019. Project impacts and details for construction work that would occur near the Bay Trail were discussed.

4.3 Native American Consultation and Coordination

On May 6, 2016, the NAHC was requested to review its sacred land records. The NAHC responded on May 20, 2016, to the review request and provided a list of project-specific Native American contacts. Letters were sent to the following contacts provided by the NAHC on May 26, 2017:

- Irene Zwierlein of the Amah Mutsun Tribal Band of Mission San Juan Bautisita
- Tony Cerda of the Costanoan Rumsen Carmel Tribe
- Ann Marie Sayers of the Indian Canyon Mutsun Band of Costanoan
- Rosemary Cambra of the Muwekma Ohlone Indian Tribe of the San Francisco Bay Area
- Katherine Erolinda Perez of the North Valley Yokuts Tribe
- Andrew Galvin of the Ohlone Indian Tribe

Ms. Rosemary Cambra and Ms. Katherine Erolinda Perez expressed their request, via telephone, on June 3, 2016, to have a Native American monitor present during project construction due to the presence of known prehistoric sites near the APE, including the West Berkeley Shellmound and Schoolhouse Creek Site. At this point, no other Native Americans requested further consultation.

However, when a prehistoric deposit was identified during Extended Phase I Archaeological Testing efforts, notification letters were sent to all Native American individuals named above to inform them of the identification of the prehistoric site, including the two Native American individuals who requested notification of any new discoveries, Ms. Perez and Ms. Cambra, on February 10, 2017. In addition, it was arranged for a Native American monitor to be present during additional subsurface archaeological testing. As a result, Ms. Monica Arellano, representative of the Muwekma Ohlone Indian Tribe of the San Francisco Bay Area, was present during the fieldwork.

Follow-up phone calls were made on February 14 and 16, 2017, to Ms. Rosemary Cambra and Ms. Katherine Perez to further discuss Native American monitoring. It was communicated that Native American monitoring will occur under the following

circumstances: (1) during archaeological excavations, (2) during construction and construction-related activities adjacent to known Native American resource, or ESAs, and (3) during construction or related activities in areas where there is a high probability that there may be a buried deposit within the APE. Identification efforts were not yet complete, and all Native American contacts would be informed of results from identification efforts and any subsequent needs for Native American monitoring during construction under the existing Caltrans policy. Ms. Cambra and Ms. Perez responded by indicating they wished to be contacted in the event of any archaeological discoveries and prior to ground-disturbing project construction.

Follow-up phone calls were made on October 25, 2018, to Ms. Cambra and Ms. Perez to further discuss the use of an ESA to protect CA-ALA-690. Ms. Cambra could not be reached on October 25, 2018, and a follow-up message was left on her voicemail on October 26, 2018. On the October 25, 2018, call with Ms. Perez, she was informed that the project planned to use an ESA Action Plan in construction to protect the site. Ms. Perez indicated that she agreed with the ESA approach and requested that she be notified of any significant changes in the project design and if cultural resources are encountered during construction.

On February 8, 2019, Mr. Strother phoned Ms. Perez and Ms. Cambra to discuss archaeological and Native American monitoring. The same day, Mr. Strother attempted to reach Ms. Cambra via two separate phone numbers provided by NAHC; both lines were out of service, so no message was left with Ms. Cambra. On February 8, 2019, Carie Montero of Parsons informed GANDA via e-mail that Rosemary Cambra is no longer the point of contact for the Muwekma of the Ohlone Indian Tribe of the San Francisco Bay Area. Her daughter, Charlene Cambra Nijmeh is the new point of contact. On February 8, 2019, Mr. Strother called Ms. Nijmeh and left a message concerning Native American monitoring for the project. No response has been received.

4.4 Public Participation

4.4.1 Early Informational Meeting

On April 27, 2016, the Alameda CTC, Caltrans, and the City of Berkeley held an open house at the North Berkeley Senior Center at 1901 Hearst Avenue, Berkeley, to provide the public with an overview of the I-80/Gilman Street Interchange Improvement Project and offer opportunities for stakeholders to leave their written comments. The Center is wheelchair accessible and is a 10-minute walk from the nearest bus stops. The Center

is served by AC Transit Lines 25, 51B, 52, 88, and FS or via the Downtown Berkeley BART station. The Center also offers free transportation. Attendees were encouraged to sign in, take a project fact sheet, and visit the seven stations set up around the room that displayed detailed information on poster boards. A brief presentation was given in which an overview of the meeting format, project background and schedule, and the alternatives were discussed.

