# Appendix J. Draft EIR

The Capitol Corridor Joint Powers Authority is committed to ensuring that information is available in appropriate formats to meet the requirements of persons with disabilities. Should you require one of the referenced documents or need a file in an alternative format, please email info@SouthBayConnect.com.

# SOUTH BAY CONNECT PROJECT
# DRAFT ENVIRONMENTAL IMPACT REPORT

## STATE CLEARINGHOUSE #2020060655

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# Executive Summary

# Introduction

This Environmental Impact Report (EIR) has been prepared by the Capitol Corridor Joint Powers Authority (CCJPA) as the California Environmental Quality Act (CEQA) Lead Agency for the Capitol Corridor South Bay Connect (proposed Project) in accordance with CEQA regulatory requirements. Per CEQA, the lead agency for a project is the "*public agency with principal responsibility for carrying out or approving a project. The Lead Agency will decide whether an EIR (Environmental Impact Report) or Negative Declaration would be required for the project and would cause the document to be prepared*" (CEQA Guidelines Section 15367). CCJPA has determined that an EIR must be prepared for the Project prior to making any final decision regarding whether to approve the Project, in accordance with CEQA. The purpose of the EIR is to assess potential physical environmental effects of the proposed Project, to identify ways to minimize or avoid significant effects, and to describe and analyze feasible alternatives to the proposed Project.

## Project Background

The Capitol Corridor is an intercity passenger rail system. South Bay Connect is a key project identified within numerous local, regional, and statewide studies as one of several transportation improvement projects that would improve the Northern California 21-County Megaregional rail transportation network, including freight and passenger rail safety and efficiency.

A collaboration between CCJPA and regional partner agencies, the South Bay Connect project proposes to relocate the Capitol Corridor passenger rail service from UPRR's Niles and Oakland subdivisions to the Coast Subdivision between Oakland and Newark Junction in Northern California. In addition, the Proposed Project would include upgrades to the Coast Subdivision and construction of a new passenger rail station at the existing Ardenwood Park-and-Ride in Fremont, California.

The South Bay Connect project is not proposing an increase in Capitol Corridor passenger rail service, nor would it change existing freight rail operations between Oakland and Newark. However, it would:

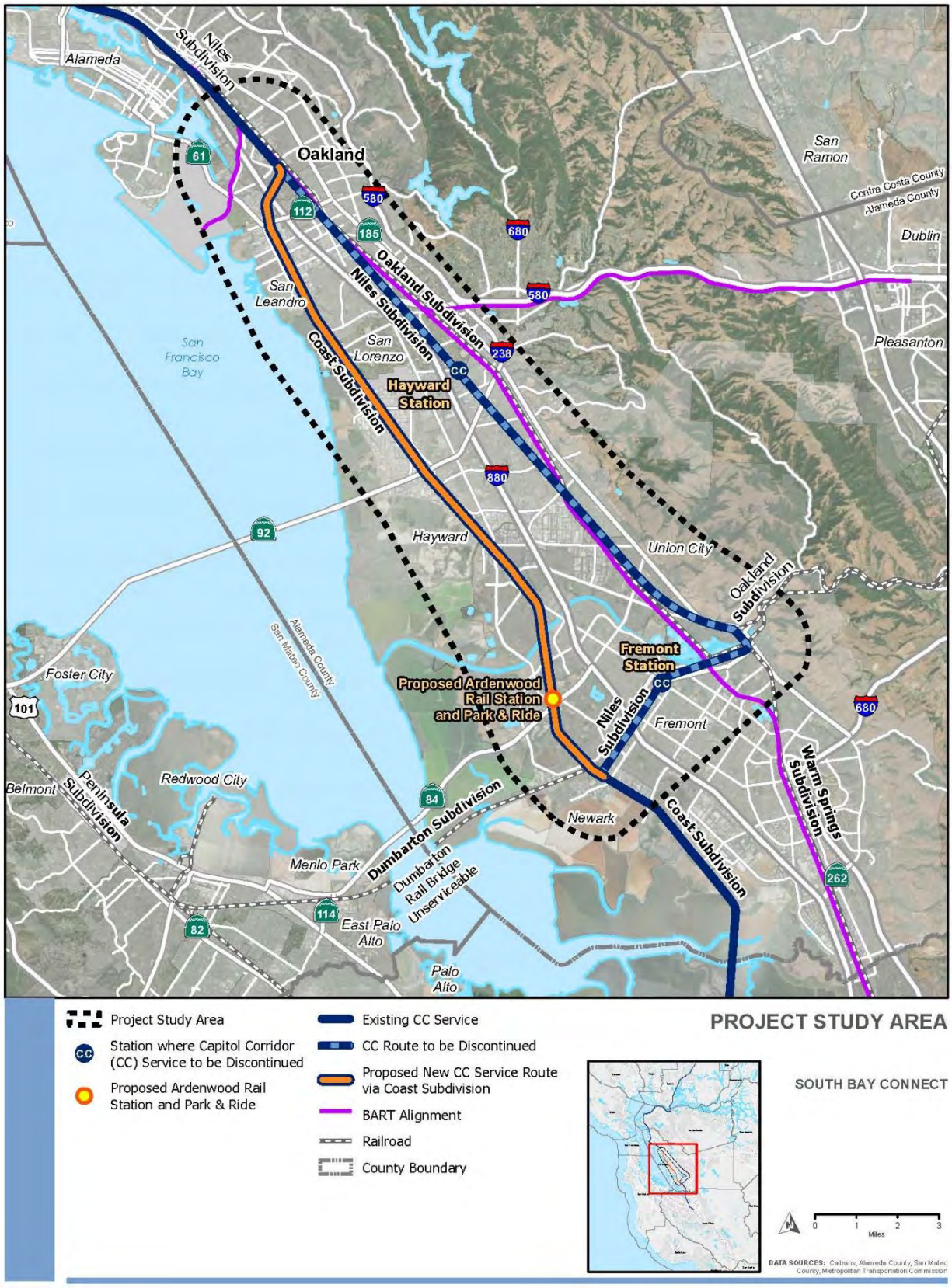
- limit rail conflicts between passenger and freight rail use on the freight-heavy Niles Subdivision,
- increase Capitol Corridor passenger rail reliability and improve operations between Oakland and Newark Junction,
- reduce air quality and greenhouse gas emissions by transitioning commuters from auto to rail due to reduced travel times between Oakland and San Jose, and
- enhance economic vitality within Northern California by linking residents to jobs, commerce, and recreation.

# Project Location

The proposed Project is located within the San Francisco Bay Area in Alameda County, California, primarily along the Coast Subdivision between the Capitol Corridor Oakland Coliseum Station in the City of Oakland to the north, and the junction at Newark (in the City of Newark) to the south. The proposed Project also includes work on the Niles Subdivision where the Coast Subdivision connects at its north and south ends. Proceeding from north to south, the proposed Project passes through the cities/communities of Oakland, San Leandro, Hayward, Ardenwood, Union City, Fremont, and Newark (Figure ES-1).

The area surrounding the proposed Project is primarily suburban in character with varied land uses and types of development. The Coast Subdivision and Niles Subdivision tracks are highly constrained by the existing built environment. The rail corridors travel through heavy and light industrial uses, factories and storage areas, commercial uses, low, medium, and high-density residential uses, recreational uses, and areas of designated open space.

**Figure ES-1: Project Location and Overview Map**



# Project Need and Objectives

The South Bay Connect Project Need and Objectives are to:

- Reduce passenger rail travel time between Oakland and San Jose, and throughout the megaregion, to increase ridership on transit, ease congestion on the Bay Area's stressed roadways, and reduce lengthy auto commutes.
- Advance a Project that is consistent with current and projected freight and passenger operational needs and timeframes for existing operators and owners, with no change to existing freight operations.
- Diversify and enhance rail network integration by reducing duplicative capital investments and differentiating Capitol Corridor's intercity rail service from commuter rail and other transit services, including BART's extension to San Jose.
- Support economic vitality by permitting enhanced rail movement and the preservation of freight rail capacity in the Northern California market through the reduction of conflicts between freight rail operations and passenger rail service.
- Improve service between megaregional markets by enhancing connections between high demand destinations, overcoming existing geographic service gaps between job centers and affordable housing projects on the San Francisco Peninsula and along the Capitol Corridor route.
- Promote environmental sustainability by lowering greenhouse gas (GHG) emissions through a reduction in auto traffic.

# Required Permits and Approvals

The required federal, state, and local permits and approvals to move the proposed Project forward are listed in Table ES-1.

**Table ES-1. Environmental Permits and Approval Considerations**

| Agency | Permit/Approval/Clearance | Relevance/Trigger |
|---|---|---|
| ***Federal*** | | |
| **U.S. Army Corps of Engineers (USACE)** | Clean Water Act Compliance | Permanent or temporary placement and/or removal of material in waters of the U.S., including wetlands; all requests to modify, alter, or occupy any USACE-constructed public works project (e.g., levees). |
| | Rivers and Harbors Act of 1899 Compliance | Construction of a structure in or over any navigable water of the U.S. |
| **U.S. Advisory Council on Historic Preservation via the California State Historic Preservation Office** | Section 106 Consultation (National Historic Preservation Act of 1966); Concurrence on adequacy of identification effort, National Register of Historic Places eligibility determinations, and Finding of Effect | Aligned with federal permits and consultations and a required element for all federal actions. |

**Table ES-1. Environmental Permits and Approval Considerations**

| Agency | Permit/Approval/Clearance | Relevance/Trigger |
|---|---|---|
| **U.S. Fish and Wildlife Service** | Federal Endangered Species Act Compliance | The presence of federally listed plant and wildlife species and critical habitat within the impact area if unable to avoid during construction. |
| **National Marine Fisheries Service** | Federal Endangered Species Act Compliance | The presence of federally listed aquatic species and critical habitat within the impact area if unable to avoid during construction. |
| **U.S. Coast Guard (USCG)** | Section 9 Bridge Construction Permit (General Bridge Act of 1946) | Construction of a structure in or over any navigable water of the United States requires approval of USCG (bridge replacements). |
| ***State*** | | |
| **California Department of Fish and Wildlife** | California Endangered Species Act Permits (Incidental Take Permit, Consistency Determination) | The Presence of State-listed plant and wildlife species and critical habitat within the impact area if unable to avoid during construction. |
| | Fish and Game Code Section 1602 Lake and Streambed Alteration Agreement | Permanent or temporary impacts to a river, stream, or lake from activities that would divert or obstruct natural flows, change bed, bank, or channel, use material from, or deposit material into. |
| **Caltrans** | Encroachment Permit | Permanent or temporary placement of encroachments within, under, or over the State highway ROW. |
| **California Public Utilities Commission** | Approval | Construction and operation of railroad crossings of public roads and for construction of new transmission lines and substations. |
| **California State Lands Commission** | Easement | Permanent or temporary crossing of State sovereign lands. |
| **Native American Tribes** | Tribal consultation per Assembly Bill (AB) 52 | Tribal consultation, aligned with the CEQA process. |
| ***Regional and Local*** | | |
| **Regional Water Quality Control Boards** | Clean Water Act Section 401 Water Quality Certification | Delegated federal authority to assess permanent or temporary placement and/or removal of material in waters of the U.S. or State, including wetlands. |

**Table ES-1. Environmental Permits and Approval Considerations**

| Agency | Permit/Approval/Clearance | Relevance/Trigger |
|---|---|---|
| | Clean Water Act Section 402 National Pollutant Discharge Elimination System (NPDES) Water Discharge Permit; Spill Prevention, Control, and Countermeasure (SPCC) Plan (part of Section 402 process) | Delegated federal authority to assess discharge of any pollutant or Combination of pollutants from a point source to surface waters that are deemed Waters of the U.S. |
| | Dewatering Permit (Order No. 98-67) | Discharge of water from dewatering activities. |
| | Stormwater Construction and Operation Permit | Extent of land disturbance exceeding thresholds. |
| **San Francisco Bay Conservation and Development Commission** | Coastal Zone Management Act Compliance | Delegated federal authority to assess all federal activities for consistency with approved State coastal management program. |
| | McAteer-Petris Act Compliance | Permit required for activities within the San Francisco Bay and shoreline band. |
| **San Francisco Bay Area Air Quality Control Board** | Clean Air Act (CAA) Compliance | Delegated federal authority to evaluate compliance with CAA standards. |
| **Alameda County and Various Cities** | Local permits | Aligned with local permits and consultations for encroachments and construction activities. |

# Project Alternatives

CEQA requires the lead agency to consider a reasonable range of feasible alternatives to the proposed project. Two alternatives were selected for comparative analysis in this EIR:

- Proposed Project (Alternative E) – described in Proposed Project section below, and
- No Project Alternative: The No Project Alternative is required by CEQA and consists of the circumstances under which the Proposed Project does not proceed. Under the No Project Alternative (also known as the No Build Alternative), infrastructure improvements associated with the proposed Project would not be constructed. Capitol Corridor passenger trains would continue to operate based on current routes with no changes. CCJPA's goals and objectives for the proposed Project would not be met.

Four other Alternatives were considered during early design and evaluation but were eliminated for consideration in the EIR. These are described in the section below.

# Alternatives Considered but Rejected

The following rail improvements alternatives (Alternatives A through D) were considered during early planning but were rejected as infeasible or because they did not reduce impacts to below thresholds of significance.

Like the proposed Project, Alternatives A, B, C, and D proposed to move Capitol Corridor passenger service to the Coast Subdivision; however, improvements on the Coast Subdivision under Alternatives A, B, C, and D were less extensive than those included in the proposed Project. Alternatives A, B, C, and D also proposed to move some or all freight service currently operating on the Coast Subdivision to the Niles/Oakland subdivisions. As a result, Alternatives A, B, C, and D's proposed improvements to the Niles and Oakland subdivisions would be more expansive than the proposed Project to support increasing demands in freight rail services on the Niles/Oakland subdivisions.

The proposed improvements to the Coast Subdivision are identical for Alternatives A, B, C, and D. These four alternatives differ only in proposed upgrades and/or new bridges on the Niles and Oakland subdivisions.

## Alternatives A through D Screening Results

Screening criteria used to assess Alternatives A through D for inclusion in the EIR assessment found that all four of these alternatives failed to meet thresholds for inclusion. In summary, findings for the three screening criteria include:

1. *Alignment with Goals and Objectives*: The alternatives do not meet the project objective of maintaining freight service with no change in operations since it would involve the movement of some or all freight service to the Niles and Oakland Subdivisions. Based on this, Alternatives A through D did not meet this screening criterion.

2. *Feasibility of Implementation*: These alternatives would require a shift in some or all freight service from the Coast Subdivision to the Oakland and Niles subdivisions. Construction includes upgrades to the Niles and Oakland subdivisions to allow for additional freight service which may not be financially justifiable (that is, may be financially infeasible). Upgrades to the Niles and Oakland Subdivisions, without a shift in freight services from the Coast Subdivision would not benefit Capitol Corridor passenger rail services, and the cost of those improvements would not be offset by further increases in anticipated ridership gains associated with the proposed Project. Based on this, Alternatives A through D did not meet this screening criterion.

3. *Reduction of Significant Impacts*: Alternatives A through D would not "avoid or substantially lessen one or more of the significant effects of the project", because no unmitigable impacts were identified during the environmental assessment of the proposed Project. Based on this, Alternatives A through D did not meet this screening criterion.

## Rail Station Alternatives

Alternatives to the proposed new station location at Ardenwood Park-and-Ride were also considered and eliminated. The proposed Ardenwood Park-and-Ride station location was compared to two other potential station locations along the Coast Subdivision. Station area alternatives were selected based on their proximity to transbay bridges or rail lines, since providing an enhanced

connection to transbay transit services from the East Bay to the San Francisco Peninsula is a key objective of the project (CCJPA 2019). This assessment produced two additional alternative station study areas:

1. Hayward at SR 92: Within the study area identified at Hayward near SR 92, a parcel within a ½ mile radius of the intersection of the Coast Subdivision and SR 92 was identified as a potentially suitable location for a future rail station, and
2. Newark Junction: The Newark Junction potential alternative station study area was at the location where the Dumbarton Rail Corridor connects with the Coast Subdivision and Centerville Line (part of Niles Subdivision).

The three alternatives were compared based on a series of four criteria, including:

1. Ability to meet the objectives of the 2018 Transit and Intercity Rail Capital Program (TIRCP) $51 million grant awarded to CCJPA for the SBC project by Caltrans. Caltrans found that the project's multitude of benefits aligned with the goals identified in Senate Bill No.1 legislation and the 2018 TIRCP guidelines;
2. Feasibility of design, including constructability, amount of non-rail ROW required, meeting CCJPA station standards, cost and schedule;
3. Environmental factors, including land use consistency, access and circulation, impacts on sensitive air quality and noise receptors, and environmental justice; and
4. Station location benefits, including bicycle and pedestrian accessibility, available existing parking, local traffic impacts, State and local plan consistency.

Each alternative was evaluated given the four criteria, using the following scale: unfavorable (1 point), neutral (2 points), and favorable (3 points). The proposed Ardenwood Station location was the only alternative that received a favorable rating for most criteria. The Hayward and Newark Junction station alternatives also had lower ridership projections than Ardenwood, which would lower the potential greenhouse gas emissions reduction and air quality improvement benefits of the Project. In addition, both the Hayward and Newark Junction potential stations would have required access to or acquisition of more properties outside of the railroad ROW than the proposed Ardenwood Station. New grade-separated crossings would likely be needed for both the Hayward and Newark Junction alternatives as well. Therefore, constructing a new station at either Hayward or Newark Junction was eliminated from consideration for the Draft EIR because neither station location would result in fewer environmental impacts compared to the proposed Project.

# Proposed Project

The proposed Project includes relocation of the Capitol Corridor passenger service between the rail junction at Elmhurst and the rail junction at Newark, from the Niles Subdivision to the Coast Subdivision, for a faster, more direct passenger rail route from Oakland to San Jose (Figure ES-1).

The proposed Project also recommends a new intermodal station on the Coast Subdivision at the existing Ardenwood Park-and-Ride, in the City of Fremont, to serve southern Alameda County passengers. Finally, the proposed Project includes rail infrastructure improvements on the Coast Subdivision to accommodate both existing freight and passenger rail service, as well as the

passenger rail service proposed to be relocated from the Niles Subdivision, within the Project Study Area.

## Track and Civil Improvements

The UPRR Coast Subdivision includes improvements within the Project Corridor, which may include:

- Replacement of existing rail and ties on the existing track for the entire Project Corridor.
- Addition of several inches of ballast to help level the existing main track and siding tracks.
- Installation of new wayside and grade crossing signal technology and associated equipment.
- Modifications to discourage trespassing, which could include fencing and signage improvements.
- Upgrade and slight shifts of existing tracks to allow higher train speeds.
- Installation of an additional track from Elmhurst to Newark to improve operations and allow trains to meet or pass each other at any location between Elmhurst and Newark.
- Relocation or protection of existing utilities within or crossing the UPRR right-of-way (ROW). Where utilities are relocated, the connections to the existing facilities may occur outside the UPRR ROW.
- Reconfiguration of tracks within the UPRR Niles Subdivision at Elmhurst Junction, to accommodate the new track within the Coast Subdivision.
- Addition of new track crossover in UPRR Niles Subdivision immediately north of Elmhurst Junction.
- Permanent ROW takes and temporary construction easements (TCE) would be required throughout the Project Corridor for second track construction, bridge construction, and potential utility protection or relocation activities. These include permanent ROW acquisition up to 10 feet from the existing UPRR ROW and TCEs required at bridge construction locations up to 50 feet from the existing UPRR ROW.

## At-Grade Crossing Improvements

The following existing at-grade crossings along the Coast Subdivision may require modification due to the installation of new rail infrastructure, potentially including new or modified active warning devices. Where an additional track is proposed, improvements would be needed to the roadway profiles, paving, curbs, gutters, sidewalks, signage, and striping to conform to the proposed new track profile. Other modifications would include upgrades for compliance with the Americans with Disabilities Act (ADA), California Title 24, and improvements to reduce potential conflicts with cars, bikes, and pedestrians crossing the tracks, such as interconnected roadway traffic signals and signage. Some of these improvements may occur outside the UPRR ROW and would require access agreements.

The proposed at-grade crossing improvements are identified in Table ES-2.

**Table ES-2. Proposed Improvements to At-Grade Crossings along the Coast Subdivision**

| At-Grade Crossing | Proposed Improvements | Jurisdiction |
|---|---|---|
| **98th Avenue** | Sidewalk ADA improvements, replace existing crossing equipment (gates, arms, signal cabins) as needed, potential roadway surfacing, striping, and signage . | Oakland |
| **105th Avenue** | ADA improvements, replace existing crossing equipment (gates, arms, signal cabins) as needed, potential roadway surfacing, striping, and signage | Oakland |
| **Edes Avenue** | Addition of one track, potential road re-profiling near crossing, sidewalk ADA improvements, replace existing crossing equipment (gates, arms, signal cabins) as needed, striping, and signage | Oakland |
| **Knight Street/ Kerwin Avenue** | Addition of one track, potential road re-profiling near crossing, sidewalk ADA improvements, replace existing crossing equipment (gates, arms, signal cabins) as needed, striping, and signage | Oakland |
| **Williams Street** | Addition of one track, potential road re-profiling near crossing, sidewalk ADA improvements, replace existing crossing equipment (gates, arms, signal cabins) as needed, striping, and signage | San Leandro |
| **Marina Boulevard** | Addition of one track, potential road re-profiling near crossing, sidewalk ADA improvements, replace existing crossing equipment (gates, arms, signal cabins) as needed, striping, and signage | San Leandro |
| **Fairway Drive** | Addition of one track, potential road re-profiling near crossing, sidewalk ADA improvements, replace existing crossing equipment (gates, arms, signal cabins) as needed, striping, and signage | San Leandro |
| **Farallon Drive** | Addition of one track, potential road re-profiling near crossing, sidewalk ADA improvements, replace existing crossing equipment (gates, arms, signal cabins) as needed, striping, and signage | San Leandro |
| **Lewelling Boulevard** | Addition of one track, potential road re-profiling near crossing, sidewalk ADA improvements, replace existing crossing equipment (gates, arms, signal cabins) as needed, striping, and signage | San Leandro |
| **Grant Avenue** | Addition of one track, potential road re-profiling near crossing, sidewalk ADA improvements, replace existing crossing equipment (gates, arms, signal cabins) as needed, striping, and signage | San Leandro |
| **Winton Avenue** | Addition of one track, potential road re-profiling near crossing, sidewalk ADA improvements, replace existing crossing equipment (gates, arms, signal cabins) as needed, striping, and signage | Hayward |
| **Depot Road** | Addition of one track, potential road re-profiling near crossing, sidewalk ADA improvements, replace existing crossing equipment (gates, arms, signal cabins) as needed, striping, and signage | Hayward |
| **Clawiter Road** | Addition of one track, potential road re-profiling near crossing, sidewalk ADA improvements, replace existing crossing equipment (gates, arms, signal cabins) as needed, striping, and signage | Hayward |
| **Baumberg Avenue** | Addition of one track, potential road re-profiling near crossing, sidewalk ADA improvements, replace existing crossing equipment (gates, arms, signal cabins) as needed, striping, and signage | Hayward |

**Table ES-2. Proposed Improvements to At-Grade Crossings along the Coast Subdivision**

| At-Grade Crossing | Proposed Improvements | Jurisdiction |
|---|---|---|
| **Union City Boulevard** | Addition of one track, potential road re-profiling near crossing, sidewalk ADA improvements, replace existing crossing equipment (gates, arms, signal cabins) as needed, striping, and signage | Union City |
| **Smith Street** | Addition of one track, potential road re-profiling near crossing, sidewalk ADA improvements, replace existing crossing equipment (gates, arms, signal cabins) as needed, striping, and signage | Union City |
| **Dyer Street** | Addition of one track, potential road re-profiling near crossing, sidewalk ADA improvements, replace existing crossing equipment (gates, arms, signal cabins) as needed, striping, and signage | Union City |
| **Alvarado Boulevard** | Addition or one track, potential road re-profiling, sidewalk ADA improvements, potential realignment of pedestrian sidewalk, potential realignment or restriping of bike lane, and minor roadway work, replace existing crossing equipment (gates, arms, signal cabins) as needed, striping, and signage | Union City |
| **Jarvis Avenue** | Addition of one track, potential road re-profiling near crossing, sidewalk ADA improvements, replace existing crossing equipment (gates, arms, signal cabins) as needed, striping, and signage | Newark |
| **Haley Street** | Addition of one track, potential road re-profiling near crossing, sidewalk ADA improvements, replace existing crossing equipment (gates, arms, signal cabins) as needed, striping, and signage | Newark |
| **Mayhews Landing Road** | Addition of one track, potential road re-profiling near crossing, sidewalk ADA improvements, replace existing crossing equipment (gates, arms, signal cabins) as needed, striping, and signage | Newark |
| **Thornton Avenue** | Addition of one track, potential road re-profiling near crossing, sidewalk ADA improvements, replace existing crossing equipment (gates, arms, signal cabins) as needed, striping, and signage | Newark |
| **Carter Avenue** | Addition of one track, potential road re-profiling near crossing, sidewalk ADA improvements, replace existing crossing equipment (gates, arms, signal cabins) as needed, striping, and signage | Newark |
| **Sycamore Street** | Sidewalk ADA improvements, replace existing crossing equipment (gates, arms, signal cabins) as needed, potential road re-profiling near crossing, striping, and signage | Newark |
| **Cherry Street** | Sidewalk ADA improvements, replace existing crossing equipment (gates, arms, signal cabins) as needed, potential road re-profiling near crossing, striping, and signage | Newark |

# Grade Separated Crossing Improvements

Along the Coast Subdivision there are seven existing grade-separated crossings; some crossings may require pier protection and State Route (SR) 84 crossing would have abutment modification.

Improvements are proposed at the following grade-separated crossings:

- Interstate 880, City of Oakland;

- Davis Street, City of San Leandro;
- State Route (SR) 92, City of Hayward;
- Eden Shores Boulevard, City of Hayward;
- Paseo Padre Parkway, City of Fremont;
- Ardenwood Boulevard, City of Fremont; and
- SR 84, City of Fremont/City of Newark.

The SR 84 crossing would require abutment modification, while the other crossings would require pier protection. No other improvements to the existing grade-separated crossings are proposed.

A grade separation (overpass) is scheduled to be constructed at Central Avenue, in the City of Newark. The proposed improvements at Central Avenue will be constructed by others prior to the proposed Project and are not part of this Project.

## Ardenwood Station Improvements

A new passenger rail station would be constructed on the Coast Subdivision at the existing Ardenwood Park-and-Ride facility. The proposed station would be within the City of Fremont, except for the south pedestrian overcrossing, which would be within City of Newark jurisdiction. The proposed Ardenwood Station would provide a new passenger platform, with a pedestrian overcrossing allowing access across the tracks and to the platform. The proposed passenger facility would be configured to include a center boarding platform located between the tracks. The proposed north pedestrian overcrossing would be approximately 42 feet high. The platform would have grade-separated access across the tracks. Figure ES-2 presents a conceptual design with proposed improvements.

Pedestrian access would be constructed to connect adjacent business complexes to the new Ardenwood Station. A pedestrian pathway would be constructed under SR 84 facilitating access to areas south of the freeway, which currently lacks direct pedestrian access between the north and south sides of SR 84.

Parking for the new passenger rail station would be constructed northwest of the station on a currently vacant parcel. The parking facility would initially consist of a surface parking lot with the potential for the construction of a two-level parking garage depending on the need for additional parking. Station parking would be accessible via Ardentech Court on the west side of the Coast Subdivision. In the area of the proposed Ardenwood Station, improvements at the intersections on Kaiser Drive, Dumbarton Circle, Ardentech Court, and Ardenwood Terrace are proposed, including, but not limited to, pavement resurfacing and signal phasing improvements.

**Figure ES-2. Ardenwood Station Conceptual Design**

(looking north from SR-84; existing Park & Ride is to the right of proposed new station on figure)

# Bridge and Structure Improvements

## Bridges

Existing railroad bridges would be replaced or modified to accommodate the addition of a track between Elmhurst and Newark. Bridge foundations are anticipated to be drilled shafts or driven piles, depending upon the location and geotechnical conditions. It is anticipated that dewatering, drilling, and/or pile-driving activities would be required during the replacement of or modification to the existing bridges. In some locations, temporary "shoofly" bridges and tracks may also be required to make space for construction of new bridges. At the ends of the bridges, short sections of the bridge wingwalls and retaining walls may be constructed 3 to 5 feet outside the UPRR ROW and would require access agreements.

The existing single-track bridges are expected to either be widened to accommodate an additional track or replaced entirely with new bridges that would accommodate two tracks.

The proposed bridge and structure improvement locations are identified in Table ES-3.

**Table ES-3. Proposed Bridge and Structure Improvements**

| Milepost | Existing Structure | Proposed Structure |
|---|---|---|
| **14.29** | 1-track concrete bridge | 2-track bridge |
| **16.93** | 1-track timber trestle | 2-track bridge |
| **17.13** | 1-track timber trestle | 2-track bridge or culvert |

**Table ES-3. Proposed Bridge and Structure Improvements**

| Milepost | Existing Structure | Proposed Structure |
|---|---|---|
| **18.24** | 1-track timber and steel bridge | 2-track |
| **18.38** | 1-track timber trestle | 2-track culvert or fill |
| **18.97** | 1-track timber trestle | 2-track bridge |
| **19.23** | 1-track timber trestle | 2-track bridge |
| **19.77** | 1-track timber trestle and in-creek hydraulic structure | 2-track bridge |
| **20.77** | Multi-track concrete box | Multi-track bridge or culvert |
| **23.68** | 1-track timber trestle | 2-track bridge |
| **24.16** | 1-track timber trestle | 2-track bridge |
| **24.76** | 1-track timber trestle | 2-track culvert or fill |
| **24.93** | 1-track timber trestle | 2-track culvert or fill |
| **25.03** | 1-track timber trestle | 2-track culvert or fill |
| **25.81** | 1-track timber trestle | 2-track culvert or fill |
| **26.80** | 1-track timber trestle | 2-track culvert or fill |
| **26.98** | 1-track concrete bridge (Lowry Road) | 2-track bridge |
| **27.01** | 1-track concrete bridge (Alameda Creek) | 2-track bridge |
| **27.37** | 1-track timber trestle | 2-track bridge |
| **27.40** | 1-track timber trestle | 2-track culvert or fill |
| **27.52** | 1-track timber trestle | 2-track culvert or fill |
| **29.57** | 1-track multiple pipe culvert | 2-track multiple pipe culvert |
| **30.09** | 1-track multiple pipe culvert | 2-track multiple pipe culvert |

## Retaining Walls

Retaining walls would also be required to accommodate railroad improvements on the Coast Subdivision. Potential locations where retaining walls would be needed include the following:

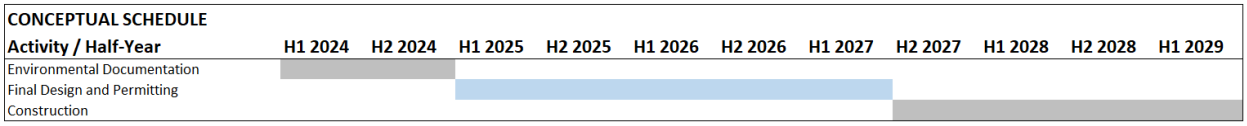
- Installation of low retaining walls or ballast retainers would occur intermittently along most of the corridor on one or both sides of the UPRR ROW to facilitate the proposed additional track and shifts to the existing track. In most areas of the corridor, the existing embankment is 3 feet to 6 feet above existing grade, and the height of new retaining walls would be 3 feet to 6 feet, generally matching the existing embankment height.
- Between Milepost (MP) 26.25 and MP 27.60, a 5- to 30-foot-high retaining wall on one or both sides of the rail ROW would be constructed to make space for an additional track. These retaining walls would be variable in height.

Near MP 31.25, a retaining wall about 4 to 8 feet tall and about 500 feet long is proposed on the west side of the UPRR ROW, adjacent to the Cargill property. This wall would support reconfigured industrial switching tracks.

# Proposed Schedule

CCJPA is currently in design and will be initiating permitting by early 2025; final design and permitting will be completed by July 2027. CCJPA is proposing construction to begin in early 2027 and be completed by July 2029. Figure ES-3 presents this timeline.

**Figure ES-3. South Bay Connect Proposed Planning and Construction Schedule**




# Construction Equipment and Crews

As shown in Figure ES-3, construction is anticipated to occur over two years, beginning in summer 2027. Construction would occur in multiple "segments" of the Project footprint, generally grouped as follows:

- Elmhurst to Williams Street;
- Williams Street to Mt. Eden;
- Mt. Eden to Baumberg Avenue;
- Baumberg Avenue to Alvarado Boulevard;
- Alvarado Boulevard to Lowry Road;
- Lowry Road to Ardenwood Boulevard (no at-grade crossings);
- Ardenwood Boulevard to Jarvis Avenue (including construction of proposed new rail station);
- Jarvis Avenue to Thornton Avenue, and
- Newark Rail Yard.

Within each segment, construction would generally consist of the following types of actions. Estimated construction periods and maximum numbers of workers for any one segment are also shown below:

- Grading and earthwork to prepare Project footprint for construction (estimated 3 to 6 months and a maximum of 20 construction workers across segment);
- Construction of structures, such as bridges and retaining walls (estimated 3 to 7 months and a maximum of 22 construction workers across segment);
- Roadway and utility improvements at at-grade rail crossings (estimated 1 to 2 months and a maximum of 37 construction workers across segment, not including proposed Ardenwood Station);
- Track and rail signal upgrades within the rail ROW (estimated 3 to 5 months and a maximum of 52 construction workers across segment).

- Ardenwood Station construction (estimated to take up to 12 months with a maximum number of 20 construction workers onsite per day).

Multiple activities could occur concurrently within a segment, although they would likely stagger in location across the segment. It is also anticipated that multiple segments could be under construction at the same time, with work likely commencing at either end of the Project footprint and meeting in the middle to reduce overall proposed Project construction period. Note that estimated time frames for activities within a segment could be increased due to weather conditions that would require temporary stops in work due to site stability, access limitations, and/or worker safety concerns.

# Proposed Operations and Maintenance

Operations at the Coast Subdivision would be updated by the service operators (Amtrak) to accommodate the transferred Capitol Corridor passenger rail service and would not affect the frequency of existing passenger or freight services along the rail line. No changes to freight service operations at the Niles and Oakland subdivisions would occur as a result of the proposed Project implementation.

Maintenance at all subdivisions would continue to follow the standards and guidelines currently in place and implemented by Amtrak; no changes to the maintenance requirements would result from implementation of the proposed Project. Operations and maintenance at the proposed new Ardenwood Station would be consistent with procedures and guidelines implemented at existing passenger rail stations.

# Best Management Practices

During proposed Project implementation, CCJPA will implement a range of best management practices (BMPs) to avoid or minimize adverse effects on the environment. These BMPs are incorporated into the Project Description and will be implemented as part of the proposed Project. The proposed Project BMPs and their full descriptions are presented in Table ES-4. The BMPs names correspond with the primary resource area.

**Table ES-4. Proposed Best Management Practices**

| BMP | BMP Description | Related Resource Areas |
|---|---|---|
| **BMP AES-1: Special Permits and/or Variance from Local Jurisdictions where Work is Outside of UPRR Right-of-Way (ROW)** | To the extent possible, CCJPA will comply with the local jurisdictional codes and regulations pertaining to aesthetics and visual quality for those areas proposed for construction outside of the UPRR ROW. In these non-UPRR areas, CCJPA will obtain the required jurisdictional approvals for any concurrences, variances, and/or permits required related to visual quality. Design elements and/or public art reflective of community aesthetics will also be coordinated with the city or county in areas outside of UPRR ROW. | |
| **BMP AQ-1: Implement Bay Area Air Quality Management District (BAAQMD) Basic Construction Mitigation Measures** | Construction of the proposed Project will require that all construction contractors implement the basic construction mitigation measures recommended by BAAQMD. The emissions reduction measures will include, at a minimum, the following:<br>• All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) will be watered two times per day.<br>• All haul truck loads will be covered when transporting soil, sand, or other loose material off site.<br>• All visible mud or dirt track-out material on adjacent public roads will be removed using wet-power vacuum-type street sweepers at least once a day. The use of dry-power sweeping is prohibited.<br>• All vehicle speeds will be limited to 15 miles per hour on unpaved roads.<br>• All roadways, driveways, and sidewalks that are to be paved will be paved as soon as possible. Building pads will be laid as soon as possible after grading, unless seeding or soil binders are used.<br>• All excavation, grading, and/or demolition activities will be suspended when average wind speeds exceed 20 mph.<br>• All trucks and equipment, including their tires, will be washed off prior to leaving the site.<br>• Unpaved roads providing access to sites that are located 100 feet or further from a paved road will be treated with a 6- to 12-inch compacted later of wood chips, mulch, or gravel.<br>• Publicly visible signs will be posted with the telephone number and person to contact at CCJPA regarding dust complaints. CCJPA will respond and take | Air Quality<br>Recreation |

**Table ES-4. Proposed Best Management Practices**

| BMP | BMP Description | Related Resource Areas |
|---|---|---|
| | corrective action within 48 hours. BAAQMD's phone number will also be visible to ensure compliance with applicable regulations. | |
| **BMP BIO-1: Weed Abatement Program** | • Prior to the start of construction activities, CCJPA and/or its contractors will develop landscaping and erosion control plans that do not use plant species listed as invasive pursuant to Executive Order 13112 and other applicable local jurisdiction requirements. A weed abatement program will be developed and incorporated into the Plans, Specifications, and Estimates (PS&E) package to avoid and/or minimize the importation of nonnative plant material during and after construction. At a minimum, the program will include the following measures:<br>• During construction, invasive plant material will be removed from the proposed project work area. All removed invasive plant material will be disposed of properly in a landfill or other suitable facility.<br>• During construction, the construction contractor will inspect and clean construction equipment at the beginning of each day and prior to transporting equipment from one project location to another.<br>• During construction, soil and vegetation disturbance will be minimized to the greatest extent feasible.<br>• During construction, the construction contractor will ensure that all active portions of the construction site are watered a minimum of twice daily, or more often when needed, due to dry or windy conditions, to prevent excessive amounts of dust.<br>• During construction, the construction contractor will ensure that all material stockpiled is sufficiently watered or covered to prevent excessive amounts of dust.<br>• During construction, soil, gravel, and rock will be obtained from weed-free sources and only certified weed-free straw, mulch, and/or fiber rolls will be used for erosion control.<br>• After construction, affected areas adjacent to native vegetation will be revegetated with plant species that are native to the vicinity as approved by CCJPA designated biologist.<br>• After construction, all revegetated areas will avoid the use of species listed on the Cal-IPC that have a High or Moderate rating. | Biological Resources |

**Table ES-4. Proposed Best Management Practices**

| BMP | BMP Description | Related Resource Areas |
|---|---|---|
| | • Erosion control and/or revegetation sites will be monitored after construction to detect and control the introduction/invasion of nonnative species. The monitoring period will be determined in consultation with resource agencies.<br>• Eradication procedures (e.g., spraying and/or hand weeding) will be outlined should an infestation occur; the use of herbicides will be prohibited within and adjacent to native vegetation, except as specifically authorized and monitored by the CCJPA designated biologist. | |
| **BMP CUL-1: Conduct Cultural Resources Awareness Training Prior to Project-Related Ground Disturbance** | Prior to any Project-related ground disturbance, CCJPA will ensure that all construction workers receive training by a registered professional archaeologist who is experienced in teaching non-specialists to ensure that contractors can recognize archaeological resources in the event that any are discovered during construction. A tribal representative will be invited to participate in the training. Construction staff directly overseeing or engaged in ground disturbing activities will be required to participate in this preconstruction training.<br>This training will be administered as standalone training or included as part of the overall environmental awareness training required as a result of the proposed Project. The training will include, at minimum, the following:<br>• The types of cultural resources that are likely to be encountered;<br>• The procedures to be taken in the event of an inadvertent cultural resource discovery; and<br>• The penalties for disturbing or destroying cultural resources. | Cultural Resources<br>Tribal Cultural Resources |
| **BMP CUL-2: Stop Work if Archaeological Deposits and/or Human Remains are Encountered During Ground-Disturbing Activities** | If archaeological deposits are encountered during Project-related ground disturbance, work in the area (100-foot radius) should stop immediately and the procedures outlined in the AMATP will be implemented.<br>If any human remains are discovered during ground-disturbing activities, there should be no further excavation or disturbance of the site, or any nearby area reasonably suspected to overlie adjacent human remains. These remains should be treated in accordance with existing state laws, including California PRC Section 5097.98 and California Health and Safety Code Section 7050.5. | Cultural Resources<br>Tribal Cultural Resources |

**Table ES-4. Proposed Best Management Practices**

| BMP | BMP Description | Related Resource Areas |
|---|---|---|
| **BMP GEO-1: Geotechnical Investigations** | CCJPA will require geotechnical investigations during the Project design phase. The Project will be designed to minimize slope failure, settlement, and erosion using recommended construction techniques and BMPs. | Geology and Soils |
| **BMP GEO-2: Expansive Soil** | Where expansive soils are present, the structures will be designed and constructed to withstand the increased earth pressures exerted by the expansive clays and to specifications determined by the geotechnical investigation prepared during final design. As necessary, expansive clays will also be treated with lime to reduce the shrink-swell potential in localized areas or removed and replaced with a non-expansive fill material. | Geology and Soils |
| **BMP GHG-1: Implement BAAQMD Construction Measures** | • Construction of the proposed Project will require implementation of the following measures that would ensure that GHG emissions during construction would be minimized.<br>• Use zero-emission and hybrid-powered equipment to the greatest extent possible, particularly if emissions are occurring near sensitive receptors or within a BAAQMD-designated Community Air Risk Evaluation (CARE) area or AB 617 community.<br>• Require all diesel-fueled off-road construction equipment to be equipped with U.S. Environmental Protection Agency Tier 4 Final engines or better.<br>• Require all on-road heavy-duty trucks to be zero emissions or meet the most stringent model-year emissions standard where feasible.<br>• Minimize idling time, either by shutting equipment off when not in use or reducing the time of idling to no more than 2 minutes. Provide clear signage that posts this requirement for workers at the entrances to the site.<br>• Use California Air Resources Board-approved renewable diesel fuel in off-road construction equipment and on-road trucks where feasible.<br>• Use U.S. Environmental Protection Agency SmartWay-certified trucks for deliveries and equipment transport where feasible.<br>• Require all construction equipment to be maintained and properly tuned in accordance with the manufacturer's specifications.<br>• Where grid power is available, prohibit portable diesel engines and provide electrical hook-ups for electric tools, such as saws, drills, and compressors; use electric tools whenever feasible. | Greenhouse Gas Emissions |

**Table ES-4. Proposed Best Management Practices**

| BMP | BMP Description | Related Resource Areas |
|---|---|---|
| | • Where grid power is not available, use alternative fuels, such as propane or solar electrical power, for generators at construction sites whenever feasible.<br>• Encourage and provide carpools, shuttle vans, transit passes, and/or secure bicycle parking to construction workers and offer meal options onsite or shuttles to nearby meal destinations for construction employees.<br>• Reduce electricity use in the construction office by using LED bulbs, powering off computers every day, and replacing heating and cooling units with more efficient ones.<br>• Minimize energy used during site preparation by deconstructing existing structures to the greatest extent feasible.<br>• Recycle or salvage nonhazardous construction and demolition debris, with a goal of recycling at least 15 percent more, by weight, than the diversion requirement in Title 24.<br>• Use locally sourced or recycled materials for construction (goal of at least 20 percent, based on cost of building materials and volume of roadway, parking lot, sidewalk, and curb materials).<br>• Use low-carbon concrete, minimize the amount of concrete used, and produce concrete on-site where feasible if it is more efficient than transporting ready-mix.<br>• Develop a plan to efficiently use water for adequate dust control.<br>• Include all requirements in applicable bid documents, purchase orders, and contracts, with successful contractors demonstrating the ability to supply compliant on- or off-road construction equipment prior to any ground-disturbing and construction activities. | |
| **BMP HAZ-1: Prepare a Construction Hazardous Material Management Plan (HMMP)** | Prior to construction, CCJPA will ensure that an HMMP is prepared by the construction contractor, which will outline provisions for safe storage, containment, and disposal of chemicals and hazardous materials, contaminated soils, and contaminated groundwater used or exposed during construction, including the proper locations for disposal. The HMMP will be prepared to address construction activity within the Project footprint and include, but not be limited to, the following:<br>• A description of hazardous materials used (29 C.F.R. 1910.1200). | Hazards and Hazardous Materials |

**Table ES-4. Proposed Best Management Practices**

| BMP | BMP Description | Related Resource Areas |
|---|---|---|
| | • A description of handling, transport, treatment, and disposal procedures, as relevant for each hazardous material or hazardous waste (29 C.F.R. 1910.120).<br>• Preparedness, prevention, contingency, and emergency procedures, including emergency contact information (29 C.F.R. 1910.38).<br>• A description of personnel training including, but not limited to: (1) recognition of existing or potential hazards resulting from accidental spills or other releases; (2) implementation of evacuation, notification, and other emergency response procedures; (3) management, awareness, and handling of hazardous materials and hazardous wastes, as required by their level of responsibility (29 C.F.R. 1910).<br>• Instructions on keeping Safety Data Sheets on site for each on-site hazardous chemical (29 C.F.R. 1910.1200).<br>• Identification of the locations of hazardous material storage areas, including temporary storage areas, which will be equipped with secondary containment sufficient in size to contain the volume of the largest container or tank (29 C.F.R. 1910.120).<br>• A description of accidental hazardous materials release measures and spill cleanup procedures, including, but not limited to, contacting the correct regulating agency about the spill; evacuating the spill area; securing the spill; placing barriers and absorbents around the spill to prevent contamination from spreading; putting up signs or caution tape to prevent entry to the spill area; characterizing the spill; and cleanup by qualified personnel. | |
| **BMP HAZ-2: Property Acquisition Phase 1 and Phase 2 Environmental Site Assessments** | Prior to or during the ROW acquisition phase, CCJPA will ensure that Phase 1 Environmental Site Assessments are conducted in accordance with standard ASTM methodologies to characterize each high-risk parcel prior to acquisition within the Project footprint. The determination of parcels that require a Phase 2 Environmental Site Assessments (for example, soil, groundwater, soil vapor subsurface investigations) would be informed by a Phase 1 Environmental Site Assessments and may require coordination with state and local agency officials. Major work areas requiring substantial ground disturbance and excavation outside of acquired properties will also be subject to Phase 2 investigations. | Hazards and Hazardous Materials |

**Table ES-4. Proposed Best Management Practices**

| BMP | BMP Description | Related Resource Areas |
|---|---|---|
| **BMP HAZ-3: Prepare a General Construction Soil Management Plan** | Prior to construction, CCJPA will ensure that a General Construction Soil Management Plan is prepared, which will include general provisions for how soils will be managed within the Project footprint for the duration of construction. General soil management controls to be implemented by the contractor, and the following additional topics, will be addressed within the General Construction Soil Management Plan:<br>• General worker health and safety procedures.<br>• Dust control/wind erosion control.<br>• Management of soil stockpiles.<br>• Traffic control.<br>• Stormwater erosion control using BMPs. | Hazards and Hazardous Materials |
| **BMP HAZ-4: Prepare Parcel-Specific Soil Management Plans and Health and Safety Plans (HASP)** | Prior to construction, CCJPA will ensure that parcel-specific Soil Management Plans be prepared for known contaminated sites for submittal and approval by the Department of Toxic Substances Control (DTSC). The plans will include specific hazards and provisions for how soils will be managed for known contaminated sites. The nature and extent of contamination varies widely across the Project footprint, and the parcel specific Soil Management Plan will provide parcel-specific requirements addressing the following:<br>• Soil testing and soil characterization.<br>• Soil disposal protocols.<br>• Protocols governing the discovery of unknown contaminants.<br>• Soil management on properties within the Project footprint with known hazardous contaminants.<br>Prior to construction on individual properties with known contaminants, a parcel-specific HASP will also be prepared for approval by DTSC. The HASP will be prepared to meet OSHA requirements, Title 29 of the C.F.R. 1910.120 and CCR Title 8, Section 5192, and all applicable federal, state, and local regulations and agency ordinances related to the proposed management, transport, and disposal of contaminated media during construction. The HASP will be signed and sealed by a Certified Industrial Hygienist, who is licensed by the American Board of Industrial Hygiene. In addition to general construction soil | Hazards and Hazardous Materials<br>Public Services |