Following the presentation, attendees were encouraged to explore the seven stations staffed by experts to further explore the following topics: Welcome (the sign-in sheet and comment forms were located here), project background, purpose and need, traffic conditions, the Build Alternative, information on a roundabout, the environmental review process, and project delivery.

Outreach was conducted in a variety of forms prior to the public meeting on April 27, 2016. An informational mailer was sent to all properties located within 0.5-mile radius of the interchange (approximately 1,650 addresses) in early 2016. The 0.5-mile radius included environmental justice populations. The mailer included information about the meeting, a project description, an illustrative drawing of the double-roundabout alternative, and contact information for those seeking more information.

Additionally, an informational flyer was posted on the project webpage hosted on Alameda CTC's website, as well as on the City of Berkeley website. The flyer included information about the meeting, a project description, an illustrative drawing of the double-roundabout alternative, and contact information for those seeking more information. This flyer was also sent to all stakeholders on the project stakeholder distribution list via two e-blasts.

Verbal invitations were offered at four stakeholder meetings with property owners, nonprofits, and associations in March and April 2016. A project webpage hosted on Alameda CTC's website included an announcement about the open house and a link to the project fact sheet. Invitations were extended to council members of the City of Berkeley and City of Albany via e-mail or phone calls.

An Open House Summary Report was prepared in May 2016 that summarizes the noticing and outreach conducted, meeting materials, and comments. Native American representatives were invited to the public meeting but did not attend (see Section 4.3, Native American Consultation and Coordination for a summary of AB 52 consultation with Native American tribes). There were 35 attendees and, of those, 19 provided comments. Topics covered in the comments are as follows:

- Northbound vehicular traffic on Eastshore Highway
- Two-way traffic on 2nd Street
- Roundabout design
- Transit usage and access
- Timing of the project
- Pedestrian and bicycle access
- Homeless encampments

4.4.2 Second Public Open House Meeting

An additional public meeting and open house was held on February 7, 2018, from 10:00 a.m. to 12:00 p.m. at Albany City Hall at 1000 San Pablo Avenue in Albany, California. The public meeting was held to update business owners and the public on changes that had been made to the project design since the 2016 public meeting and to provide an opportunity for the public to learn about the project. Approximately 52 business owners in Berkeley, from Golden Gate Fields to the west and 5th Street to the east, and 18 business owners along West Frontage Road in Albany were sent postcard mailer notifications for the meeting. Business owners were identified as those most likely to be affected and interested in the proposed project. A PowerPoint presentation was given by the project's outreach consultant. An overview of the meeting format, project background and schedule, existing traffic conditions, refined alternative being studied, potential impacts of the project on local businesses, and project constraints was provided. Participants were encouraged to e-mail comments to a general e-mail address set up specifically for the project. Comments were made on the following topics:

- Stormwater measures
- Ingress and egress to Gilman Street and changes to access to 2nd Street in relation to the Berkeley Transfer Center
- Impacts to Target

4.4.3 Stakeholder Coordination

During the scoping process, concerns were raised regarding the planned location of the pedestrian and bicycle overcrossing and the safety for bicyclists and pedestrians at various street crossings on the east side of Gilman Street. As a result of feedback from community stakeholders, the project team conducted 18 pedestrian and bicycle overcrossing workshops and with community members, community groups, Alameda CTC, and various representatives from the cities of Berkeley and Albany, the Berkeley Transportation Commission, and Caltrans to fully vet alternative alignments for the

pedestrian and bicycle overcrossing. A project update meeting targeting the public and local businesses was held on February 7, 2018. Updated project information was presented at an Albany City Council meeting on February 15, 2018, and at the Berkeley Transportation Commission on February 15, 2018. The team also met with other stakeholders multiple times, including Golden Gate Fields, PG&E, UPRR, EBRPD, Albany Strollers and Rollers, the City of Berkeley, and the Alameda CTC Bicycle and Pedestrian Advisory Committee, to discuss specific concerns and present information on project design updates.