**Table ES-4. Proposed Best Management Practices**

| BMP | BMP Description | Related Resource Areas |
|---|---|---|
| | management plan provisions, the following parcel-specific HASP provisions will also be implemented:<br>• Training requirements for site workers who may be handling contaminated material, including the transport and disposal of contaminated material.<br>• Chemical exposure hazards in soil, groundwater, or soil vapor that are known to be present on a property.<br>• Mitigation and monitoring measures that are protective of site worker and public health and safety.<br>Prior to construction, CCJPA will coordinate proposed soil management measures and reporting activities with regulatory agencies with jurisdiction in order to establish an appropriate monitoring and reporting program that meets all federal, state, and local laws at each of the contaminated sites. | |
| **BMP HAZ-5: Leaking Underground Storage Tank (LUST) Sites and Coordination with DTSC** | Prior to construction on properties with a LUST, CCJPA will coordinate with DTSC regarding any plans, construction activities, and/or public outreach that is needed to verify that construction activities on properties with LUSTs would be conducted in a manner protective of public health. | Hazards and Hazardous Materials |
| **BMP HAZ-6: Halt Construction Work if Potentially Hazardous Materials/ Abandoned Oil Wells are Encountered** | During construction, CCJPA will ensure that contractors will follow all applicable local, state, and federal regulations regarding discovery, notification, response, disposal, and remediation for hazardous materials and/or abandoned oil wells encountered during the construction process. | Hazards and Hazardous Materials |
| **BMP HAZ-7: Pre-Demolition Investigation** | Prior to the demolition of any structures constructed prior to the 1970s, CCJPA will ensure that a survey be conducted for the presence of hazardous building materials, such as Asbestos-Containing Material (ACMs), Lead-Based Paints (LBPs), and other materials falling under the Universal Waste requirements. The results of this survey will be submitted to CCJPA and applicable agencies as deemed appropriate by CCJPA. If any hazardous building materials are identified prior to demolition of any structures, a plan for proper removal will be prepared in accordance with applicable OSHA and Alameda County Department of Environmental Health requirements. The contractor performing the work will be required to implement the removal plan, will be required to have a C-21 license in the State of California, and possess an A or B | Hazards and Hazardous Materials |

**Table ES-4. Proposed Best Management Practices**

| BMP | BMP Description | Related Resource Areas |
|---|---|---|
| | classification. If asbestos-related work is required, the contractor or their subcontractor will be required to possess a California Contractor License (Asbestos Certification). Prior to any demolition activities, the contractor will be required to secure the site and ensure utilities are disconnected. | |
| **BMP HYD-1: Construction Stormwater Management** | As special conditions to the contractor construction documentation, CCJPA will require that the contractor prepare and implement a proposed Project-specific Stormwater Management and Treatment Plan that addresses construction-related activities. The plan will include the SWPPP, as well as all construction measures included below, and will be enforceable as a contract provision.<br>The SWPPP will identify measures that must be implemented to reduce construction effects on receiving water quality. These measures will address sediment and erosion control and other pollutants. All project registration documents, including the SWPPP, are required to be uploaded into the SWRCB's online Stormwater Multiple Application and Report Tracking System at least 30 days prior to construction.<br>All temporarily disturbed slopes will be protected with temporary erosion control and sediment controls. Temporary erosion control includes temporary bonded fiber matrix, temporary hydraulic mulch, temporary hydroseeding, and temporary cover with geotextiles or rolled erosion control products (RECPs). Temporary sediment controls include temporary silt fence, temporary check dams, temporary fiber rolls, and storm drain inlet protection.<br>The SWPPP will also contain a visual monitoring program for "nonvisible" pollutants, and a sediment monitoring plan if the site discharges directly to a waterbody listed on the CWA 303(d) list for sediment.<br>Other requirements under the SWPPP will include:<br>• Measures to safely use and store hazardous materials.<br>• Contaminated soils or groundwater encountered will be managed, stored, and disposed of in compliance with the NPDES CGP.<br>• Measures to reduce the likelihood and severity of the potential release of construction related pollutants, like fuel, grease and other common construction materials. | Hydrology and Water Quality<br>Biology |

**Table ES-4. Proposed Best Management Practices**

| BMP | BMP Description | Related Resource Areas |
|---|---|---|
| | • Water quality measures to prevent water quality degradation and other related environmental impacts during construction.<br>• Good housekeeping measures such as stabilized construction entrances, material delivery and storage, stockpile management, hazardous waste management, liquid water management, vehicle and equipment fueling and maintenance.<br>• Wind erosion control measures such as construction roadway speed limits, halting activities during high-wind conditions, and dust suppression by wetting disturbed soil areas. | |
| **BMP HYD-2: Creek Diversion to Address In-Creek Construction** | Construction work in live perennial streams and creeks will include temporary creek diversion measures. Temporary clear water diversions and dewatering operations would be implemented in accordance with the current version of CASQA's *Stormwater Best Management Practice Handbook: Construction*. These measures for dewatering operations, erosion control, and soil stabilization will avoid discharging water in a manner and at rates that cause substantial changes in surface water hydrology and water quality. This will be achieved by controlling pumping rates and using velocity dissipation devices or similar methods that minimize impacts on the flow rates of streams. | Hydrology and Water Quality |
| **BMP HYD-3: Delineate Environmentally Sensitive Areas (ESAs) Near Construction Areas** | Environmentally sensitive areas will be identified on engineering plans. Environmentally sensitive areas will be identified in the field with high visibility fencing. If fencing cannot feasibly be installed, such as on pavement, flagging or paint may be used to identify the environmentally sensitive area. No work, access, or any construction activities will occur within the environmentally sensitive areas. | Hydrology and Water Quality |
| **BMP HYD-4: Permanent Erosion Control** | All unpaved slopes will be protected with permanent erosion control such as RECP or permanent hydroseeding with hydraulic mulch. | Hydrology and Water Quality |
| **BMP HYD-5: Permanent Stormwater Treatment and Pollution prevention** | For new areas of impervious areas, the proposed Project will comply with applicable municipal/regional NPDES permits. Permanent stormwater treatment and pollution prevention measures (such as requiring trash capture devices) will be implemented to treat stormwater runoff from new impervious surfaces. | Hydrology and Water Quality |

**Table ES-4. Proposed Best Management Practices**

| BMP | BMP Description | Related Resource Areas |
|---|---|---|
| **BMP HYD-6: Addressing Hydromodification Impacts** | Hydromodification impacts from added impervious surface in susceptible areas will be avoided or managed with the inclusion of flow control features and energy dissipators such as flared end sections, rock slope protection, and check dams. The proposed Project will comply with applicable municipal/regional NPDES permits. | Hydrology and Water Quality |
| **BMP HYD-7: Dewatering of High Groundwater** | CCJPA and its contractors will prepare a dewatering plan in compliance with NPDES Construction Dewatering Permit. | Hydrology and Water Quality |
| **BMP HYD-8: Monitoring Weather Forecast to Avoid Construction Impacts During Storm Events** | CCJPA and its contractors will monitor weather forecasts for short term intense storm events that have the potential to create flood conditions for areas within the floodplains during construction. When there is a possibility for flooding within active construction areas, the contractor will remove temporary structures, equipment, and materials from aquatic resources to avoid increases in the WSE of 100-year floodplains. If needed, formworks and falseworks will be designed to remain within floodplains during the winter rainy season and withstand the hydraulic forces of flood flows without increasing WSE by 1 foot. | Hydrology and Water Quality |
| **BMP-HYD-9: Dewatering Permit in Case of Contaminated Groundwater** | If the groundwater is found to be contaminated, a dewatering permit will be obtained from the Regional Water Quality Control Board directly, or through an application with the local Sewer company. An Active Treatment Systems may be specified by the permit conditions if the quality of the groundwater warrants their use. | Hydrology and Water Quality |
| **BMP-HYD-10: Soffit Elevations for New Bridges** | The soffit elevation for proposed new bridges will be matched to existing soffit elevations to limit the impact of the bridge replacement on the floodplain. | Hydrology and Water Quality |
| **BMP REC-1: Protection of Alameda Creek Regional Trail** | When construction work occurs over the Alameda Creek Regional Trail, the trail will be closed for as short duration as feasible. Protective measures will be installed when the trail is open to ensure the safety of trail users. | Recreation |
| **BMP REC-2: Coordinate and Provide Advance Notice of Construction Activities Adjacent to Public Trails** | CCJPA will coordinate construction activities adjacent to publicly accessible trails with the East Bay Regional Parks District (EBRPD). CCJPA's contractors will be responsible for informing trail users regarding upcoming construction activities and any potential detours. At least 10 days in advance, notices will be | Recreation |

**Table ES-4. Proposed Best Management Practices**

| BMP | BMP Description | Related Resource Areas |
|---|---|---|
| | posted along the trail regarding any trail closures or detours. To the extent possible, the trail will be kept open at all times. | |
| **BMP TR-1: Transportation Management Plan (TMP)** | During final design, a TMP will be developed by CCJPA in coordination with affected jurisdictions, fire and police departments, and adjacent construction projects to reduce construction-related impacts. The TMP will include, at a minimum, the following measures:<br>• Identifying full closures, short-term closures, and detour routes for all modes of travel, including the pedestrian, bicycle, vehicular, public transit, freight, and emergency vehicle modes.<br>• Coordinating and communication with fire and police departments during development of TMP to ensure adequate access is maintained during construction.<br>• Identifying locations of short-term and long-term capacity reductions on the transportation system and coordinating with local agencies to minimize congestion effects.<br>• Installing temporary traffic control measures to promote safety in construction zones.<br>• Installing signage to alert drivers to upcoming closures and lane reductions.<br>• Coordinating with public transit agencies to notify riders about stop closures or diversions.<br>Identifying construction vehicle routings that minimize effects on the transportation system. | Transportation<br>Hazards and Hazardous Materials<br>Land Use and Planning<br>Public Services<br>Recreation<br>Wildfire |
| **BMP UT-1: Utility Verification and Coordination with Utility Providers and California Public Utilities Commission (CPUC)** | CCJPA and the contractor will coordinate with utility providers regarding protection, relocation, or removal of their utilities, and the following measures will be implemented:<br>• Prior to and during construction, CCJPA will coordinate with service providers to obtain necessary permits and to minimize or avoid interruptions.<br>• At least two days prior to excavation of any subsurface installation, the construction contractor will notify the regional notification Underground Service Alert per the Regional Notification Center System (California Government Code 4216). The Underground Service Alert then notifies | Utilities and Service Systems |

**Table ES-4. Proposed Best Management Practices**

| BMP | BMP Description | Related Resource Areas |
|---|---|---|
| | utilities that may have buried lines within 1,000 feet of the excavation. Representatives of the utilities will mark the specific location of their facilities within the work area prior to the start of excavation. The construction contractor will probe and expose the underground facilities by hand prior to using power equipment.<br>• Service interruptions will be minimized to the extent feasible.<br>• CCJPA will notify pipeline operators of proposed demolition, excavation, tunneling, or construction near or affecting a pipeline, in accordance with Norman Y. Mineta Research and Special Programs Improvement Act.<br>• Affected utilities will be relocated in-kind.<br>CCJPA will coordinate with CPUC to ensure compliance with General Orders 95 and 131-D. A permit to construct (for powerlines) or a certificate of public convenience and necessity (for transmission lines) will be obtained should it be determined during final design that the proposed Project would require the modification, alteration, or addition of electrical lines over 50 kV.<br>• CCJPA will observe relevant ACWD Standard Specifications for Water Main Extension.<br>• CCJPA will observe the California Department of Health Services (DHS) standards, which require: a 10-foot horizontal separation between parallel sewer and water mains, and a 1-foot vertical separation between perpendicular water and sewer line crossings. In the event that separation requirements cannot be maintained, the Project proponent will obtain a DHS variance through provisions of water encasement or other means deemed suitable by the department. | |
| **BMP UT-2 Minimize Potable Water Use** | The contractor will maximize use of recycled water and minimize use of potable water. | Utilities and Service Systems |
| **BMP UT-3: Water Efficient Landscaping** | Landscaping, outside of the UPRR ROW, will comply with Water Efficient Landscape Ordinance and Bay Friendly Landscaping criteria. The proposed Project will coordinate with municipalities to ensure landscape improvements at all grade crossings comply with local ordinances. Outside of the UPRR ROW, the Project will:<br>• Use low-water, native plants and avoid planting invasive species. | Utilities and Service Systems |

**Table ES-4. Proposed Best Management Practices**

| BMP | BMP Description | Related Resource Areas |
|---|---|---|
| | • Use recycled, reclaimed, and/or non-potable water for irrigation where available.<br>• Limit turf to no more than 25 percent of the total planted area on the project.<br>• Utilize the whole systems/watershed approach to design and maintenance of landscaping to support the integrity of the San Francisco Bay watershed through best practices. | |
| **BMP UT-4: Public Notification** | Prior to construction in areas where utility service interruptions are unavoidable, the construction contractor, CCJPA, and/or the affected utility will notify the affected public through a combination of communication media (e.g., by phone, email, mail, newspaper notices, or other means) within that jurisdiction and the affected service providers of the planned outage. The notification will specify the estimated duration of the planned outage and would be published no less than seven days prior to the outage. Construction will be coordinated to avoid interruptions of utility service to hospitals and other critical users. | Utilities and Service Systems |
| **BMP UT-5: Coordinate with Hayward Water System (HWS) and Alameda County Water District (ACWD) in Dry Construction Years** | The Project will coordinate with HWS and ACWD in dry years (as defined in their Urban Water Management Plans [UWMPs]). The proposed Project will comply with HWS and ACWD requirements during water shortages, including submittal of a construction water use plan in Level 3 shortages to HWS that addresses how impacts to existing water uses will be minimized, such as by selecting SWPPP measures with lower water requirements. The Project may also evaluate acquiring potable and/or non-potable water from outside sources to supplement construction within HWS and/or ACWD service area. | Utilities and Service Systems |
| **BMP UT-6: Minimize Construction and Demolition (C&D) Debris** | C&D debris will be minimized to the maximum extent practicable, prioritizing reuse of C&D materials and then recycling. Where applicable, the proposed Project will at minimum meet the current state and county recycling requirements and will comply with the municipal recycling requirements at the time of construction to the extent feasible.<br>Where required by regulations, a Waste Reduction and Recycling Plan will be prepared by the Contractor that shows how the proposed Project will meet | Utilities and Service Systems |

**Table ES-4. Proposed Best Management Practices**

| BMP | BMP Description | Related Resource Areas |
|---|---|---|
| | current recycling requirements. Contractor will provide documentation that recycling requirements were met. | |
| **BMP UT-7: Treated Wood Waste (TWW) Handler Notification** | The contractor will notify DTSC within 30 days if generating more than 10,000 pounds of TWW per calendar year. The contractor will comply with AB 332's Alternative Management Standards for TWW. | Utilities and Service Systems |
| **BMP WF-1: Prepare Fire Prevention Plan** | Prior to construction, the contractor will prepare a Fire Prevention Plan for CCJPA approval. This plan will outline fire prevention measures that will be applicable within 500 feet of very high fire hazard severity zones (VHFHSZs) during the dry season (June through December, or earlier if a fire season is declared by a fire protection authority). The Fire Prevention Plan will be prepared in consultation with and comply with the City of Fremont's Fire Department and the East Bay Regional Parks Fire Department requirements. The construction contractor will implement any fire protection measures that are applicable within the VHFHSZ. The plan would include at minimum the following measures:<br>• No parking or driving on dry grasses.<br>• Smoking is prohibited on vegetated areas.<br>• Generators and gas-powered equipment will have spark arrestors.<br>Any flame- or spark- producing activities (e.g., welding, rail cutting) requires 30 feet of clearance to any flammable material (such as grass, weeds, wood chips, brush, removed rail ties). A suitable fire extinguisher will be immediately accessible for the duration of this work.<br>During Extreme or Very High Fire Danger, use of gasoline powered equipment (e.g., mowers in rough areas, weed eaters, chain saws, welders and generators) may require extra protection measures. | Wildfire Hazards and Hazardous Materials |
| **BMP WF-2: Use Drought-Tolerant and Fire-Resistant Native Plants** | Within 500 feet of VHFHSZs and outside of UPRR ROW, landscape design and soil stabilization will use drought-tolerant and fire-resistant native plants and least flammable mulches (e.g., coarse compost) to the extent feasible. CCJPA will ensure that this is included in final design of the project and in construction specifications. | Wildfire Hazards and Hazardous Materials |

# Environmental Impacts from Proposed Project

Table ES-5 summarizes direct and indirect impacts from construction and operation of the proposed Project.

Table ES-6 lists mitigation measures to be incorporated as part of the proposed Project implementation. Mitigation measures are named after the relevant resource area. Table numbers referenced within Table ES-6 here are as listed in the main document.

**Table ES-5. Summary of Proposed Project Impacts**

| Impacts | Level of Significance Before Mitigation | Mitigation Measures | Level of Significance After Mitigation |
|---|---|---|---|
| **Aesthetics** | | | |
| Have a substantial adverse effect on a scenic vista | S/M | MM AES- 1, MM AES-2, MM AES-3, MM AES-4, MM AES-5, MM AES-6, MM AES-7 | LTS |
| Substantially damage scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings within a State Scenic Highway | NI | N/A | NI |
| 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 proposed Project is in an urbanized area, would the proposed Project conflict with applicable zoning and other regulations governing scenic quality | S/M | MM AES-1, MM AES-2, MM AES-3, MMAES-4, MM AES-5, MM AES-6, MM AES-7 | LTS |
| Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area | S/M | MM AES-2, MM AES-8 | LTS |
| **Agriculture and Forestry Resources** | | | |
| Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use | NI | N/A | NI |
| Conflict with existing zoning for agricultural use, or a Williamson Act contract | NI | N/A | NI |
| Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g)) | NI | N/A | NI |
| Result in the loss of forest land or conversion of forest land to non-forest use | NI | N/A | NI |

| Impacts | Level of Significance Before Mitigation | Mitigation Measures | Level of Significance After Mitigation |
|---|---|---|---|
| Involve other changes in the existing environment which, due to their location or nature, could result in conversion of farmland to non-agricultural use or conversion of forest land to non-forest use | NI | N/A | NI |
| **Air Quality** | | | |
| Conflict with or obstruct implementation of the applicable air quality plan | LTS | N/A | LTS |
| 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 | S/M | MM AQ-1, MM AQ-2 | LTS |
| Expose sensitive receptors to substantial pollutant concentrations | S/M | MM AQ-1, MM AQ-2 | LTS |
| Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people | LTS | N/A | LTS |
| **Biological Resources** | | | |
| Have a substantial adverse effect, either directly or through habitat modifications, on a species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife, U.S. Fish and Wildlife Service, or NOAA Fisheries:<br>• Special-Status Plants | S/M | MM BIO-1<br>MM BIO-2<br>MM BIO-3<br>MM BIO-4 | LTS |
| • Crotch's Bumble Bee and Western Bumble Bee | S/M | MM BIO-1<br>MM BIO-6<br>MM BIO-7 | LTS |
| • Monarch Butterfly | S/M | MM BIO-1<br>MM BIO-2<br>MM BIO-5 | LTS |
| • Special-Status Fish | S/M | MM BIO-1<br>MM BIO-8<br>MM BIO-9<br>MM BIO-10<br>MM BIO-17<br>MM BIO-19 | LTS |

| Impacts | Level of Significance Before Mitigation | Mitigation Measures | Level of Significance After Mitigation |
|---|---|---|---|
| • Special-Status Amphibians and Reptiles | S/M | MM BIO-1<br>MM BIO-11<br>MM BIO-17 | LTS |
| • Western Snowy Plover | S/M | MM BIO-1<br>MM BIO-12 | LTS |
| • Bald Eagle, California Ridgway's rail, White-tailed Kite, California Black Rail | S/M | MM BIO-1<br>MM BIO-12 | LTS |
| • Burrowing Owl | S/M | MM BIO-1<br>MM BIO-12<br>MM BIO-13 | LTS |
| • Northern Harrier | S/M | MM BIO-1<br>MM BIO-12 | LTS |
| • Alameda Song Sparrow and San Francisco Common Yellowthroat | S/M | MM BIO-1<br>MM BIO-12 | LTS |
| • Salt Marsh Harvest Mouse | S/M | MM BIO-1<br>MM BIO-14<br>MM BIO-15 | LTS |
| • Special-Status Bat Species | S/M | MM BIO-1<br>MM BIO-16 | LTS |
| Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service | S/M | MM BIO-1<br>MM BIO-7<br>MM BIO-8<br>MM BIO-17<br>MM BIO-21 | LTS |
| Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means | S/M | MM BIO-1<br>MM BIO-17 | LTS |
| 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 | S/M | MM BIO-1<br>MM BIO-8<br>MM BIO-9 | LTS |

| Impacts | Level of Significance Before Mitigation | Mitigation Measures | Level of Significance After Mitigation |
|---|---|---|---|
| | | MM BIO-10<br>MM BIO-17 | |
| Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance | S/M | MM BIO-1<br>MM BIO-2<br>MM BIO-18 | LTS |
| Conflict with the provision of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan | NI | N/A | NI |
| **Cultural Resources** | | | |
| Cause a substantial adverse change in the significance of a historical resource pursuant to CEQA Guidelines Section 15064.5 | S/M | MM CUL-1<br>MM CUL-2<br>MM CUL-3<br>MM CUL-4<br>MM CUL-5<br>MM CUL-6 | LTS |
| Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5 | S/M | MM CUL-1<br>MM CUL-2<br>MM CUL-3<br>MM CUL -4<br>MM CUL-5<br>MM CUL-6 | LTS |
| Disturb any human remains, including those interred outside of formal cemeteries | S/M | MM CUL-1<br>MM CUL-2<br>MM CUL-3<br>MM CUL-4<br>MM CUL-5<br>MM CUL-6 | LTS |
| **Energy** | | | |
| Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation | NI | N/A | NI |
| Conflict with or obstruct a state or local plan for renewable energy or energy efficiency | NI | N/A | NI |

| Impacts | Level of Significance Before Mitigation | Mitigation Measures | Level of Significance After Mitigation |
|---|---|---|---|
| **Geology, Soils, and Paleontological Resources** | | | |
| Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:<br>• 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. | NI | N/A | NI |
| • Strong seismic ground shaking? | LTS | N/A | LTS |
| • Seismic-related ground failure, including liquefaction? | LTS | N/A | LTS |
| • Landslides? | LTS | N/A | NI |
| Result in substantial soil erosion or the loss of topsoil | LTS | N/A | LTS |
| 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 | LTS | N/A | LTS |
| Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property | LTS | N/A | LTS |
| Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of waste water | NI | N/A | NI |
| Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature | S/M | MM GEO-1 | LTS |
| **Greenhouse Gas Emissions** | | | |
| Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment | LTS | N/A | LTS |
| Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases | LTS | N/A | LTS |
| **Hazards and Hazardous Materials** | | | |
| Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials | LTS | N/A | LTS |

| Impacts | Level of Significance Before Mitigation | Mitigation Measures | Level of Significance After Mitigation |
|---|---|---|---|
| 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 | LTS | N/A | LTS |
| Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school | LTS | N/A | LTS |
| 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 | LTS | N/A | LTS |
| 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 or excessive noise for people residing or working in the project area | LTS | N/A | LTS |
| Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan | LTS | N/A | LTS |
| Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires | LTS | N/A | LTS |
| **Hydrology and Water Quality** | | | |
| Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality | S/M | MM HYD-2 | LTS |
| Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such the project may impede sustainable groundwater management of the basin | S/M | MM HYD-2 | LTS |
| 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:<br>• Result in a substantial erosion or siltation on- or off-site | LTS | N/A | LTS |
| • Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site | S/M | MM HYD-1 | LTS |

| Impacts | Level of Significance Before Mitigation | Mitigation Measures | Level of Significance After Mitigation |
|---|---|---|---|
| • 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 | LTS | N/A | LTS |
| • Impede or redirect flood flows | NI | N/A | NI |
| In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation | LTS | N/A | LTS |
| Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan | LTS | N/A | LTS |
| **Land Use and Planning** | | | |
| Physically divide an established community | LTS | N/A | LTS |
| 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 | LTS | N/A | LTS |
| **Mineral Resources** | | | |
| Result in the loss of availability of a known mineral resource that would be a value to the region and the residents of the state | NI | N/A | NI |
| Result in the loss of availability of a locally-important mineral resources recovery site delineated on a local general plan, specific plan or other land use plan | NI | N/A | NI |
| **Noise and Vibration** | | | |
| Result in the generation of a substantial temporary or permanent increase in ambient noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies | S/M | MM NOI-1<br>MM NOI-2 | LTS |
| Result in the generation of excessive ground-borne vibration or ground-borne noise levels | LTS | N/A | LTS |
| For a project located within the vicinity of a private airstrip or an airport land us 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 | LTS | N/A | LTS |

| Impacts | Level of Significance Before Mitigation | Mitigation Measures | Level of Significance After Mitigation |
|---|---|---|---|
| **Population and Housing** | | | |
| Induce substantial unplanned 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) | LTS | N/A | LTS |
| Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere | NI | N/A | NI |
| **Public Services** | | | |
| 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 following public services:<br>• Fire Protection | LTS | N/A | LTS |
| • Police Protection | LTS | N/A | LTS |
| • Schools | LTS | N/A | LTS |
| • Other Public Facilities | LTS | N/A | LTS |
| **Recreation** | | | |
| 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 | NI | N/A | NI |
| Include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment | S/M | MM REC-1 | LTS |
| **Transportation** | | | |
| Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities | LTS | N/A | LTS |
| Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b) | LTS | N/A | LTS |
| Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment) | LTS | N/A | LTS |
| Result in inadequate emergency access | LTS | N/A | LTS |

| Impacts | Level of Significance Before Mitigation | Mitigation Measures | Level of Significance After Mitigation |
|---|---|---|---|
| **Tribal Cultural Resources** | | | |
| Cause a substantial adverse change in the significance of a TCR, defined in PRC Section 21074 that is (a) listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in PRC Section 5020.1(k) | S/M | MM-CUL-1<br>MM-CUL-2<br>MM-CUL-3<br>MM-CUL-4<br>MM-CUL-5 | LTS |
| Cause a substantial adverse change in the significance of a TCR, defined in PRC Section 21074 that is (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 | S/M | MM-CUL-1<br>MM-CUL-2<br>MM-CUL-3<br>MM-CUL-4<br>MM-CUL-5 | LTS |
| **Utilities and Service Systems** | | | |
| Require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects | LTS | N/A | LTS |
| Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years | LTS | N/A | LTS |
| 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 | NI | N/A | NI |
| 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 | LTS | N/A | LTS |
| Comply with federal, state, and local management and reduction statutes and regulations related to solid waste | NI | N/A | NI |
| **Wildfire** | | | |
| Substantially impair an adopted emergency response plan or emergency evacuation plan | NI | N/A | NI |

| Impacts | Level of Significance Before Mitigation | Mitigation Measures | Level of Significance After Mitigation |
|---|---|---|---|
| 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 | NI | N/A | NI |
| 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 | NI | N/A | NI |
| 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 | NI | N/A | NI |

Notes: LTS = Less than Significant Impact, NI = No Impact, N/A = Not Applicable, SI = Significant Impact, S/M = Significant Impact but Mitigable to a Less than Significant Level

**Table ES-6: Summary of Proposed Mitigation Measures**

| Mitigation Measure | Mitigation Measure Description |
|---|---|
| **MM AES-1: Construction Area Visual Screening** | Prior to the commencement of construction activities, Capitol Corridor Joint Powers Authority (CCJPA), will develop a visual resource construction plan for areas that may be affected by construction activities. Construction areas subject to this mitigation measure would be refined by CCJPA based on the size of the area, the nature of the construction activity, the proximity or visibility of the area to public vantage points or residential uses, and the type of visual screening to be implemented during construction activities. Potential visual screening may include, but is not limited to, the following:<br>• Fence with vinyl or mesh banners;<br>• Fence with privacy screens; and<br>• Chain link fence with slat panels. |
| **MM AES-2: Construction Lighting Plan** | Prior to commencement of construction activities, CCJPA will develop a construction lighting plan for areas that could be affected by construction activities. The construction lighting plan will consider the size of the area, the nature of the construction activity, the proximity or visibility of the area to sensitive receptors, and the type of lighting needed during construction activities. In addition, the construction lighting plan will evaluate the following:<br>• Lighting policies/requirements of the local jurisdiction;<br>• Use of glare-free lights, such as color corrected halide lights or balloon lights;<br>• Selection of light fixtures that meet or exceed industry standards for cutoff performance; and<br>• Installation of lights at the proper angle such that spill light is minimized beyond the construction site. |
| **MM AES-3: Vegetation Impact, Protection, and Replacement Plan** | During final design, CCJPA will develop a vegetation impact, protection, and replacement plan for areas outside of the UPRR right of way that would be affected by construction activities. The Vegetation Impact, Protection, and Replacement Plan will consider the following elements outside of UPRR ROW:<br>• Minimizing size of area for clearing and grubbing;<br>• Requiring that any pruning activity be performed by a Certified Arborist;<br>• Including vegetation restoration requirements, including use of drought tolerant plant species and avoidance of invasive plant species in areas listed on Table 3.2-1;<br>• Incorporating landscape design options to soften vertical structures, minimize surface glare, reduce the visual monotony of the structures, and enhance the aesthetics of the structure; |

<table>
<tr><th>Mitigation Measure</th><th>Mitigation Measure Description</th></tr>
<tr><td></td><td>
<ul>
<li>Using California native species with strong emphasis on vegetation and natural habitat restoration and screening of the rail corridor in non-urbanized areas;</li>
<li>Selecting plant species from local (city or county) jurisdictional plant lists, if available, with an emphasis on adaptability to urban conditions, and placing plants in accordance with Crime Prevention Through Environmental Design principles for urbanized areas;</li>
<li>Developing an irrigation design and a maintenance program that will maximize retention of the selected plant species and minimize potential for takeover by local invasive species.</li>
</ul>
<table>
<tr><th>Vegetation Replacement/Visual Softening Planting Area</th><th>Planting Character</th></tr>
<tr><td>Ardenwood Station area outside of UPRR ROW</td><td>Urbanized</td></tr>
<tr><td>North and South of Alameda Creek bridge outside of UPRR ROW</td><td>Urbanized</td></tr>
<tr><td>Alameda Creek bridge outside of UPRR ROW</td><td>Urbanized</td></tr>
<tr><td>Retaining Walls MP 30.0 to MP 27.65 outside of UPRR ROW</td><td>Urbanized</td></tr>
<tr><td>Retaining Walls MP 27.65 to MP 26.75 outside of UPRR ROW</td><td>Urbanized</td></tr>
<tr><td>Retaining Walls MP 26.65 to MP 26.00 outside of UPRR ROW</td><td>Urbanized</td></tr>
<tr><td>Lowry Road double-track bridge outside of UPRR ROW</td><td>Urbanized</td></tr>
<tr><td>Crandall Creek double-track bridge or culvert outside of UPRR ROW</td><td>Urbanized</td></tr>
</table>
</td></tr>
<tr><td>MM AES-4: Landscape Plan for Ardenwood Station</td><td>During final design, CCJPA, in coordination with the City of Fremont, will develop a landscape plan for the proposed Ardenwood Station’s surface parking lot, entrance plaza, and any disturbed vegetation at the Ardenwood Park and Ride or at other areas outside of the UPRR</td></tr>
</table>

<table>
<tr><th>Mitigation Measure</th><th>Mitigation Measure Description</th></tr>
<tr><td></td><td>ROW that would be affected by station construction. The landscape plan would include, at a minimum, the following measures:<ul><li>Shade trees and groundcovers at proposed surface parking lot, along the accessible walkways connecting south pedestrian overcrossing with the station, Dumbarton Court, and Overlake Place to improve aesthetics and to provide shade;</li><li>Use of the City of Fremont's Landscape Development Requirements for all areas within the City's jurisdiction (City of Fremont 2019);</li><li>Station entry plaza landscaping;</li><li>Use of drought tolerant plant species and avoidance of invasive plant species</li><li>Mixed landscape plantings to provide multi-season visual interest, while maintaining clear identification and visibility of the station for the public;</li><li>Irrigation design and maintenance program to support landscaping and minimize takeover by invasive species</li></ul></td></tr>
<tr><td>MM AES-5: Aesthetic Plan for Proposed Bridge Structures</td><td>During final design, CCJPA will develop an aesthetic plan for proposed Project bridges that would replace single-track bridge structures with double-track bridge structures or where new bridges would be constructed adjacent to an existing bridge on the same roadway or waterway. The new bridge structures would match the height and aesthetic treatments of the existing bridge structures.
<table>
<tr><th>Proposed Structure</th><th>Height</th><th>Color and Surface Finish</th></tr>
<tr><td>Alameda Creek bridge</td><td>Match existing Alameda Creek bridges removed as part of the proposed Project</td><td>Natural steel, CCJPA-approved</td></tr>
<tr><td>Lowry Road double-track bridge</td><td>Match existing Lowry Road bridge adjacent to the proposed bridge</td><td>Natural steel, CCJPA-approved</td></tr>
<tr><td>Crandall Creek double-track bridge or culvert</td><td>Approximately match existing Crandall Creek bridges removed as part of the proposed Project</td><td>Natural steel, CCJPA-approved</td></tr>
</table></td></tr>
<tr><td>MM AES-6: Aesthetic Plan for Proposed Structural Features</td><td>During final design, CCJPA will develop an aesthetic plan for the coated new, relocated, and/or replaced ancillary features, fencing, and railings proposed along the proposed Project corridor, but outside of the UPRR ROW. The Aesthetic Plan will consider, but not be limited to, the following:</td></tr>
</table>

<table>
<tr><th>Mitigation Measure</th><th>Mitigation Measure Description</th></tr>
<tr><td></td><td>
<ul>
<li>Coloring or shading ancillary features a shade that would be two to three shades darker than the general surrounding area using the prescribed color palette from U.S. Department of the Interior, Bureau of Land Management with a finish to reduce the potential glare;</li>
<li>Coloring and texturizing ancillary features within or adjacent to the UPRR right of way, such as signal equipment, safety gates, signal houses, and pavement markings, to be in accordance with UPRR requirements for consistency throughout the corridor;</li>
<li>Constructing any new fences within the UPRR right-of-way to be in accordance with UPRR or CCJPA requirements. The existing fences affected by the proposed Project outside of the UPRR ROW will be replaced in kind or with black powder coated chain link fences or high-security fences, as determined by CCJPA;</li>
<li>Cable railing to be used to maintain corridor-wide railing design consistency and not to block scenic vistas where applicable.</li>
</ul>
</td></tr>
<tr><td>MM AES-7: Aesthetic Plan for Ardenwood Station Structures, Pedestrian Overcrossings, Grade Separated Structures, Retaining Walls, and Bridges</td><td>
During final design, CCJPA will develop an aesthetic plan for new structures with high visibility from SR 84, Industrial Parkway, and Alameda Creek Regional Trail (Table 3.2-3). Aesthetic design treatments will consider, but not be limited to, the following:
<ul>
<li>Selecting colors and textures to recede into views to reduce the overall apparent scale of the proposed structures. Use of earth-toned colors, such as light buff/tan or light gray colors to compliment the surrounding vegetation and provide a subtle foreground to surrounding scenic vistas. Using roughened surfaces to provide visual texture, reduce glare, and deter graffiti;</li>
<li>During design, considering the aesthetics of similar local structures to complement the existing cultural and natural landscape and adhering to the local city or county jurisdictional regulations pertaining to aesthetics;</li>
<li>Complying with UP requirements for railroad structures related to structural design and post-construction access to all facilities for inspections during operations;</li>
<li>Incorporating aesthetics along the rail corridor for new, modified, or relocated retaining walls to correspond with existing retaining walls nearby or at the original locations, to the extent allowable by UPRR rail standards.</li>
</ul>
<table>
<tr><th>Proposed Structure</th><th>Aesthetic Design Treatments</th></tr>
<tr><td>Ardenwood Station Plaza and platforms</td><td>Design structure in a manner that provides a welcoming feel and a sense of arrival to the viewer groups<br><br>Incorporate Crime Prevention Through Environmental Design principles in the design</td></tr>
</table>
</td></tr>
</table>

| Mitigation Measure | Mitigation Measure Description | |
|---|---|---|
| | | Incorporate design elements and/or public art reflective of community aesthetics in coordination with the City of Fremont<br><br>Select structure color and texture to be consistent with the surrounding built environment<br><br>Design railings to be visually transparent to soften the mass of the structure |
| | **Ardenwood Station north overcrossing** | To the extent possible, design overcrossing as a gateway element and incorporate design features reflective of the City of Fremont community aesthetics in coordination with the City<br><br>Select structure color and texture to be consistent with the surrounding built environment<br><br>Design railings to be visually transparent to soften the mass of the structure |
| | **Ardenwood Station south overcrossing** | To the extent possible, design overcrossing as a gateway element and incorporate design features reflective of City of Newark community aesthetics<br><br>Select structure color and texture to be consistent with the surrounding built environment<br><br>Design railing to be visually transparent to soften the mass of the structure |
| | **Retaining Walls** | Add texture to concrete. Add cap to retaining walls. |
| | **Lowry Road double-track bridge** | Concrete texture on abutments |

| Mitigation Measure | Mitigation Measure Description |
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| | **Crandall Creek double-track bridge or culvert** — Concrete texture on abutments |
| **MM AES-8: Lighting Plan** | During final design, CCJPA will develop a lighting plan for the proposed Project to minimize light trespassing and glare. The lighting plan will consider, but not be limited to, the following:<br>• Lighting design will comply with the Engineering Society's design guidelines. Lighting fixtures and lighting control systems will conform to the International Dark-Sky Associations' Fixture Seal of Approval program.<br>• Downcast cut-off type fixtures that direct light only toward objects requiring illumination and shields will be used where needed to minimize light pollution. Shielding for lights in parking lots, along pathways, and station platforms will be used to minimize off-site light spillage, ambient light glow, and glare.<br>• Lights will be installed at the lowest allowable height to cast low angle illumination that minimizes incidental light spill onto adjacent properties and open spaces or backscatter into the nighttime sky. Lights will be screened and directed away from adjacent uses to the highest degree possible.<br>• The lowest allowable illuminance level and intensity feasible will be used for security, safety, and personnel access. The number of nighttime lights will be minimized to the extent feasible.<br>• Non-glare finishes will be applied to light fixtures to avoid reflective daytime glare. Energy efficient design with daylight sensors or timed with an on/off program will be used. Aesthetically pleasing light color and fixture types will be selected.<br>• Note that railroad and traffic signals are subject to operational and regulatory requirements and may not meet this mitigation measure. |
| **MM AQ-1: Implement Advanced Emissions Controls for Off-Road Equipment** | CCJPA will require all off-road equipment greater than 25 horsepower have engines that meet or exceed either U.S. EPA or CARB Tier 4 final off-road emission standards. |
| **MM AQ-2: Implement Advanced Emissions Controls for Locomotives Used for Construction** | CCJPA will require all diesel-powered locomotives used for construction to have engines that meet or exceed either U.S. EPA or CARB Tier 4 locomotive emission standards. |
| **MM BIO-1: Implement Biological Resources Protection Measures during Construction** | • CCJPA will implement the following measures during construction to minimize direct and indirect impacts on special-status species.<br>• Prior to the commencement of construction, CCJPA will designate a CDFW-approved Project Biologist who has familiarity with special-status plant and wildlife species with the potential to be impacted by the Project. The Project Biologist will be responsible for |

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| | overseeing compliance with protective measures for biological resources during vegetation clearing and work activities within and adjacent to areas of special-status species habitat. The Project Biologist will be familiar with the local habitats, plants, and wildlife, and will maintain communications with the contractor to ensure that issues relating to biological resources are appropriately and lawfully managed. The Project Biologist may designate qualified biologists or biological monitors to help oversee Project compliance or conduct preconstruction surveys for special-status species. These biologists will have familiarity with the species for which they will be conducting preconstruction surveys or monitoring during construction activities.<br>• The Project Biologist or qualified biologist shall review final plans, designate areas that need temporary fencing measures to identify ESAs (e.g. fencing or flagging), and monitor construction activities within and adjacent to areas with native vegetation communities or special-status plant and wildlife species and their habitats. The qualified biologist shall monitor activities within designated areas during critical times such as vegetation removal, initial ground-disturbing activities, and the installation of BMPs and fencing to protect native species. The qualified biologist will also track Project wildlife and regulatory agency permit requirements, conservation measures, and general avoidance and minimization measures are properly implemented and followed. The qualified biologist shall check construction barriers or exclusion fencing and shall provide corrective measures to the contractor to ensure that the barriers or fencing are maintained throughout construction.<br>• The qualified biologist will have the authority to stop work if a special-status wildlife species is encountered within or adjacent to the proposed Project footprint during construction. The Project Biologist or qualified biologist will request that the resident engineer halt work within 100 feet of the encounter (or within an appropriate distance, as determined by the Project Biologist or qualified biologist) and confer with CCJPA to confirm proper implementation of species and habitat protection measures. Construction activities shall cease until the Project Biologist or qualified biologist determines that the animal will not be harmed or that it has left the construction area on its own. The Project Biologist will report any encounters or other non-compliance issue(s) to CCJPA: CCJPA will notify the appropriate regulatory agency(is) within 24 hours of the occurrence.<br>• Prior to the start of construction, all Project personnel and contractors who will be on site during construction will complete mandatory training conducted by the Project Biologist or a designated qualified biologist. Any new Project personnel or contractors that come on board after the initiation of construction shall also be required to complete the mandatory Worker Environmental Awareness Program training before they commence with work. The training will advise workers of potential impacts on special-status vegetation communities and special-status species, and the potential penalties for impacts on such |

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| | vegetation communities and species. At a minimum, the training will include the following topics:<br>• occurrences of special-status species and special-status vegetation communities in the Project area (including vegetation communities subject to USACE, CDFW, and RWQCB jurisdiction)<br>• the purpose for resource protection<br>• sensitivity of special-status species to human activities<br>• protective measures to be implemented in the field, including strictly limiting activities, vehicles, equipment, and construction materials to the fenced to avoid special-status resource areas in the field (i.e., avoided areas delineated on maps or on the Project site by fencing)<br>• environmentally responsible construction practices<br>• the protocol to resolve conflicts that may arise at any time during the construction process.<br>• reporting requirements and procedures to follow should a special-status species be encountered during construction; and,<br>• avoidance and minimization measures designed to reduce the impacts on special-status species.<br>• The training program will include color photos of special-status species and special-status vegetation communities. Following the education program, the photos shall be posted in the contractor and resident engineer's office, where the photos will remain throughout the duration of Project construction. Photos of the habitat in which special-status species are found will be posted onsite.<br>• The contractor will be required to provide CCJPA with evidence of the employee training (e.g., a sign-in sheet) on request. Project personnel and contractors will be instructed to immediately notify the Project Biologist or designated biologist of any incidents that could affect special-status vegetation communities or special-status species and incidents that could include fuel leaks or injury to any wildlife. The Project Biologist will notify CCJPA of any incident and CCJPA will notify the appropriate regulatory agency within 24 hours of notification.<br>• The Project Biologist will monitor the Project site immediately prior to and during construction to identify the presence of invasive weeds and will recommend measures to avoid their inadvertent spread in association with the proposed Project. Such measures will include inspection and cleaning of construction equipment and use of eradication strategies. All heavy equipment will be washed and cleaned of debris prior to entering special-status species habitats to minimize the spread of invasive weeds.<br>• At least ten days prior to initiating construction, the Contractor will submit to CCJPA proposed plans for ESA fencing/flagging and initial clearing and grubbing of the proposed |

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| | Project footprint at that segment. Following implementation of CCJPA-approved delineation plan for ESA's and construction at that segment, CCJPA will submit final plans for initial clearing and grubbing of the proposed Project footprint to the appropriate regulatory agencies for approval; these plans will also identify locations of established ESA protections and will include photographs that show the fenced and flagged ESA limits and all areas to be impacted or avoided, including perimeter fencing and flagging.<br>• All native or special-status plant or wildlife habitat within and adjacent to the designated Project footprint will be designated as ESAs on Project maps. Following CCJPA approval of final plans for ESA fencing and flagging, and initial clearing and grubbing, and prior to construction, the Contractor will delineate the proposed Project footprint, including construction, staging, lay-down, and equipment storage areas, and establish construction boundaries, with fencing, along the perimeter of the identified construction area to protect adjacent special-status wildlife habitats and special-status plant populations. In areas where fencing cannot be installed, other means of identifying the ESA can be used, such as flagging or paint. ESAs within and adjacent to the proposed Project footprint will be clearly delineated with fencing or flagging prior to construction to inform construction personnel where the ESAs are located. ESAs fencing may include orange plastic snow fence, orange silt fencing, or stakes and flagging in areas of flowing water. No personnel, equipment, or debris will be allowed within the ESAs. The Contractor will install fences in a manner that does not impact habitats to be avoided and such that it is clearly visible to personnel on foot or operating heavy equipment. Delineations will be approved by the Project Biologist or qualified biologist prior to any ground disturbance. If work inadvertently occurs beyond the flagged or demarcated limits of impact, all work will cease until the problem has been remedied to the satisfaction of CCJPA and the appropriate regulatory agencies. Temporary construction fences, flagging, and markers will be maintained in good repair by the Contractor throughout the duration of work at that segment, and will be removed upon completion of proposed Project construction at that segment.<br>• No work activities, materials or equipment storage or access will be permitted outside the proposed Project footprint. All parking and equipment storage by the contractor related to the Project will be confined to the proposed Project footprint. Areas outside and adjacent to the proposed Project footprint will not be used for parking or equipment storage. Project-related vehicle traffic will also be restricted to the proposed Project footprint and established roads and construction access points.<br>• When nighttime activities are required, then workers will direct all lights for nighttime lighting into the work area and will minimize the lighting of natural habitat areas adjacent to the work area. The contractor will use light glare shields to reduce the extent of illumination. If the work area is located near surface waters, the lighting will be shielded such that it does not shine directly into the water. |

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| | • Vegetation clearing will be confined to the minimal area necessary to facilitate construction activities. Cleared vegetation and spoils will be disposed of daily at a permanent offsite disposal facility or at a temporary onsite location that will not create habitat for special-status wildlife species. Spoils and dredged material will be disposed of at an approved site or facility in accordance with all applicable federal, state, and local regulations.<br>• All garbage will be disposed of in wildlife-proof containers and will be removed from the Project area daily during the construction period. Vehicles carrying trash will be required to have loads covered and secured to prevent trash and debris from falling onto roads and adjacent properties.<br>• Construction equipment used for the proposed Project will be maintained in accordance with manufacturer's recommendations and requirements and will be maintained to comply with noise standards (e.g., exhaust mufflers, acoustically attenuating shields, shrouds, or enclosures).<br>• The Contractor will store all construction-related vehicles and equipment in the designated staging areas. These areas will not contain native or sensitive natural communities and will not provide habitat for special-status plant or wildlife species.<br>• The Contractor will avoid wildlife entrapment by completely covering or providing escape ramps for all excavated steep-walled holes or trenches that are more than 1 foot deep at the end of each construction workday. The qualified biologist will inspect open trenches and holes and will remove or release any trapped wildlife found in the trenches or holes prior to being refilled by the construction contractor.<br>• Wildlife species can be attracted to den-like structures and may enter stored materials or equipment and become trapped or injured. All construction pipes, culverts, or similar features; construction equipment; or construction debris left overnight in areas that may be occupied by wildlife species that could occupy such structures will be inspected by a qualified biologist prior to being used for construction. Such inspections will occur at the beginning of each day's activities for those materials to be used or moved that day. If necessary, and under the direct supervision of the qualified biologist, the structure may be moved up to one time to isolate it from construction activities, until the wildlife species has moved from the structure of their own volition, has been captured and relocated, or has otherwise been removed from the structure.<br>• Capture and relocation of trapped or injured special-status wildlife species will only be performed by personnel with appropriate state and/or federal permits. CCJPA and resource agencies will be notified by biologists within 24 hours of discovery of injury to or mortality of a special-status species that results from Project-related construction activities or is observed at the construction site. Notification will include the date, time, and location |