Fourteen additional design workshops have been conducted with a similar set of community and agency representatives to work out design refinements covering safety and access concerns for pedestrians and nonmotorized vehicles traveling in the project limits. Each intersection within the project limits was evaluated and refinements added to increase safety elements. The project footprint expanded to include sharrows along 4th Street, Harrison Street, and 5th Street to safely connect users of recreational facilities in the Codornices Creek area to the Gilman Street cycle track. Critical stakeholder input resulted in intersection crossing modifications designed to decrease the level of traffic stress ranking for specific street crossings, using the City of Berkeley level of traffic stress ranking system. For each crossing, specific design elements were considered to improve (lower) that crossing's level of traffic stress ranking with intersections generally reduced from current conditions. The pedestrian and bicycle design elements that are the result of this outreach are discussed in the *Community Impacts Assessment* (2018). Other improvements integrated into the design with input from stakeholders included landscaping and lighting elements on 2nd Street, north of Gilman Street, improvements of the at-grade crossing, and constructing the Bay Trail between West Frontage Road and the planned EBRPD's Bay Trail extension from the Albany Bulb that would terminate at or near the Albany-Berkeley city limits.

Eleven meetings were held with Golden Gate Fields to address redesign of the entrance access to the stables from the western roundabout. This process included working collaboratively with Golden Gate Fields to design a solution for truck and traffic ingress and egress and to design the changes with no net loss of parking for Golden Gate Fields.

4.4.4 Public Hearing

Upon release of the Draft IS/EA, a public hearing to receive public comments and answer questions about the project alternatives and environmental impacts was held. The hearing was held on January 15, 2019, from 6:00 to 9:00 p.m. at the James Kenney Recreation Center at 1720 Eighth Street in the City of Berkeley, approximately 0.7 mile

from the project site. Caltrans and Alameda CTC staff were present to discuss the proposed project's design features and environmental aspects, and to answer questions. Approximately 30 attendees signed in at the hearing, many of whom were local residents and representatives of local community organizations.

An informational postcard/mailer was developed to inform the community of the availability of the environmental document and the January 15, 2019, hearing. The document was mailed to approximately 1,650 addresses within the area bounded by Marin Avenue to the north, San Pablo to the east, the San Francisco Bay to the west, and Virginia Street to the south. All stakeholders that participated in previous project-related outreach events; residents, businesses, property owners, or federal, state, and local elected officials also received the informational postcard. The postcard was also mailed directly to Alameda CTC Commissioners, Alameda County Supervisors, and elected officials in the City of Berkeley and the City of Albany.

Public notices were published in the *East Bay Times, Berkeley Voice,* and *El Cerrito Journal* newspapers on December 28, 2018, and *El Mundo* newspaper on January 3, 2018. A digital version of the notice was available on the Berkeleyside.com website from January 2 to January 9, 2019.

Members of the public had the opportunity to comment on the project during public circulation of the Draft IS/EA. Comments were submitted at the public hearing in the form of comment cards or oral statements made to a court reporter. Comments were also received via letter and e-mail during the comment period. The public comment period ended on February 5, 2019. Copies of the comments received during the comment period and responses to each comment are included in Appendix H. The Public Meeting Summary Report is included in the List of Technical Studies.

4.4.5 Media

Information about the project has been made available through mailers, newsletters, and a project website. An informational mailer was sent to all properties located within a 0.5-mile radius of the interchange to notify them of the April 2016 Open House Meeting (approximately 1,650 addresses). An informational flyer was posted on the project webpage hosted on Alameda CTC's website, as well as on the City of Berkeley website. Alameda CTC's website also included an announcement about the open house and a link to the project fact sheet. A postcard was mailed to approximately 70 businesses within the study area to notify them of the February 2018 Open House Meeting, and the meeting information was posted on Alameda CTC's website.

4.4.6 Outreach Plan for Environmental Justice

As discussed in the *Community Impact Assessment* (2018), although the project would not cause disproportionately high and adverse effects on any minority or low-income populations, a Public Outreach Plan for Environmental Justice Populations will be prepared.

Effective communication methods include distributing flyers within the study area, The Hub (1901 Fairview Street, Berkeley), and at the local community center, houses of worship, and grocery stores, and posting information on vehicles, bus stops, and other locations frequented by low-income and minority populations. Prior to construction and during construction activities, public notices will be placed throughout the study area and other nearby social service locations with the dates of clean-up and construction activities.

Chapter 5 List of Preparers

This document and its related technical studies were prepared under the supervision of Caltrans District 4. The PDT was responsible for oversight of the project and consists of representatives from Caltrans, Alameda CTC, and the Parsons Team.

Key Project Development Team Members

- Ron Boyle, Lead Roundabout Designer, GHD, Inc (formerly Omni-Means)
- Susan Chang, Project Manager, Alameda CTC
- Sasan Daneshvar, Principal Road and Highway Engineer, Parsons
- Stefan Galvez, Office Chief, Office of Environmental Analysis, Caltrans District 4
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The following key consulting team staff members were responsible for preparation of the environmental technical studies and the environmental document:

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WRECO

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