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| | of the incident or of the discovery of an individual special-status species that is dead or injured. For a special-status species that is injured, general information on the type or extent of injury will be included. The location of the incident will be clearly indicated on a USGS 7.5-minute quadrangle and/or similar map at a scale that will allow others to find the location in the field, or as requested by resource agencies. A follow-up report will be prepared for governing regulatory agencies, including dates, locations, habitat description, and any corrective measures taken to protect special-status species encountered. Any general sightings (no injury or mortality) will be recorded per monitoring requirements. For each special-status species encountered, the biologist will submit a completed CNDDB field survey form (or equivalent) to CDFW no more than 90 days after completing the last field visit to the Project site.<br>• The spread of dust from work sites to sensitive natural communities or habitats for special-status plant or wildlife species on adjacent lands will be minimized by use of a water truck. During dry conditions, dirt access roads, haul roads, and spoils areas will be watered at least twice each day when being used during construction.<br>• The Contractor will strictly limit their activities, vehicles, equipment, and construction materials to established roads and the proposed Project footprint limits. Posted speed limit signs on local roads and a 15 mile-per-hour speed limit along access and haul routes will be observed. Extra caution will be used when special-status reptile species may be basking on roads.<br>• To avoid injury or death to wildlife, no firearms will be allowed on the Project site except for those carried by authorized security personnel or local, state, or federal law enforcement officials.<br>• To prevent harassment, injury, or mortality of special-status wildlife species by dogs or cats, no canine or feline pets of workers will be permitted in the construction area.<br>• Plastic monofilament netting or similar material will not be used for erosion control because smaller wildlife may become entangled or trapped in it. Acceptable substitutes include coconut coir matting or tackifier hydroseeding compounds. This limitation will be communicated to the contractor through specifications or special provisions included in the construction bid solicitation package.<br>• Rodenticides and herbicides will be used in accordance with the manufacturer recommended uses and applications, and in such a manner as to prevent primary or secondary poisoning of special-status fish and wildlife species and depletion of prey populations or vegetation upon which they depend. All uses of such compounds will observe label and other restrictions mandated by the U.S. Environmental Protection Agency, the California Department of Pesticide Regulation, and other appropriate state and federal regulations. |

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| | • Hazardous materials and equipment stored overnight, including small amounts of fuel to refuel handheld equipment, will be stored within secondary containment at least 50 feet from open water to the fullest extent practicable.<br>• The Contractor will be required to conduct vehicle refueling in upland areas where fuel cannot enter Waters of the U.S. or Waters of the State, and in areas that do not have suitable habitat to support special-status species. Any fuel containers, repair materials including creosote treated wood, and/or stockpiled material that is left onsite overnight will be secured in secondary containment within the construction work area or a staging area, and covered with plastic at the end of each workday.<br>• In the event that no activity is to occur in the work area for the weekend and/or a period of time greater than 48 hours, the Contractor will remove all portable fuel containers from the Project site or place them within a secured container.<br>• Equipment and containers will be inspected daily for leaks. Should a leak occur, contaminated soils and surfaces will be cleaned up and disposed of following the guidelines identified in the Stormwater Pollution Prevention Plan (SWPPP), Materials Safety Data Sheets, and any specifications required by other permits issued for the Project.<br>• If maintenance of equipment must occur onsite, fuel/oil pans, absorbent pads, or appropriate containment will be used to capture spills/leaks. Where feasible, maintenance of equipment will occur in upland areas where fuel cannot enter WOUS or WOS and in areas that do not have suitable habitat to support special-status species. |
| **MM BIO-2: Rare Plant Pre-construction Surveys** | At least one year prior to initial ground disturbance and during the appropriate blooming period (June through November), a focused survey for rare plants, including Congdon's tarplant and California seablite, will be conducted by a qualified plant ecologist within suitable habitat in the proposed Project footprint (e.g., areas of ruderal grassland, estuarine, and saline emergent wetland habitat) and a 50-foot buffer around the identified suitable habitat. This buffer may be increased by the qualified plant ecologist depending on site-specific conditions and activities planned in the area but must be at least 50 feet wide for permanent impacts. Situations for which a greater buffer may be required include proximity to proposed activities expected to generate large volumes of dust that cannot be effectively mitigated, such as grading; potential for Project activities to alter hydrology supporting the habitat for the species; or proximity to proposed structures that may shade areas farther than 50 feet away. The purpose of the survey will be to assess the presence or absence of Congdon's tarplant and California seablite. If the target species are not found in the impact area or the identified buffer, then no further mitigation will be warranted. If Congdon's tarplant and/or California seablite are observed on or in proximity to the proposed Project site, or during Project surveys, CCJPA will submit California Natural Diversity Data Base (CNDDB) forms and maps to the CNDDB |

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| | within five working days of the sightings. In addition, if California seablite is found, consultation with USFWS would be required. |
| **MM BIO-3: Rare Plant Avoidance Buffers** | To the extent feasible, and in consultation with a qualified plant ecologist and USFWS, CCJPA and/or its contractors will design and construct the Project to avoid and minimize impacts on all populations of Congdon's tarplant and California seablite within the proposed Project footprint or within the identified buffer of the impact area. Avoided Congdon's tarplant and California seablite populations will be protected by establishing and enforcing ESAs with fencing and appropriate signage between plant populations and the impact area. If a reduced buffer is needed for temporary impacts, the qualified plant ecologist will work with the Project construction team to minimize temporary indirect impacts (e.g., watering of construction areas periodically during construction to minimize dust mobilization). All such populations located in the impact area or the identified buffer, and their associated designated avoidance areas, will be clearly depicted on any construction plans. In addition, prior to initial ground disturbance or vegetation removal, the limits of the identified buffer around Congdon's tarplant and California seablite individuals to be avoided will be marked in the field (e.g., with flagging, fencing, paint, or other means appropriate for the site). This marking will be maintained intact and in good condition throughout project-related construction activities.<br>• If more than 10 percent of a population of Congdon's tarplant (by occupied area or individuals) would be impacted as determined by a qualified plant ecologist, then Mitigation Measure MM BIO-4 will be implemented.<br>• If complete avoidance of California seablite is not feasible, then Mitigation Measure MM BIO-4 will be implemented. |
| **MM BIO-4: Rare Plant Mitigation/Habitat Mitigation Management Plan** | If avoidance of more than 10 percent of the existing Congdon's tarplant is not feasible, and complete avoidance of California seablite individuals and/or populations is not feasible, CCJPA will consult relevant regulatory agency(ies) (e.g. CDFW/USFWS) regarding compensatory mitigation to be provided via the preservation, enhancement, and management of occupied habitat for the species, or the creation and management of a new population, or as directed by CDFW/USFWS.<br>• To compensate for impacts on Congdon's tarplant, off-site habitat occupied by the species will be preserved and managed in perpetuity at a minimum 1:1 mitigation ratio (at least one plant preserved for each plant affected, and at least one occupied acre preserved for each occupied acre affected), for any impact over the 10 percent significance threshold. Alternately, seed from the population to be impacted may be harvested and used either to expand an existing population (by a similar number/ |

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| | occupied area to compensate for impacts to Congdon's tarplant beyond the 10 percent significance threshold) or establish an entirely new population in suitable habitat.<br>• Areas proposed to be preserved as compensatory mitigation for impacts on Congdon's tarplant and/or California seablite must contain verified extant populations of the species, or in the event that enhancement of existing populations or establishment of a new population is selected, the area must contain suitable habitat for the species as identified by a qualified plant ecologist. Mitigation will be achieved through a combination of in-kind creation, restoration, and/or enhancement as determined to be appropriate through consultation with the resource agencies. Mitigation will first be considered onsite, then with an approved mitigation bank, and thirdly through offsite mitigation. The appropriate permit applications will be submitted to state and federal regulatory agencies. The permits issued by these agencies will finalize the mitigation requirements.<br>A habitat mitigation and monitoring plan (HMMP) will be developed and implemented for the mitigation lands. That plan will include, at a minimum, the following information:<br>• A summary of habitat impacts and the proposed mitigation;<br>• A description of the location and boundaries of the mitigation site and description of existing site conditions;<br>• A description of measures to be undertaken to enhance (e.g., through focused management that may include removal of invasive species in adjacent suitable but currently unoccupied habitat) the mitigation site for Congdon's tarplant and California seablite;<br>• A description of measures to transplant individual plants or seeds from the impacted area to the mitigation site, if appropriate (which will be determined by a qualified plant or restoration ecologist);<br>• Proposed management activities to maintain high-quality habitat conditions for Congdon's tarplant and California seablite;<br>• A description of habitat and species monitoring measures on the mitigation site, including specific, objective final and performance criteria, monitoring methods, data analysis, reporting requirements, monitoring schedule, etc. At a minimum, performance criteria will include demonstration that any plant population fluctuations over the monitoring period of a minimum of five years for preserved populations and a minimum of 10 years for enhanced or established populations do not indicate a downward trajectory in terms of reduction in numbers and/or occupied area for the preserved mitigation population that can be attributed to management (e.g., that are not the result of local weather patterns, as determined by monitoring of a nearby reference population, or other factors unrelated to management); |

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| | • If a new population is established, the new population must contain at least 200 individuals or the same number of impacted individuals, whichever is greater, by year five. This is to ensure the created population will be large enough to expect to persist and gain sufficient dedicated pollination services. If year five is a poor weather year for summer and fall-blooming annual plants and reference populations show a decline, this criteria can be measured in the next year occurring with average or better rainfall; and<br>• Contingency measures for mitigation elements that do not meet performance criteria.<br>The HMMP will be prepared by a qualified plant or restoration ecologist. CDFW and USFWS approval of the HMMP will be required before Project impacts on Congdon's tarplant or California seablite occur. |
| **MM BIO-5: Monarch Butterfly Avoidance** | Prior to construction, CCJPA will ensure that a qualified biologist will conduct a pre-construction survey for overwintering monarchs or milkweed plants within 50 feet of the Project . If overwintering monarchs are found to be present in any tree within 50 feet of any disturbance area or milkweed is found within 50 feet of any disturbance area during the pre-construction survey, the following guidelines will also be implemented:<br>• The tree and/or milkweed will be mapped, delineated with ESA fencing, and avoided;<br>• The modification and/or minimizing of herbicide usage to promote growth of milkweed and flowering plants outside of UPRR ROW; and<br>• Use local seed mixes that include a variety of flowering plants and milkweed. |
| **MM BIO-6: Bumble Bee Pre-construction Surveys** | Within one year prior to construction, CCJPA will perform a habitat assessment for Crotch's and western bumble bee be conducted within the proposed Project footprint and an appropriate survey buffer be established by a qualified biologist with experience surveying for and observing Crotch's and western bumble bee. If the qualified biologist determines that suitable habitat is present, surveys will be conducted to determine the presence/absence of Crotch's and western bumble bee. Surveys will be conducted during flying season when the species are most likely to be detected above ground, between March 1 to September 1. Survey results, including negative findings, will be submitted to the CDFW prior to implementing Project-related ground-disturbing activities and/or vegetation removal where there may be impacts to Crotch's and/or western bumble bee. At minimum, a survey report will provide the following:<br>• A description and map of the survey area, focusing on areas that could provide suitable habitat for Crotch's and/or western bumble bee;<br>• Field survey conditions including name(s) of qualified entomologist(s) and brief qualifications; date and time of survey; survey duration; general weather conditions; survey goals, and species searched; |

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| | • Map(s) showing the location of nests/colonies; and,<br>• A description of physical (e.g., soil, moisture, slope) and biological (e.g., plant composition) conditions where each nest/colony is found, a sufficient description of biological conditions, primarily impacted habitat, will include native plant composition (e.g., density, cover, and abundance) within impacted habitat (e.g., species list separated by vegetation class; density, cover, and abundance of each species).<br>If the target species is not found in the impact area, then no further mitigation will be warranted. If Crotch's bumble bee or western bumble bee individuals are found within the survey area, then Mitigation Measure MM BIO-7 will be implemented. |
| **MM BIO-7: Bumble Bee CESA Section 2080 Coordination** | If a qualified biologist determines Crotch's and/or western bumble bees are present within the proposed Project footprint, CCJPA will develop a plan to minimize impacts to Crotch's and western bumble bee be developed in consultation with a qualified entomologist during final design. The plan will include effective, specific, enforceable, and feasible measures. An avoidance plan will be submitted to CDFW prior to implementing Project-related ground-disturbing activities and/or vegetation removal where there may be impacts to Crotch's and/or western bumble bee. If Crotch's and/or western bumble bees are determined to be present within the proposed Project footprint and it is determined the species will be impacted by Project implementation, appropriate mitigation will be determined in consultation with CDFW.<br>If Crotch's and/or western bumble bee is detected during the survey, and if impacts to Crotch's and/or western bumble bee cannot be feasibly avoided during proposed Project construction and activities, CCJPA and a designated qualified entomologist will coordinate with CDFW to obtain appropriate permit for incidental take of Crotch's and/or western bumble bee prior to commencement of Project activities in habitat occupied by the bumble bees. The incidental take permit will quantify and provide appropriate mitigation for impacts on Crotch's and/or western bumble bee habitat. Mitigation for impacts to Crotch's and/or western bumble bee habitat would be at a ratio comparable to the Project's level of impacts. |
| **MM BIO-8: Steelhead and Green Sturgeon Work Window** | In-water work within and over Alameda Creek will be restricted to a seasonal window when surface water flows are lowest, and steelhead and green sturgeon are least likely to be present. The specific work windows will be in accordance with the terms of the NMFS Programmatic Biological Opinion (June 15 to October 15) and as determined during NMFS consultation, if warranted. |
| **MM BIO-9: Dewatering and Aquatic Species Relocation Plan** | Prior to any construction activities that could occur in Alameda Creek when flowing water is present, CCJPA will prepare a water diversion/dewatering and aquatic species relocation plan. The plan will be submitted to the Regional Water Quality Control Board (RWQCB), California |

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| | Department of Fish and Wildlife (CDFW), United states Fish and Wildlife Service (USFWS), and the National Marine Fisheries Service (NMFS) for review and concurrence. The plan will include but not be limited to the following:<br>• Detailed qualifications for approved fish biologist to monitor in-water construction activities and ensure implementation of Dewatering and Aquatic Species Relocation Plan;<br>• Detailed methods for cofferdam or other barrier placement and dewatering;<br>• Methods and best management practices for the relocation of special status fish and other aquatic species to appropriate suitable habitat; and<br>• If in-water pile driving activities are required, the Technical Guidance for Assessment and Mitigation of the Hydroacoustic Effects of Pile Driving on Fish developed and released by Caltrans in November 2015 will be the basis for avoidance and minimization measures. |
| **MM BIO-10: Steelhead and Green Sturgeon Habitat Replacement** | Prior to construction activities, CCJPA will coordinate with the National Marine Fisheries Service (NMFS) to determine mitigation ratios for permanent impacts on Central California Coast Distinct Population Segment steelhead habitat and green sturgeon (Southern DPS) critical habitat. Mitigation will include on-site restoration, in-lieu fee payment, purchase of mitigation credits at a NMFS-approved mitigation bank, or as defined by NMFS as part of consultation. |
| **MM BIO-11: Western Pond Turtle Pre-construction Surveys** | A CDFW approved qualified biologist will conduct a pre-construction survey for western pond turtle prior to any proposed ground disturbing activities occurring within 350 feet of Alameda Creek, and the proposed Project footprint. The survey area will include all disturbance areas within 350 feet of water line, all habitat between the disturbance areas and the water line, and the edge of Alameda Creek and the percolation ponds. In areas of suitable habitat, the qualified biologist will conduct a pre-construction survey for the species within 48 hours prior to construction activities before construction equipment mobilizes to the proposed Project footprint. If any pond turtles or their nests are found, the biologist will prepare a relocation plan and submit it to the California Department Fish and Wildlife (CDFW) for written acceptance prior to starting Project activities, and then implement the plan. A pond turtle habitat improvement plan will also be prepared and implemented if required by CDFW. Construction activities will avoid all pond turtles and their nests including an appropriate buffer as determined by the CDFW approved qualified biologist. |
| **MM BIO-12: Nesting Migratory Birds, Special-Status Birds, and Raptor Pre-construction Surveys** | CCJPA and its contractors will conduct vegetation removal, where required to construct Project features, during the non-breeding season for migratory birds and raptors (generally between September 16 and January 14) to the extent feasible. If construction activities occur between |

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| | January 15 and September 15, a qualified biologist will conduct a preconstruction survey (within seven days prior to construction activities) to determine whether any active bird nests are present and, if so, identify their locations. The results of the surveys will be submitted to CCJPA (and made available to the wildlife agencies [USFWS/CDFW], upon request) prior to initiation of any construction activities. Should nesting birds be found, exclusionary buffers will be determined by a qualified biologist. Project activity will not commence within the buffer areas until a qualified biologist has determined that the young have fledged, the nest is no longer active, or reducing the buffer would not result in nest abandonment. The size of the buffer may be adjusted if a qualified biologist and CCJPA determine that such an adjustment would not be likely to adversely affect the nest. The qualified biologist will monitor the active nest during construction to confirm that the buffer is adequate and will document and provide notification when the nest has fledged or failed. Consultation with CDFW may be required if species of state-listed special concern, or fully protected species are observed. |
| **MM BIO-13: Burrowing Owl Habitat Assessment** | Prior to the start of construction activities, CCJPA will retain a qualified biologist to conduct a focused burrowing owl habitat assessment in areas of ruderal and grassland habitat within the proposed Project footprint in accordance with the methodologies outlined in the California Department of Fish and Wildlife's (CDFW's) 2012 Staff Report on Burrowing Owl Mitigation. If burrowing owls or the presence of suitable burrows are detected during the burrowing owl habitat assessment, the qualified biologist, in coordination with CCJPA and CDFW, will implement avoidance, minimization, and mitigation methodologies outlined in CDFW's 2012 Staff Report on Burrowing Owl Mitigation prior to initiating Project-related activities that may impact burrowing owls or burrowing owl habitat. |
| **MM BIO-14: Salt Marsh Harvest Mouse Avoidance** | Salt marsh harvest mouse (SMHM) will be assumed present within the proposed Project footprint; therefore, the following measures below would be implemented:<br>• A barrier will be installed at limits of the construction work area to exclude SMHM from the construction area:<br>i. This exclusionary barrier, which will be shown on the Project plans and will be constructed and installed under the guidance of a biologist qualified to survey for SMHM (must meet permit requirements and be approved by USFWS), will consist of a three-foot tall, tight cloth, smooth plastic, or sheet-metal (or similar material approved by the USFWS) fence toed into the soil at least 3 inches deep and supported with stakes placed on the inside of the barrier;<br>ii. A qualified biologist will conduct a preconstruction survey of the area every morning, prior to construction activities commencing for the day; |

| Mitigation Measure | Mitigation Measure Description |
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| | iii. The qualified biologist will monitor the installation of the exclusionary barrier and will remain on site to monitor all work performed adjacent to SMHM ESAs;<br>iv. Any excavations or open trenches in or adjacent to SMHM habitat will either be backfilled or closed at the end of the construction day, or escape ramps will be provided;<br>v. Following the installation of the exclusionary barrier, the qualified biologist will check its integrity each morning that construction activities occur and will have construction personnel initiate repairs, under the supervision of a qualified biologist immediately as needed. |
| **MM BIO-15: Salt Marsh Harvest Mouse Immediate Work Stoppage** | If a salt marsh harvest mouse or an animal that could be a harvest mouse (e.g., a similar species of mouse), is observed within the work area during construction activities, all work will stop immediately, and the qualified biologist will be immediately notified. The animal will be allowed to leave the area on its own and will not be handled. |
| **MM BIO-16: Bat Habitat Suitability Assessment and Surveys** | A qualified and CDFW-approved bat biologist will survey potentially suitable structures and vegetation during bat maternity season, prior to construction, to assess the potential for the structures' and vegetation's use for bat roosting and bat maternity roosting, as maternity roosts are generally formed in spring. The qualified bat biologist will also perform preconstruction surveys or temporary exclusion within 2 weeks prior to construction, as bat roosts can change seasonally. These surveys will include a combination of structure inspections, exit counts, and acoustic surveys.<br>If a roost is detected, a bat management plan will be prepared if it is determined that Project construction would result in direct impacts on roosting bats. The bat management plan will be submitted to California Department Fish and Wildlife (CDFW) prior to implementation and include appropriate avoidance and minimization efforts such as:<br>• Temporary Exclusion. If recommended by the qualified bat biologist, to avoid indirect disturbance of roosting bats adjacent to construction activities, temporary bat eviction and exclusion devices will be installed under the supervision of a qualified and permitted bat biologist prior to the initiation of construction activities. Eviction and subsequent exclusion will be conducted during the fall (September or October) to avoid trapping flightless young bats inside during the summer months or hibernating/overwintering individuals during the winter. Such exclusion efforts are dependent on weather conditions, take a minimum of 2 weeks to implement, and must be continued to keep the structures free of bats until the completion of construction. All eviction and/or exclusion techniques will be coordinated between the qualified bat |

| Mitigation Measure | Mitigation Measure Description |
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| | biologist and the appropriate resource agencies (e.g., CDFW) if the structure is occupied by bats. If deemed appropriate, the biologist may recommend installation of temporary bat panels during construction.<br>If a roost is detected but would only be subject to indirect impacts:<br>• Daytime Work Hours. All work conducted under the occupied roost will take place during the day. If this is not feasible, lighting and noise will be directed away from night roosting and foraging areas. |
| **MM BIO-17: Compensate for the Loss of Riparian Habitat** | Prior to construction, CCJPA will ensure that permanent direct impacts on riparian habitat will be mitigated through the purchase of credits at a minimum ratio of 2:1 for native riparian habitats and a minimum ratio of 1:1 for non-native riparian habitats. This will be done through in-lieu fee payment to an appropriate mitigation bank for enhancement, restoration and/or creation of riparian habitat within approved watersheds and/or funding of a minimum 1:1 ratio of riparian habitat enhancement at approved conservation easements/mitigation banks. The final mitigation acreage will be confirmed during review of final engineering drawings and may be modified during the agency consultation process (e.g. CDFW, RWQCB, NMFS). CCJPA will provide written evidence to the resource agencies that compensation has been established through the purchase of mitigation credits. Alternatively, as part of the LSAA process, CCJPA may provide a plan/proposal for CDFW approval to conduct on or offsite riparian habitat creation/enhancement to compensate for the Project's direct riparian impacts. All riparian areas subject to temporary construction disturbance will be restored by CCJPA and its contractors in accordance with a post construction Erosion Control and Habitat Restoration Plan (ECHRP). The ECHRP will address all temporarily disturbed areas, be prepared by a qualified biologist, be developed as part of the CDFW LSAA process and be reviewed and approved by CDFW prior to implementation. |
| **MM BIO 18: Protected Trees Pre-construction Surveys** | Prior to the start of construction activities, CCJPA will retain a qualified arborist, to conduct a pre-construction survey for protected trees (e.g., all historic trees, all mature native trees, or any mature trees) that may require removal, pruning or may otherwise be impacted by the proposed Project. The pre-construction survey will identify the types, location, sizes, health of protected trees and summarize survey findings in a tree protection report. The tree protection report will be submitted to the applicable city for review and concurrence. The report will include but not be limited to the following:<br>• Recommended avoidance and impact minimization measures, replacement value, and feasibility of relocation for protected trees subject to removal.<br>• Methods and measure for relocation of protected trees to appropriate suitable habitat. |

| Mitigation Measure | Mitigation Measure Description |
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| | • Identification of which of the surveyed trees these measures apply to, and if any other tree permit requirements are necessary to comply with municipal policies and ordinances. |
| **MM BIO-19: Fish Passage Analysis** | To evaluate potential impacts to native fish species and fisheries resources, CCJPA will conduct a fish passage analysis during final Project design. The proposed Project will be designed and constructed so that it does not present a barrier to fish passage or result in operational noise exceeding 150 dB. CCJPA will coordinate with the necessary regulatory agencies, including NMFS and CDFW prior to initiating the analysis, and will consult with NMFS and CDFW during development of conceptual through the final design plans. NMFS and CDFW will be engaged for coordination during design. |
| **MM BIO-20: Salt Marsh Harvest Mouse Habitat Replacement** | Prior to construction activities, CCJPA will coordinate with the USFWS to determine mitigation ratios for impacts on SMHM. Pending consultation with USFWS, mitigation may include on-site restoration, in-lieu fee payment, purchase of mitigation credits at a USFWS-approved mitigation bank, or as defined by USFWS as part of consultation |
| **MM BIO-21: Weed Abatement Program** | Prior to the start of construction activities, CCJPA and/or its contractors will develop landscaping and erosion control plans that do not use plant species listed as invasive pursuant to Executive Order 13112 and other applicable local jurisdiction requirements. A weed abatement program will be developed and incorporated into the Plans, Specifications, and Estimates (PS&E) package to avoid and/or minimize the importation of nonnative plant material during and after construction. At a minimum, the program will include the following measures:<br>• During construction, invasive plant material will be removed from the proposed project work area. All removed invasive plant material will be disposed of properly in a landfill or other suitable facility.<br>• During construction, the construction contractor will inspect and clean construction equipment at the beginning of each day and prior to transporting equipment from one project location to another.<br>• During construction, soil and vegetation disturbance will be minimized to the greatest extent feasible.<br>• During construction, the construction contractor will ensure that all active portions of the construction site are watered a minimum of twice daily, or more often when needed, due to dry or windy conditions, to prevent excessive amounts of dust.<br>• During construction, the construction contractor will ensure that all material stockpiled is sufficiently watered or covered to prevent excessive amounts of dust. |

| Mitigation Measure | Mitigation Measure Description |
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| | • During construction, soil, gravel, and rock will be obtained from weed-free sources and only certified weed-free straw, mulch, and/or fiber rolls will be used for erosion control.<br>After construction, affected areas adjacent to native vegetation will be revegetated with plant species that are native to the vicinity as approved by CCJPA designated biologist. |
| **MM CUL-1: Temporary Construction Easement Review and Installation of a Horizontal and Vertical Environmentally Sensitive Area for P-01-011558, as appropriate** | At the 25 and 30 percent rail design phase, the need for the Temporary Construction Easement (TCE) at the location of P-01-11558 will be reviewed and if no longer needed, the TCE will be removed from the construction plans. If the TCE is still needed in the vicinity of P-01-011558, a horizontal and vertical ESA will be established to exclude project construction activities from the vicinity of P-01-011558. The method of ESA installation will be determined during the design phase and will be indicated on all plans, specifications, and estimates. The ESA will be monitored by a qualified archaeologist (meeting the minimum professional qualifications standards (PQS) set forth by the Secretary of the Interior (SOI) (codified in 36 CFR Part 61; 48 FR 44739) during any ground disturbing preconstruction or construction work in the boundaries of the TCE. |
| **MM CUL-2: Implement Archaeological Testing and Evaluation Plan** | Once the Project footprint reaches a 30 percent level of rail design and prior to the start of construction, an Archaeological Testing and Evaluation Plan (ATEP) will be implemented by a qualified archaeologist in consultation with CCJPA to support the evaluation of cultural resources.<br>The ATEP should consist of a site-specific context, research design, and field methods to evaluate known resources, and identify resource types that may be encountered within areas of high sensitivity and deep ground disturbance. This plan should include, but not be limited to:<br>• background and anticipated resource types;<br>• research questions that can be addressed by the collection of data from the defined resource types;<br>• field methods and procedures including:<br>• procedures to determine whether a buried component of a known site extends horizontally into the Project footprint;<br>• geoarchaeological trenching or coring; and<br>• cataloging and laboratory analysis.<br>The ATEP will be submitted to CCJPA and the local consulting tribal representatives for review prior to implementation. The results of the ATEP will be summarized in a technical document that will determine whether further study is necessary. The technical document will also determine whether additional mitigation will be needed. The technical document will be |

| Mitigation Measure | Mitigation Measure Description |
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| | provided to CCJPA for review and approval and submitted to the Northwest Information Center (NWIC). |
| **MM CUL-3: Installation of a Horizontal and Vertical Environmentally Sensitive Area for previously recorded and newly identified archaeological sites as appropriate** | At the 25-and 30-percent rail design phase, the Project plans will be reviewed to determine if the refinements in the project design allow for avoidance of previously recorded and additional sites identified during the archaeological testing conducted for the project. If the sites can be avoided, a horizontal and vertical ESA will be established at designated locations to exclude project construction activities from the vicinity of these sites. The method of ESA installation will be determined during design phase and will be indicated on all plans, specifications, and estimates. The ESA will be monitored by a qualified archaeologist during any ground disturbing preconstruction or construction work in the vicinity of the ESA. |
| **MM CUL-4: Draft and Implement Archaeological Monitoring, Avoidance, and Treatment Plan** | Upon completion of the archaeological testing and evaluation, and prior to the start of construction, an AMATP will be developed by a registered professional archaeologist in consultation with CCJPA and local tribal representatives. Monitoring will be required at all recorded site locations, including those proposed to be avoided by project construction.<br>The AMATP will include protocols that outline archaeological roles and monitoring best practices, anticipated resource types, and an Unanticipated Discovery Protocol. The Unanticipated Discovery Protocol will describe steps to follow if unanticipated archaeological discoveries are made during Project work and identify a chain of contact.<br>The AMATP will be submitted to consulting tribal representatives and CCJPA for review prior to implementation. Following the completion of ground disturbance associated with Project construction, the results of the archeological monitoring and avoidance pursuant to the AMATP will be summarized in a technical document. The technical document will be provided to CCJPA for review and approval and submitted to the NWIC. |
| **MM CUL-5: Tribal Monitoring** | Tribal monitoring will be required during construction activities at all recorded precontact archaeological site locations, including those proposed to be avoided by project construction. Tribal monitors will be provided a minimum of one week's advance notice prior to the commencement of ground disturbing or construction work. |
| **MM GEO-1: Paleontological Resources Mitigation Plan** | A Paleontological Resource Mitigation Plan (PRMP) will be prepared by a qualified paleontologist following Society of Vertebrate Paleontologists (SVP) guidelines and implemented during the construction phase of the Project (SVP, 2010).<br>The PRMP will include provisions for construction workers to attend a paleontological resource awareness training session. It will determine the extent to which paleontological mitigation is necessary and establishes the ground rules for the program. The PRMP will discuss fossil discovery, recovery, and subsequent handling. |

| Mitigation Measure | Mitigation Measure Description |
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| | The extent of any monitoring recommended would be dictated by the design of the proposed Project and would be determined during design by a qualified principal paleontologist (who holds a Master of Science or Doctorate degree in paleontology or geology and is familiar with paleontological procedures and techniques). The principal paleontologist would review the construction plans with proposed excavation sites to determine which, if any, Project components would involve earthmoving activities at depths sufficient to warrant monitoring. The principal paleontologist would review the construction schedule to develop the required monitoring schedule. Paleontological resources should also be discussed at the pre-bid meeting.<br>A qualified principal paleontologist would be made aware of the excavation schedule and remain on call during the period of construction specified in the PRMP. If fossils are discovered during construction, the construction crew would immediately notify the resident engineer, who would stop work within 60 feet of the finding. The resident engineer would notify the qualified principal paleontologist who would evaluate the find as soon as possible. If the resource were determined to be potentially significant, CCJPA would be notified, and a recovery program would be initiated. |
| **MM HYD-1: Balancing cut and fill and increasing flow and detention capacity** | Impacts within an existing floodplain or floodway will be mitigated by balancing cut and fill of earthwork, installing equalizer pipes to perpetuate flood flows, or implementing underground storage or add detention basins to provide more flood flow storage. |
| **MM HYD-2: Dewatering permit in case of contaminated groundwater** | If the groundwater is found to be contaminated, a dewatering permit will be obtained from the Regional Water Quality Control Board directly, or through an application with the local Sewer company. An Active Treatment Systems may be specified by the permit conditions if the quality of the groundwater warrants their use. |
| **MM NOI-1: Construction Noise Control Plan** | CCJPA, in coordination with the Construction Contractor, and local jurisdiction(s), will prepare and implement a Construction Noise Control Plan to reduce the impact of temporary construction-related noise on nearby noise-sensitive receptors. The Construction Noise Control Plan will include but not be limited to the following best practices:<br>• Install temporary construction site sound barriers near noise sources.<br>• Use moveable sound barriers at the source of the construction activity.<br>• Avoid the use of impact pile drivers where possible near noise-sensitive areas or use quieter alternatives (e.g., drilled piles) where geological conditions permit.<br>• Locate stationary construction equipment as far as possible from noise-sensitive sites.<br>• Reroute construction-related truck traffic along roadways that will cause the least disturbance to residents.<br>• Use low-noise emission equipment. |

| Mitigation Measure | Mitigation Measure Description |
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| | • Implement noise-deadening measures for truck loading and operations.<br>• Line or cover storage bins, conveyors, and chutes with sound-deadening material.<br>• Use acoustic enclosures, shields, or shrouds for equipment and facilities.<br>• Use high-grade engine exhaust silencers and engine-casing sound insulation.<br>• Minimize the use of generators to power equipment.<br>• Limit use of public address systems.<br>• Grade surface irregularities on construction sites.<br>• Monitor and maintain equipment to meet noise limits.<br>• Establish an active community liaison program to keep residents informed about construction and to provide a procedure for addressing noise complaints. |
| **MM NOI-2: Creation of Noise Quiet Zones** | Prior to the start of construction activities, CCJPA, in coordination with the appropriate local jurisdiction(s), and stakeholders, will implement a phased program considering the potential establishment of quiet zones along the corridor at all locations where train noise is predicted to exceed FTA severe impact thresholds. This phased program will include the development of engineering studies and coordination agreements to design, construct, and enforce potential quiet zones at the following grade crossings on the Coast Subdivision:<br>• Jarvis Avenue (City of Newark);<br>• Alvarado Boulevard (City of Union City);<br>• Dyer Street (City of Union City);<br>• Union City Boulevard (City of Union City):<br>• Grant Avenue (unincorporated community of San Lorenzo); and<br>• Lewelling Boulevard (unincorporated community of San Lorenzo).<br>CCJPA will consider options for establishing quiet zones including, but not limited to, the following FRA pre-approved supplemental safety measures:<br>• Four-quadrant gate system. This measure involves the installation of at least one gate for each direction of traffic to fully block vehicles from entering the crossing.<br>• Gates with medians or channelization devices. This measure keeps traffic in the proper travel lanes as it approaches the crossing, thus denying the driver the option of circumventing the gates by travelling in the opposite lane.<br>• One-way street with gates. This measure consists of one-way streets with gates installed so that all approaching travel lanes are completely blocked. This option may not be feasible or acceptable to local jurisdictions at all locations.<br>• Road closure. This measure consists of closing the road to through travel at the at-grade crossing. This option may not be feasible or acceptable to local jurisdictions at all locations. |

| Mitigation Measure | Mitigation Measure Description |
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| | In addition to these pre-approved supplemental safety measures, the FRA also identifies a range of other measures that may be used to establish a quiet zone. These could be modified supplemental safety measures or non-engineering measures which might involve law enforcement or public awareness programs. Such alternative safety measures must be approved by the FRA based on the prerequisite that they provide an equivalent level of safety as the sounding of horns.<br>This phased program will also consider the use of wayside horns as part of a quiet zone. While not avoiding the sounding of a horn, wayside horns affect a smaller area than train-mounted horn. Wayside horns can be used when the other measures above are not adequate to avoid the use of a horn.<br>If quiet zones are not feasible, CCJPA will consider the application of building sound insulation at the impacted residences at the following locations:<br>• Coast Subdivision North Section: 3 residences located on the southwest side of the existing railroad ROW between Farallon Drive and Lewelling Boulevard.<br>• Coast Subdivision North Section: 1 residence located on the northeast side of the existing railroad ROW between Lewelling Boulevard and Grant Avenue.<br>• Coast Subdivision Central Section: 1 residence located on the northeast side of the existing railroad ROW between Grant Avenue and Skywest Golf Course.<br>• Coast Subdivision Central Section: 2 residences located on the northeast side of the existing railroad ROW between Union City Boulevard and Smith Street.<br>• Coast Subdivision South Section: 9 residences located on the northeast side of the existing railroad ROW between Smith Street and Alameda Creek.<br>• Coast Subdivision South Section: 4 residences located on the southwest side of the exiting railroad ROW between Jarvis Avenue and Cedar Boulevard Park.<br>• Coast Subdivision South Section: 1 residence located on the northeast side of the existing railroad ROW between Cedar Boulevard Park and Clark Avenue.<br>Building sound insulation improvements may include, but not be limited to the following:<br>• Application of an extra layer of glazing to the windows;<br>• Sealing holes in exterior surfaces that act as sound leaks; and<br>• Provision of forced ventilation and air-conditioning so that windows do not need to be opened.<br>During final design of the project, CCJPA will coordinate with individual residents identified as candidates for sound insulation. The coordination will include testing of existing outdoor to indoor noise reduction and specific measures required to meet the interior noise level criterion. |

| Mitigation Measure | Mitigation Measure Description |
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| **MM NOI-3: Construction Vibration Control Plan** | CCJPA, in coordination with the Construction Contractor and local jurisdiction(s), will prepare and implement a Construction Vibration Control Plan (VCP) to reduce the impact of temporary construction-related vibration on nearby sensitive receptors. The VCP will include but not be limited to the following:<br>• Avoid the use of impact pile drivers where possible near vibration-sensitive areas or use alternative construction methods (e.g., drilled piles) where geological conditions permit.<br>• Avoid vibratory compacting/rolling in close proximity to structures.<br>• Require vibration monitoring during vibration-intensive activities. |
| **MM REC-1 Detour Plan for the Alameda Creek Regional Trail** | Two weeks prior to temporary trail closures, CCJPA in coordination with the EBRPD, as possible, will develop a detour plan for short-term closures of the Alameda Creek Regional Trail. The detour plan will be available to the public on EBRPD and CCJPA's websites. To the extent feasible, short-term closures will be scheduled during off-peak trail use days or times. |

# Areas of Known Controversy

CEQA Guidelines Section 15123 states that an EIR must identify areas of known controversy that may have been raised by other agencies, the public, or other stakeholders. Areas of communicated controversy related to the proposed Project or identified in the EIR scoping process include, but are not limited to:

- Large financial costs and potential negative environmental impacts for relocation of passenger rail service with minimal passenger travel time improvement.
- Noise, vibration, property value, and safety concerns for rail corridor residents.
- Pandemic resulted in reduced ridership, less freeway congestion, and more businesses migrating to telecommuting.
- Is there still a need for improved passenger rail operations and an increase in ridership in a post-COVID-19 environment?
- Loss of current Capitol Corridor access in Hayward and Fremont downtown areas.

# Issues to be Resolved

CEQA Guidelines Section 15123 calls for the lead agency to include issues to be resolved in the EIR, including the choice among alternatives and whether or how to mitigate significant effects. Issues to be resolved related to the proposed Project or EIR include, but are not limited to, the following:

- All potentially significant effects were able to be mitigated through BMPs or MMs and there are no unmitigated effects; therefore, there are no outstanding issues to be resolved regarding impacts.
- Continued planning coordination with UPRR and other partners, as well as more detailed design may require additional CEQA if the footprint of disturbance increases at any location.
- Permitting will be conducted by CCJPA at 60% design (currently at 30% design); if, during permitting, changes in design are requested by resource agencies, changes would need to be assessed to ensure still in alignment with CEQA.

# Significant and Unavoidable Impacts

CEQA Guidelines Section 15126.2(c) requires an EIR to discuss significant effects, including those that can be mitigated but not reduced to a level of insignificance. The CEQA Guidelines state that: "[w]here there are impacts that cannot be alleviated without imposing an alternative design, their implications, and reasons why the project is being proposed, notwithstanding their effect, should be described."

Significant impacts could have occurred for the following resource topic areas: aesthetics; air quality; biological resources; cultural resources; geology, soils, and paleontological resources; hydrology and water quality; noise and vibration; recreation; and tribal cultural resources.

However, as shown in Table ES-4, all impacts can be mitigated to a less than significant level, and no significant and unavoidable impacts are anticipated.

# Environmentally Superior Alternative

CEQA Guidelines Section 15126.6 requires that an "environmentally superior" alternative be selected among the alternatives that are evaluated in the EIR. Generally, the environmentally superior alternative is the alternative that would be expected to generate the fewest adverse impacts. For the purpose of this analysis, the alternatives considered are:

- Proposed Project
- No Project Alternative

Based on the results of the analysis, the proposed Project would be the environmentally superior alternative because it is the only alternative that accomplishes the project need and objectives. As noted above, Alternatives A through D were considered but rejected as infeasible or because they did not reduce impacts to below thresholds of significance and did not meet the project objectives.

# Chapter 1. **Introduction**

The Capitol Corridor Joint Powers Authority (CCJPA), in coordination with regional transportation partner agencies, is proposing the South Bay Connect Project (also identified as "proposed Project") to improve existing passenger rail service between Oakland and San Jose. The project would relocate Capitol Corridor Intercity Passenger Rail Service (Capitol Corridor) operations to the Union Pacific Railroad (UPRR) Coast Subdivision from the UPRR Niles Subdivision in Alameda County, California. This route relocation for passenger rail service would require alterations and improvements to the Coast Subdivision's existing rail infrastructure, including expansion of track and modification of an existing park-and-ride at Ardenwood (a community located in Fremont, California) to include a full train station to be served by the Capitol Corridor. Alterations to sections of existing rail infrastructure on the Niles Subdivision would also be required where the Coast and Niles subdivisions intersect at the junction points at Elmhurst (in Oakland, California) and Newark, California. Since Capitol Corridor passenger service would no longer run north/south along the Niles Subdivision nor across the Centerville line, Capitol Corridor service at existing Hayward and Fremont-Centerville stations would be discontinued. This change would not affect other existing passenger rail services on the Niles and Oakland subdivisions. No Capitol Corridor service frequency changes are included in the proposed Project.

Capitol Corridor is an intercity passenger train system that provides a convenient alternative to traveling along the congested Interstate-80 (I-80), Interstate-680 (I-680), and Interstate-880 (I-880) freeways by operating fast, reliable and affordable intercity rail service within the Northern California Megaregion[1]. Along its 170-mile rail corridor, Capitol Corridor operates 18 stations in eight Northern California counties: Placer, Sacramento, Yolo, Solano, Contra Costa, Alameda, San Francisco, and Santa Clara.

The South Bay Connect Project is a key element in CCJPA's 2014 Vision Plan Update and 2016 Vision Implementation Plan, both of which call for relocating Capitol Corridor service from the Niles Subdivision to the Coast Subdivision between Oakland and Newark to provide a more direct, efficient, and operationally reliable route from Oakland to San Jose. Improvements to the rail network and operations between Oakland and San Jose are also both components of the 2018 California State Rail Plan, which calls for rerouting passenger rail service from the Niles Subdivision to the Coast Subdivision to facilitate faster travel times. The proposed Project is limited to rerouting of Capitol Corridor passenger service from the Niles Subdivision to the Coast Subdivision and does not include rerouting or changes in daily freight train operations along the Coast, Niles, or Oakland Subdivisions.

The proposed Project is subject to State environmental review requirements. CCJPA is the lead agency under the California Environmental Quality Act (CEQA) and has prepared this Environmental Impact Report (EIR) pursuant to CEQA (Public Resources Code [PRC] 21000 et seq.) and State of California CEQA Guidelines (14 California Code of Regulations [CCR], 15000 et seq.). The State lead

[1] The Northern California Megaregion is composed of 21 counties grouped into four regions: Bay Area, Sacramento Area, Northern San Joaquin Valley, and Monterey Bay Area.

agency is defined as the public agency that has the principal responsibility of approving a project that is subject to CEQA.

Federal regulatory agencies may use information contained within the CEQA EIR for subsequent National Environmental Policy Act (NEPA) clearance. Other anticipated agency permits and approvals associated with the proposed Project are described in Table 1.1 in subsection 1.3.

# 1.1 Project Background

The following subsections provide an overview of rail services in the San Francisco Bay Area (Bay Area) east of the San Francisco Bay, summaries of CCJPA's history and governance, general project location, and the evolution of the proposed Project.

## 1.1.1 Existing Passenger and Freight Regional Rail Services

### 1.1.1.1 Existing Rail Lines

CCJPA provides passenger services over the tracks owned by the Union Pacific Railroad System (UPRR). UPRR's primary business is goods movements; therefore, UPRR's freight train operations reflect market demands. UPRR operates 32,000 miles of track in 23 states and moves both domestic and international freight between the Bay Area and the rest of the nation. UPRR provides these freight services over its network of main-line track, branch lines, and local and industrial tracks. This network also connects a series of railyards, maintenance and other facilities located throughout the Bay Area and Northern California, which support their operations.

Within the San Francisco Bay Area and east of the Bay, UPRR operates three mainline routes extending southward from its yard and facilities in Oakland (Figure 1-1). These routes are referred to as *subdivisions*. Multiple passenger rail services share these rail lines with freight services. The Niles Subdivision connects Oakland with the Niles District in Fremont and extends through Centerville to Newark (Figure 1-1). It also serves as the connection for all three subdivisions into the UPRR Oakland yard. The Oakland Subdivision branches from the Niles Subdivision in East Oakland and connects Oakland with Stockton through Niles Canyon, the Tri-Valley and Altamont Pass. Then the Oakland Subdivision crosses the Niles Subdivision in both Hayward and Fremont. The Coast Subdivision branches off the Niles Subdivision at Elmhurst, a junction located near the Oakland/San Leandro border, and connects Oakland with Newark and San Jose. The Coast Subdivision and the Niles Subdivision are connected by a portion of the Niles Subdivision extending between Newark and Niles Junction, referred to as the Centerville line.

The Dumbarton Rail Corridor is an east/west rail line that extends from Coast Subdivision at the junction at Newark across the San Francisco Bay to the Peninsula. San Mateo County Transit District (SamTrans) owns the Dumbarton Rail Corridor. There is currently no passenger rail service on the Dumbarton Rail Corridor, though new passenger service is currently being studied (San Mateo County Transit District, 2022).

### 1.1.1.2 Existing Rail Service

Passenger rail service within the Bay Area is primarily provided by Capitol Corridor (up to 14 trains daily), Altamont Corridor Express (ACE) (up to 8 trains weekly), and Amtrak Coast Starlight (up to 2 trains daily) (CCJPA, 2019; Figure 1-2).

The route for Capitol Corridor passenger trains between Oakland and San Jose currently operates over the Niles Subdivision to Niles Junction and then via the Centerville line (also part of the Niles Subdivision) to connect with the UPRR Coast Subdivision at Newark. Capitol Corridor trains then operate over the Coast Subdivision between Newark and the connection with Caltrain tracks near San Jose. (Note that this description is for CCJPA's southbound operation; CCJPA's northbound operation would be the reverse.) Capitol Corridor passenger trains currently must slow down substantially to take a wide turn west at Fremont onto the Centerville Line and another wide turn south at the Newark Junction onto the Coast Subdivision (Figure 1-2). There are currently no passenger rail stations along this segment of the Coast Subdivision.

In addition to CCJPA intercity passenger trains, UPRR hosts long-distance passenger trains operated by Amtrak on the Coast Subdivision between Oakland and San Jose and commuter trains operated by ACE between Stockton and Newark over the Oakland and Niles Subdivisions, then between Newark and San Jose on the Coast Subdivision.

Niles, Oakland and Coast Subdivisions are used by UPRR freight trains as well. UPRR's level of service and freight train volume varies based on market demands and other factors. The Niles Subdivision, between Niles Junction and Newark Junction, currently has the most heavily traveled rail lines in the Project area (approximately 6 to 7 freight trains per day). Regardless of the proposed Project, freight train length is currently projected to increase from approximately 10,060 feet in 2023 to approximately 11,270 feet in 2030 and up to 14,000 feet in 2040. The increase in freight train length is anticipated to increase wait times at railroad crossings from approximately 180 seconds (3 minutes) in 2023 to approximately 200 seconds in 2030 and up to approximately 240 seconds (4 minutes) in 2040 per event.

**Figure 1-1. Project Location and Overview Map**

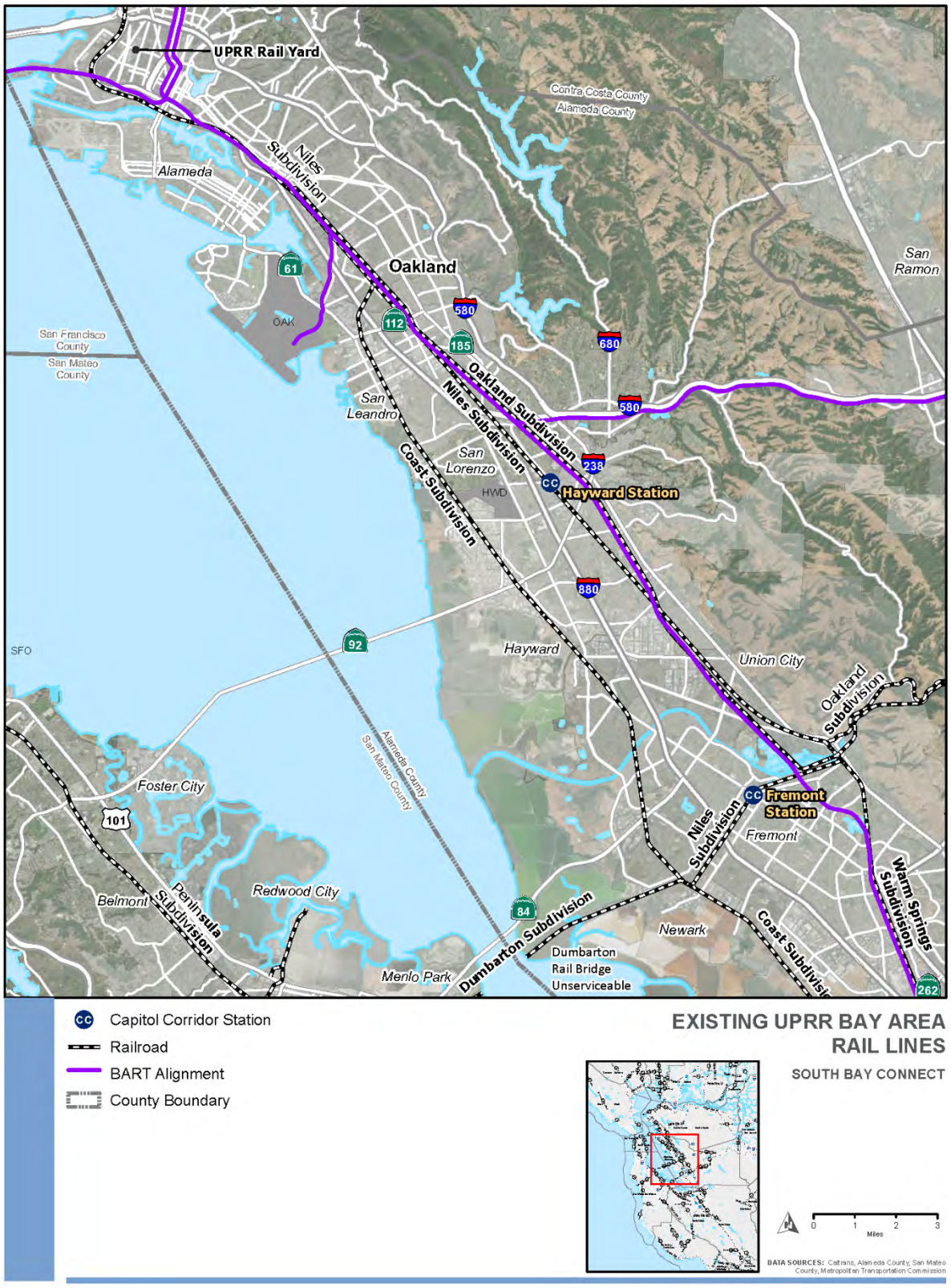
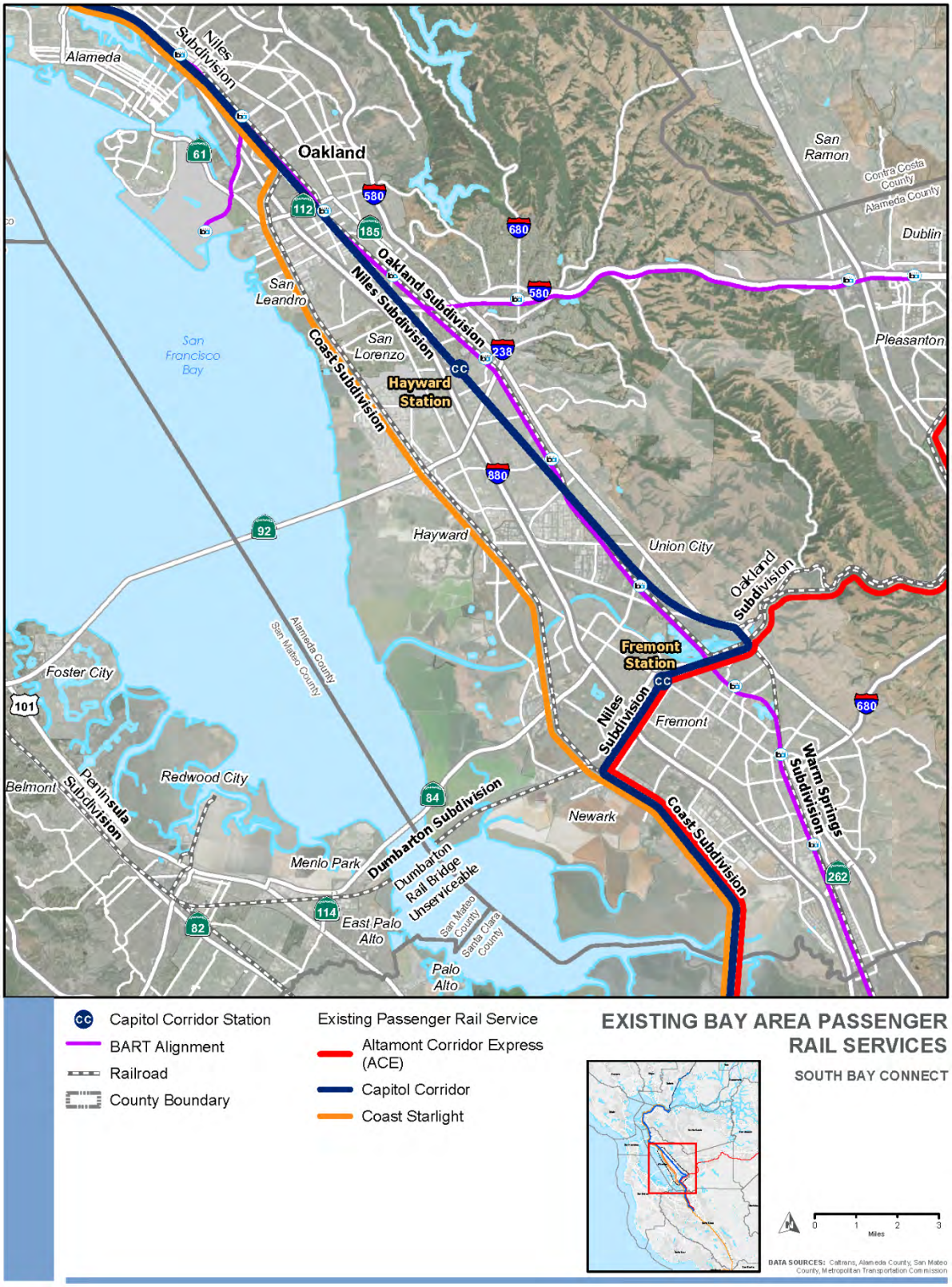


**Figure 1-2. Existing Bay Area Passenger Rail Services**



## 1.1.2 Capitol Corridor Joint Powers Authority

Capitol Corridor operations is funded by the State through the California Department of Transportation (Caltrans) Division of Rail and Mass Transportation (DRMT), and capital projects may be funded by different sources of public grant programs. The proposed Project is partially funded by a 2018 Transit and Intercity Rail Capital Program (TIRCP) grant from CalSTA.

California Department of Transportation (Caltrans) managed the route from its inception in 1991 to 1997. In 1998, the route's management and administration responsibilities were transferred to the CCJPA to provide more local control. CCJPA makes decisions on the service level of Capitol Corridor, capital improvements along the route, and passenger amenities aboard the trains. CCJPA is a partnership among the six local transit agencies in the eight-county service area which shares the administration and management of the Capitol Corridor. CCJPA is governed by a Board that consists of two representatives from each of the eight counties in the Capitol Corridor: Placer, Sacramento, Yolo, Solano, Contra Costa, San Francisco, Alameda, and Santa Clara. These counties are represented by:

- Placer County Transportation Planning Agency;
- Sacramento Regional Transit District;
- San Francisco Bay Area Rapid Transit District (BART);
- Santa Clara Valley Transportation Authority;
- Solano Transportation Authority; and
- Yolo County Transportation District.

CCJPA has a contract with BART for day-to-day management and staff support. It has also contracted with Amtrak to operate and maintain the rolling stock (locomotives and passenger cars); however, Caltrans retains ownership of the rolling stock.

Capitol Corridor services are developed with input from riders, private and public sector stakeholders, and the partners who help deliver Capitol Corridor service—Amtrak, UPRR, Caltrans, and the various agencies and communities that make up the Capitol Corridor. CCJPA is also supported by the two metropolitan planning organizations in the Capitol Corridor—the Metropolitan Transportation Commission and the Sacramento Area Council of Governments.

## 1.1.3 Project Location Overview

The proposed Project is located in Alameda County primarily along the Coast Subdivision between the Capitol Corridor Oakland Coliseum Station in the city of Oakland to the north, and the junction at Newark (in the city of Newark) to the south. The proposed Project also includes work on the Niles Subdivision where it intersects the Coast Subdivision at its north and south ends. Proceeding from north to south, the proposed Project passes through the cities/communities of Oakland, San Leandro, Hayward, Union City, Fremont, and Newark (Figure 1-1).

The area surrounding the proposed Project is primarily suburban in character with varied land uses and types of development. The Coast Subdivision and Niles Subdivision tracks are highly constrained by the existing built environment. The rail corridors travel through heavy and light

industrial uses, factories and storage areas, commercial uses, low, medium, and high-density residential uses, recreational uses, and areas of designated open space.

### 1.1.4 Development of the Proposed Project

The South Bay Connect Project was initially identified in the Capitol Corridor Vision Plan (CCJPA 2014), refined in the Capitol Corridor Vision Implementation Plan (CCJPA 2016), and defined and evaluated in the Capitol Corridor South Bay Connect Project Definition Report (CCJPA 2019). The Vision Plan documents and Project Definition Report are CCJPA's ongoing blueprint to continue improving passenger rail operational efficiency and reliability, implement regional rail services, build or enhance passenger rail stations, extend Intercity Passenger Rail (IPR) service, and develop integrated service plans compatible with the planned California High Speed Rail (CAHSR), other existing passenger rail services, and various key transit connections.

The proposed Project is also listed as a project development goal in the California State Rail Plan. The State Rail Plan (SRP) defines Caltrans' vision as:

> "The status quo is not an option. California's economic, environmental, and equity goals demand a fully integrated, zero-emission, modern passenger and freight rail network that safely and reliably delivers more service to more destinations more often and attracts significant demand away from highway and air travel." (Caltrans 2023)

To achieve this, Caltrans coordinates and collaborates with multiple rail agencies, including those that are integral to the proposed Project. The SRP references *Key Connections* and *Project Development Goals* necessary for the timely success of the project (Caltrans 2023).

The proposed Project would advance CCJPA and Caltrans core objectives by improving reliability and reducing travel time between Oakland and San Jose. As well, the CAHSR Business Plan identifies the urgency to increase passenger usage in the Auburn to San Jose Capitol Corridor because the corridor will serve as a major feeder/distributor for northern California to the CAHSR system (CAHSR 2014).

In addition to the mobility benefits created by the proposed Project, the improvements in track infrastructure, including existing road crossings, bridges, and signaling, as well as the addition of a new train station that supports convenient transbay transit connections, would enhance operational efficiency and service reliability, reduce overall passenger travel time, and support regional integration of multimodal transportation systems.

As noted above, the proposed Project does not include increases in the number of daily Capitol Corridor passenger trains or frequency of service to San Jose and would not affect freight rail service, nor the number of ACE and Amtrak trains operated. It is also important to note that, since UPRR owns the rights of way (ROW) and controls operations for the three subdivisions, CCJPA's final project must also be acceptable to UPRR.

## 1.2 Project Goals and Objectives

The proposed Project's overlying goal is to improve Northern California's transportation mobility and enhance Capitol Corridor's operational efficiency and reliability. The proposed Project would accomplish this by using a more direct passenger rail route, reducing rail travel time between

Oakland and San Jose, and by facilitating more auto-competitive travel times for IPR trips throughout Northern California. In addition, South Bay Connect also creates the opportunity for new connections to Transbay inter-modal transit services and destinations on the San Francisco Peninsula.

To better understand the necessity of the Project, consider the current Capitol Corridor train routing: a southbound Capitol Corridor train would currently travel indirectly between Oakland and San Jose on the Niles Subdivision (Figure 1-2), which follows a circuitous route along the base of the Mission Hills south from Hayward, then turns westward at Niles, passing through Fremont and Centerville, before turning south at Newark on the Coast Subdivision. Typically, 6 to 7 freight trains per day use the portion of the Niles Subdivision between the junction at Niles and the junction at Newark, which is the most heavily traveled portion of the lines in the Project study area. This higher usage by freight trains, coupled with passenger services, increases the risk of delays to both freight and passenger rail services along this segment.

CEQA requires that an EIR contain a "statement of the objectives sought by the proposed project." Under CEQA, "[a] clearly written statement of objectives will help the Lead Agency develop a reasonable range of alternatives to evaluate in the EIR and will aid the decision makers in preparing findings or a statement of overriding considerations. The statement of objectives should include the underlying purpose of the project" (CEQA Guidelines Section 15124[b]).

Accordingly, the objectives of the proposed Project are:

- Reduce passenger rail travel time between Oakland and San Jose, and throughout the megaregion, to increase ridership on transit, ease congestion on the Bay Area's stressed roadways, and reduce lengthy auto commutes.
- Advance a Project that is consistent with current and projected freight and passenger operational needs and timeframes for existing operators and owners, with no change to existing freight operations.
- Diversify and enhance rail network integration by reducing duplicative capital investments and differentiating Capitol Corridor's intercity rail service from commuter rail and other transit services, including BART's extension to San Jose.
- Support economic vitality by permitting enhanced rail movement and the preservation of freight rail capacity in the Northern California market through the reduction of conflicts between freight rail operations and passenger rail service.
- Improve service between megaregional markets by enhancing connections between high demand destinations, overcoming existing geographic service gaps between job centers and affordable housing projects on the San Francisco Peninsula and along the Capitol Corridor route.
- Promote environmental sustainability by lowering greenhouse gas (GHG) emissions through a reduction in auto traffic via mode change from auto to transit.

## 1.3 Environmental Permits and Approvals

In addition to CCJPA certifying the final EIR and approving the proposed Project, other federal and local agency decisions are needed for the Project to be constructed and operated. Table 1.1 lists the

potential federal, State, and regional environmental permits and approvals that could be needed to implement the Project; this may include an agency's review and approval of final design plans.

CCJPA would work with the State and local resource agencies to determine which regulatory permits and approvals would be required to implement the proposed Project, based on whether project implementation could affect resources under the jurisdiction of said agencies. If there is a nexus causing a permit or approval to be required from a specific agency, CCJPA would then prepare agreements to facilitate environmental permitting during final design and construction. These agreements would identify CCJPA's responsibilities in meeting the permitting requirements of these agencies, as shown in Table 1.1.

If federal permits, consultations, and/or approvals are determined to be necessary because of proposed Project implementation, a federal Lead Agency under NEPA would be identified. This federal Lead Agency would initiate a separate NEPA process and determine how to meet federal regulatory compliance requirements.

**Table 1.1. Environmental Permits and Approval Considerations**

| Agency | Permit/Approval/Clearance | Relevance/Trigger |
|---|---|---|
| ***Federal*** | | |
| **U.S. Army Corps of Engineers (USACE)** | Clean Water Act Compliance | Permanent or temporary placement and/or removal of material in waters of the U.S., including wetlands; all requests to modify, alter, or occupy any USACE-constructed public works project (e.g., levees). |
| | Rivers and Harbors Act of 1899 Compliance | Construction of a structure in or over any navigable water of the U.S. |
| **U.S. Advisory Council on Historic Preservation via the California State Historic Preservation Office** | Section 106 Consultation (National Historic Preservation Act of 1966); Concurrence on adequacy of identification effort, National Register of Historic Places eligibility determinations, and Finding of Effect | Aligned with federal permits and consultations and a required element for all federal actions. |
| **U.S. Fish and Wildlife Service** | Federal Endangered Species Act Compliance | Presence of federally listed plant and wildlife species and critical habitat within the impact area if unable to avoid during construction. |

**Table 1.1. Environmental Permits and Approval Considerations**

| Agency | Permit/Approval/Clearance | Relevance/Trigger |
|---|---|---|
| **National Marine Fisheries Service** | Federal Endangered Species Act Compliance | Presence of federally listed aquatic species and critical habitat within the impact area if unable to avoid during construction. |
| **U.S. Coast Guard (USCG)** | Section 9 Bridge Construction Permit (General Bridge Act of 1946) | Construction of a structure in or over any navigable water of the United States requires approval of USCG (bridge replacements). |
| ***State*** | | |
| **California Department of Fish and Wildlife** | California Endangered Species Act Permits (Incidental Take Permit, Consistency Determination) | Presence of State-listed plant and wildlife species and critical habitat within the impact area if unable to avoid during construction. |
| | Fish and Game Code Section 1602 Lake and Streambed Alteration Agreement | Permanent or temporary impacts to a river, stream, or lake from activities that would divert or obstruct natural flows, change bed, bank, or channel, use material from, or deposit material into. |
| **Caltrans** | Encroachment Permit | Permanent or temporary placement of encroachments within, under, or over the State highway ROW. |
| **California Public Utilities Commission** | Approval | Construction and operation of railroad crossings of public roads and for construction of new transmission lines and substations. |
| **California State Lands Commission** | Easement | Permanent or temporary crossing of State sovereign lands. |
| **Native American Tribes** | Tribal consultation per Assembly Bill (AB) 52 | Tribal consultation, aligned with the CEQA process. |

**Table 1.1. Environmental Permits and Approval Considerations**

| Agency | Permit/Approval/Clearance | Relevance/Trigger |
|---|---|---|
| ***Regional and Local*** | | |
| **Regional Water Quality Control Boards** | Clean Water Act Section 401 Water Quality Certification | Delegated federal authority to assess permanent or temporary placement and/or removal of material in waters of the U.S. or State, including wetlands. |
| | Clean Water Act Section 402 National Pollutant Discharge Elimination System (NPDES) Water Discharge Permit; Spill Prevention, Control, and Countermeasure (SPCC) Plan (part of Section 402 process) | Delegated federal authority to assess discharge of any pollutant or combination of pollutants from a point source to surface waters that are deemed Waters of the U.S. |
| | Dewatering Permit (Order No. 98-67) | Discharge of water from dewatering activities. |
| | Stormwater Construction and Operation Permit | Extent of land disturbance exceeding thresholds. |
| **San Francisco Bay Conservation and Development Commission** | Coastal Zone Management Act Compliance | Delegated federal authority to assess all federal activities for consistency with approved State coastal management program. |
| | McAteer-Petris Act Compliance | Permit required for activities within the San Francisco Bay and shoreline band. |
| **San Francisco Bay Area Air Quality Control Board** | Clean Air Act (CAA) Compliance | Delegated federal authority to evaluate compliance with CAA standards. |
| **Alameda County and Various Cities** | Local permits | Aligned with local permits and consultations for encroachments and construction activities. |

# 1.4 Document Organization

This Draft EIR is organized in the chapters and appendices listed below:

- Chapter 1, *Introduction*, provides the proposed Project history, CCJPA goals and objectives for the Project, and anticipated permits and approvals.
- Chapter 2, *Project Alternatives,* describes the proposed Project and No Project features, and summarizes other Project alternatives that were considered but eliminated from detailed consideration.
- Chapter 3, *Existing Conditions, Environmental Impacts, and Mitigation Measures,* presents current conditions and analyzes environmental impacts that could result from Project implementation, organized in the following order:
    - 3.1, Introduction.
    - 3.2, Aesthetics.
    - 3.3, Agriculture
    - 3.4, Air Quality.
    - 3.5, Biological Resources.
    - 3.6, Cultural Resources.
    - 3.7, Energy.
    - 3.8, Geology, Soils, and Paleontological Resources.
    - 3.9, Greenhouse Gas Emissions.
    - 3.10, Hazards and Hazardous Materials.
    - 3.11, Hydrology and Water Quality.
    - 3.12, Land Use and Planning.
    - 3.13, Mineral Resources.
    - 3.14, Noise and Vibration.
    - 3.15, Population and Housing.
    - 3.16, Public Services.
    - 3.17, Recreation.
    - 3.18, Transportation.
    - 3.19, Tribal Cultural Resources.
    - 3.20, Utilities and Service Systems.
    - 3.21, Wildfire.

- Chapter 4, *Sea Level Rise*, addresses the potential for Project impacts and Project features that would result in sea level rise resiliency.
- Chapter 5, *Other CEQA Considerations*, addresses growth-inducing impacts, environmental justice and other findings required under CEQA.
- Chapter 6, *Public Outreach and Agency Consultation*, summarizes the engagement of agencies and stakeholders, and the scoping process for the Project.
- Chapter 7, *List of Preparers*, lists the individuals who contributed to the content and preparation of the EIR.
- Chapter 8, *References*, shows a complete list of references from the EIR, sorted by chapter/ section. References specific to a chapter or individual resource area are also included at end of each corresponding chapter or section.
    - Appendix A Project Alternatives
    - Appendix B Air Quality
    - Appendix C Biological Resources
    - Appendix D Cultural Resources
    - Appendix E Hazards and Hazardous Materials
    - Appendix F Hydrology and Water Quality
    - Appendix G Noise and Vibration
    - Appendix H Public Services and Transportation Analysis
    - Appendix I Cumulative Utilities Analysis
    - Appendix J Sea Level Rise
    - Appendix K Other CEQA Considerations Environmental Justice Impacts
    - Appendix L Outreach and Agency Consultation

# 1.5 References Cited

Association of Environmental Professionals. 2023. *California Environmental Quality Act Statute and Guidelines*. Available: www.CalifAEP.org. Accessed: January 14, 2024.

Capitol Corridor Joint Powers Authority. 2014. *Capitol Corridor 2014 Vision Plan Update. Final report.* Adopted November 19, 2014. Available: https://www.capitolcorridor.org/wp-content/uploads/2016/12/CCJPAVisionPlan_Volume1.pdf. Prepared by Nelson Nygaard Consulting Associates, Inc. Accessed: November 29, 2023.

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# Chapter 2. **Project Alternatives**

According to Section 15126.6 of the State CEQA Guidelines, "An EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project...." Accordingly, alternatives that do not avoid or substantially lessen significant impacts of a project do not need to be analyzed in an EIR. Additionally, the State CEQA Guidelines require analysis of the No Project Alternative to allow decision makers to compare the impacts of project approval with the impacts of not approving the project.

CCJPA considered five primary project alternatives, Alternatives A through E. After assessing the potential for environmental effects, CCJPA has selected Alternative E as the proposed Project. No other action alternatives are included in this EIR, as all were rejected from further consideration.

This chapter describes the alternatives screening process CCJPA used in determining which alternatives to include in the CEQA EIR, provides descriptions of the No Project Alternative and the proposed Project, and gives brief descriptions of alternatives considered but not carried through the environmental review process. Section 2.2.1 also provides definitions of terms used in the EIR to describe areas of permanent and temporary physical disturbance during construction, and broader "buffer" areas with the potential for associated effects.

## 2.1. Alternatives Screening and Selection Process

As noted above, an EIR is not required to consider every conceivable alternative to a project. "Rather, an EIR must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation" (CEQA Guidelines Section 15126.6(a)). An EIR need not consider an alternative:

- Whose implementation lacks sufficient definition so that effects cannot be reasonably identified and evaluated,
- Whose implementation is based on broad assumptions rather than supported by facts and details,
- Whose implementation relies on unobtainable agency approvals or permits, or
- That would not achieve the basic project objectives.

A range of potential alternatives was subjected to screening criteria to eliminate those potential alternatives that do not qualify as alternatives under CEQA. As discussed above, there was no attempt to include every conceivable alternative in this range. Rather, CCJPA selected a number of representative alternatives to consider. The screening criteria for the potential alternatives are relatively simple:

- Does the alternative meet most or all of the project objectives?
- Is the alternative potentially feasible?

- Would the alternative substantially reduce one or more of the significant effects associated with the proposed Project?

### 2.1.1. Alignment with Project Goal and Objectives

As described in Section 1.2, Project Goals and Objectives, the proposed Project's overlying goal is to improve Northern California's transportation mobility and enhance Capitol Corridor's operational efficiency. The proposed Project would do this by relocating Capitol Corridor service onto a more direct and efficient rail route, reducing passenger rail travel time and potential delays between Oakland and San Jose, and by facilitating more auto-competitive travel times for intercity passenger rail trips throughout Northern California.

Six proposed Project objectives in support of the project goals are discussed in Section 1.2. Multiple alternatives were identified that could meet most of the Project objectives. However, there is one objective that is not met by Alternatives A through D:

- Advance a Project that is consistent with current and projected freight and passenger operational needs and timeframes for existing operators and owners, with no change to existing freight operations.

The action alternatives considered and described in Section 2.3, Alternatives Considered but Rejected, assume a shift in Capitol Corridor passenger service from the Niles Subdivision to the Coast Subdivision, as does the proposed Project, but also assume a shift in freight rail service from the Coast Subdivision to the Niles and Oakland Subdivisions in order to justify structural upgrades to the latter subdivisions. Therefore, it was determined that this objective would only be achievable by the proposed Project (Alternative E). More discussion about meeting project objectives as a screening criterion is included in Section 2.3.

"Feasible" is defined as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors" (CEQA Guidelines Section 15364). CEQA does not require that an EIR determine the ultimate feasibility of a selected alternative but rather that it is probably feasible. The rule of reason requires the EIR to set forth only those alternatives necessary to permit a reasoned choice and to "examine in detail only the ones that the lead agency determines could feasibly attain most of the basic objectives of the project" (CEQA Guidelines Section 15126.6).

### 2.1.2. Reduction of Significant Impacts

Following an assessment of the proposed Project, CCJPA found no significant impacts that could not be avoided or reduced to a less-than-significant level with mitigation incorporated for the proposed Project (Alternative E). As such, based on the analyses included in this EIR, the proposed Project would not result in any significant and unavoidable impacts as a result of implementation (see resources analyses in Chapter 3).

## 2.2. Description of Alternatives Evaluated in EIR

Based on extensive planning CCJPA conducted, and the results of the *Alternatives Screening and Selection Process* outlined in Section 2.1, the proposed Project is the only build alternative evaluated

in this EIR. The *No Project* Alternative is also analyzed in this EIR in accordance with CEQA, to evaluate potential benefits and impacts associated with the proposed Project in comparison to taking no action. Definition of the areas used in evaluating effects, and descriptions of the No Project Alternative and proposed Project are described below.

## 2.2.1. Project Footprint and Project Study Area

The proposed Project is in southwestern Alameda County, east of the San Francisco Bay, between the Union Pacific Railroad (UPRR) rail junction at Elmhurst to the north and the junction at Newark to the south. The *Project footprint* (also referred to as the footprint of disturbance) includes those areas of permanent and temporary physical disturbance. The *Project Study Area*, broader than the *Project footprint*, also includes an approximate 2-mile buffer around the Project footprint to recognize and assess the potential for adjacent environmental resources to also be impacted by the proposed Project, such as the broader impacts of dust or noise during construction (Figure 2-1).

Generally speaking, the *Project Study Area* has been used to assess the potential for environmental effects of the proposed Project on each environmental resource assessed in Chapter 3, except for where a resource-specific study area has been defined and described in the relevant resource subsection. *Resource Study Areas (RSA)* are specific to an individual resource being analyzed in Chapter 3 (such as the Air Quality RSA including the full proposed Project airshed), and are introduced in Section 3.1.1, Resource Study Areas, and defined within each relevant resource area's subsection.

## 2.2.2. No Project Alternative

CEQA requires that "the specific alternative of 'no project' shall also be evaluated along with its impact" (CEQA Guidelines 15126.6(e)(1)). Further, the guidelines go on to say:

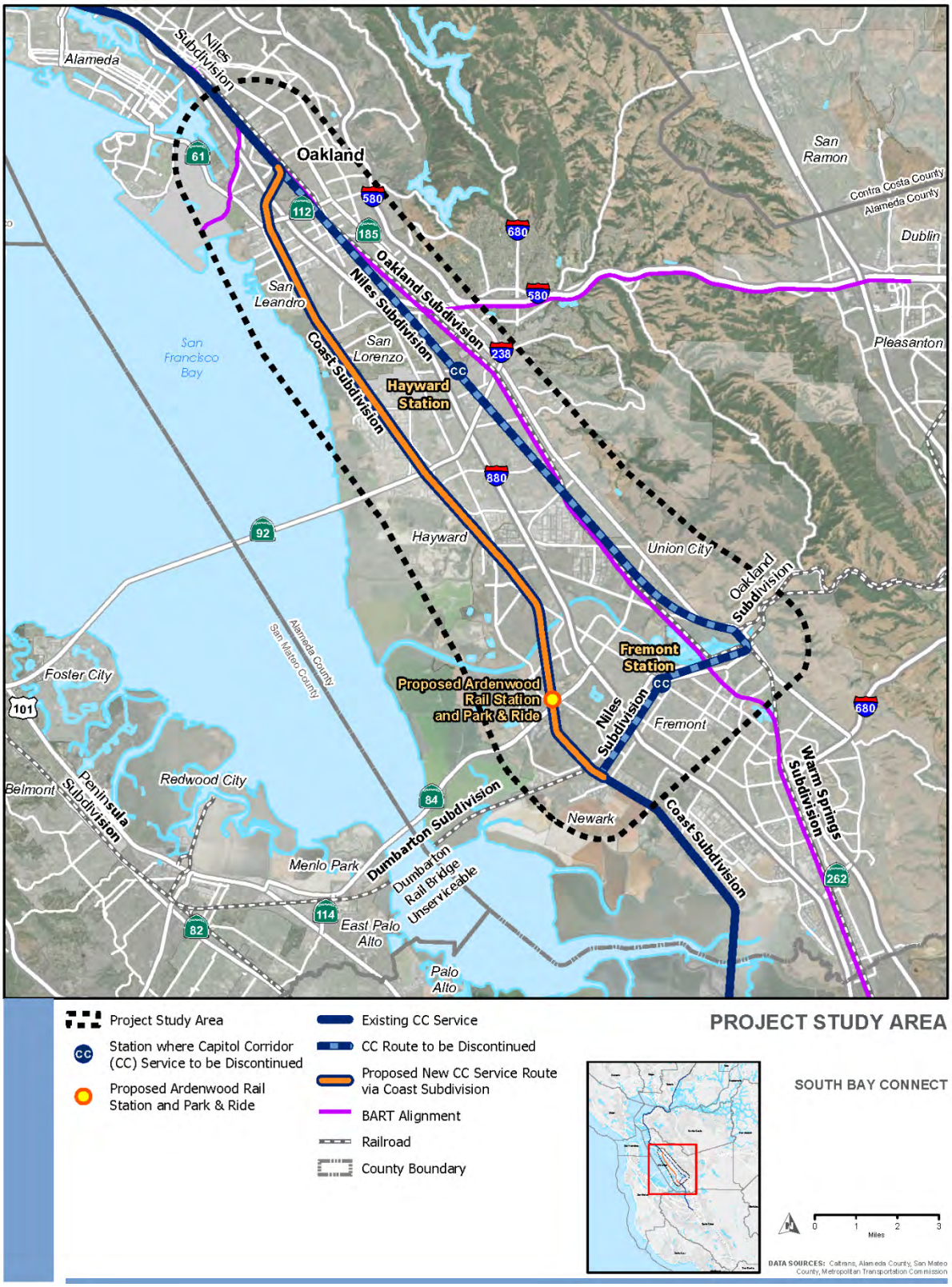
> "The no project alternative analysis is not the baseline for determining whether the proposed project's environmental impacts may be significant, unless it is identical to the existing environmental setting analysis which does establish the baseline." (CEQA Guidelines 15126.6(e)(1))

Under the No Project Alternative (also known as the No Build Alternative), infrastructure improvements associated with the proposed Project would not be constructed. CCJPA would continue to use the Niles Subdivision for the Capitol Corridor passenger rail service between the junctions at Elmhurst and Newark, and rail service on the Coast Subdivision would only be freight and long-distance Amtrak service. The existing Hayward and Fremont-Centerville stations would continue to be served by Capitol Corridor service. No new station would be constructed at Ardenwood. Intercity passenger rail service and freight rail operations would continue as currently managed.

CCJPA's goals and objectives for the proposed Project would not be met. Passenger travel times between Oakland and San Jose would remain as they currently are. Additional transit ridership from the new proposed Ardenwood Station would not occur. Finally, the opportunity for reducing roadway congestion and lowering greenhouse gas emissions, by conversion of auto commutes to rail use through implementation of the proposed Project, would be lost.

Therefore, since the No Project Alternative would assume no changes to the current environmental setting and would be consistent with the above citation from the CEQA Guidelines, for purposes of this analysis the No Project Alternative is considered identical to the Project baseline.

**Figure 2-1. Project Study Area**



## 2.2.3. Proposed Project (Alternative E)

CCJPA considered five primary Project alternatives, Alternatives A through E (Section 2.3). CCJPA has selected Alternative E as the proposed Project; following are descriptions of the proposed Project features, construction activities and materials, ROW acquisitions, and proposed plans for operations and maintenance.

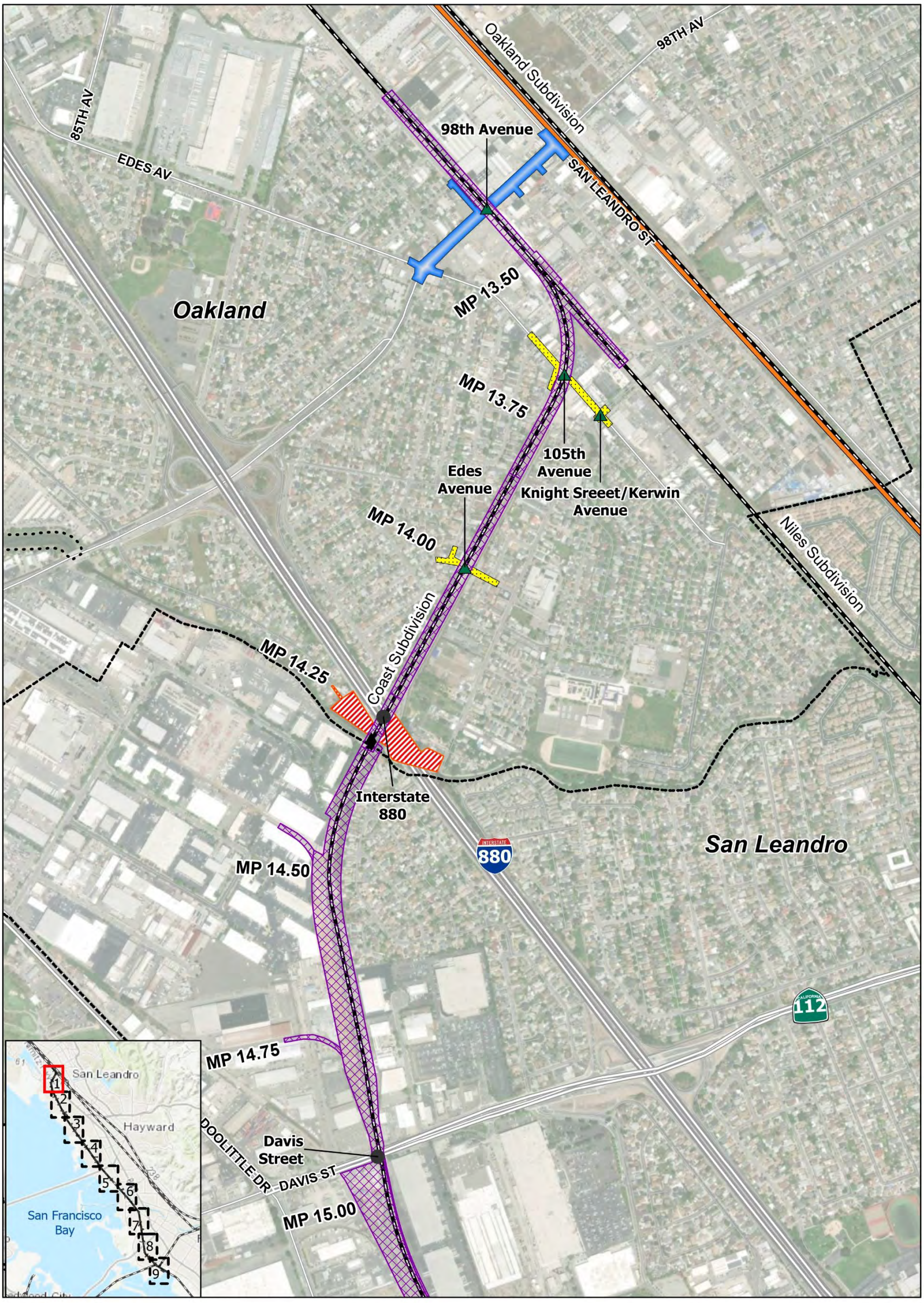
The proposed Project includes relocation of the Capitol Corridor service between the rail junction at Elmhurst and the rail junction at Newark, from the Niles Subdivision to the Coast Subdivision, for a more efficient and reliable passenger rail route from Oakland to San Jose (Figure 2-1). The Project also proposes a new intermodal station on the Coast Subdivision at the existing Ardenwood Park-and-Ride, in the City of Fremont, to serve southern Alameda County passengers and to create new multimodal, transbay transit connections between the East Bay and the San Francisco Peninsula. Finally, the proposed Project includes rail infrastructure improvements on the Coast Subdivision to accommodate both existing freight and passenger rail service, as well as the Capitol Corridor passenger rail service proposed to be relocated from the Niles Subdivision, within the Project Study Area.

As discussed in Chapter 1, CCJPA is not proposing to increase the number of Capitol Corridor trains or change the frequency of Capitol Corridor services from existing conditions. The existing rail stations in Hayward and Fremont-Centerville along the Niles Subdivision would no longer be served by the Capitol Corridor. ACE would continue to serve the Fremont-Centerville Station, which connects riders from the Tri-Valley and Central Valley to San Jose.

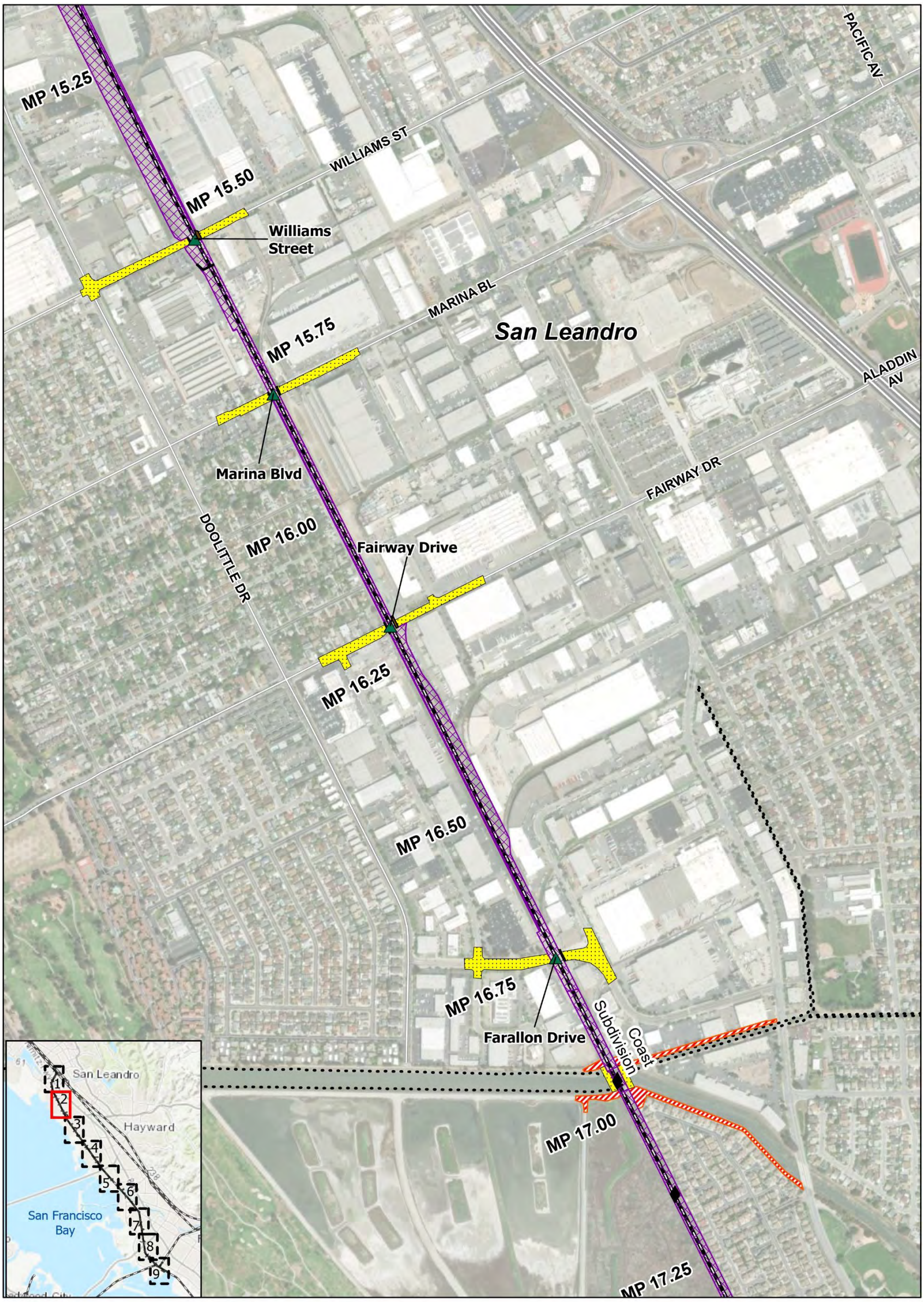
There are no freight operational changes contemplated or identified by UPRR as a result of this project; however, because the tracks are owned by UPRR, they may choose to increase, decrease or maintain freight traffic levels or vary the type of freight traffic on their subdivisions based on their own business decisions at any time.

Figure 2-2 through Figure 2-10 present the proposed Project footprint and delineate some of the major features discussed below.

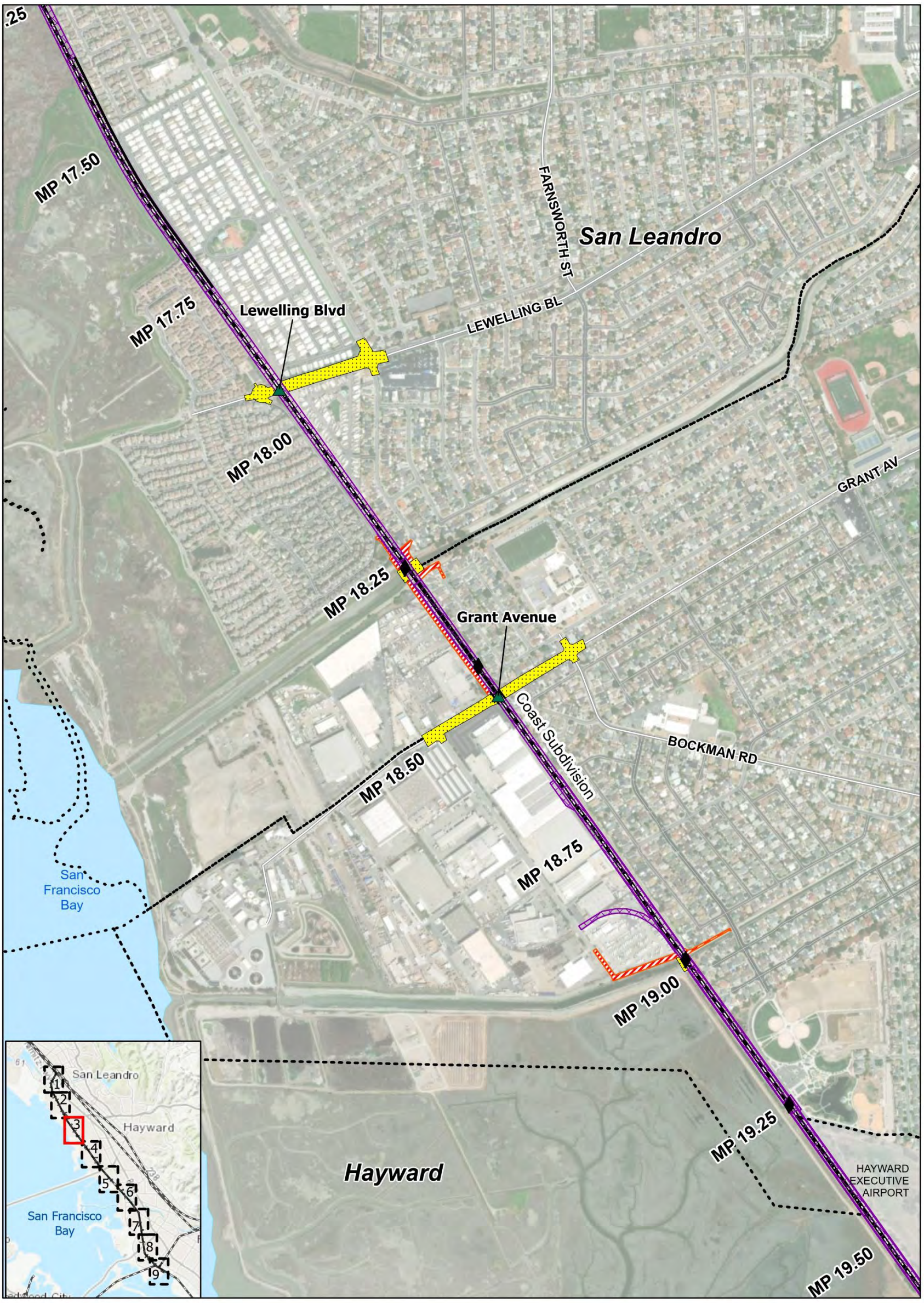
## Figure 2-2. Proposed Project Footprint – Segment A



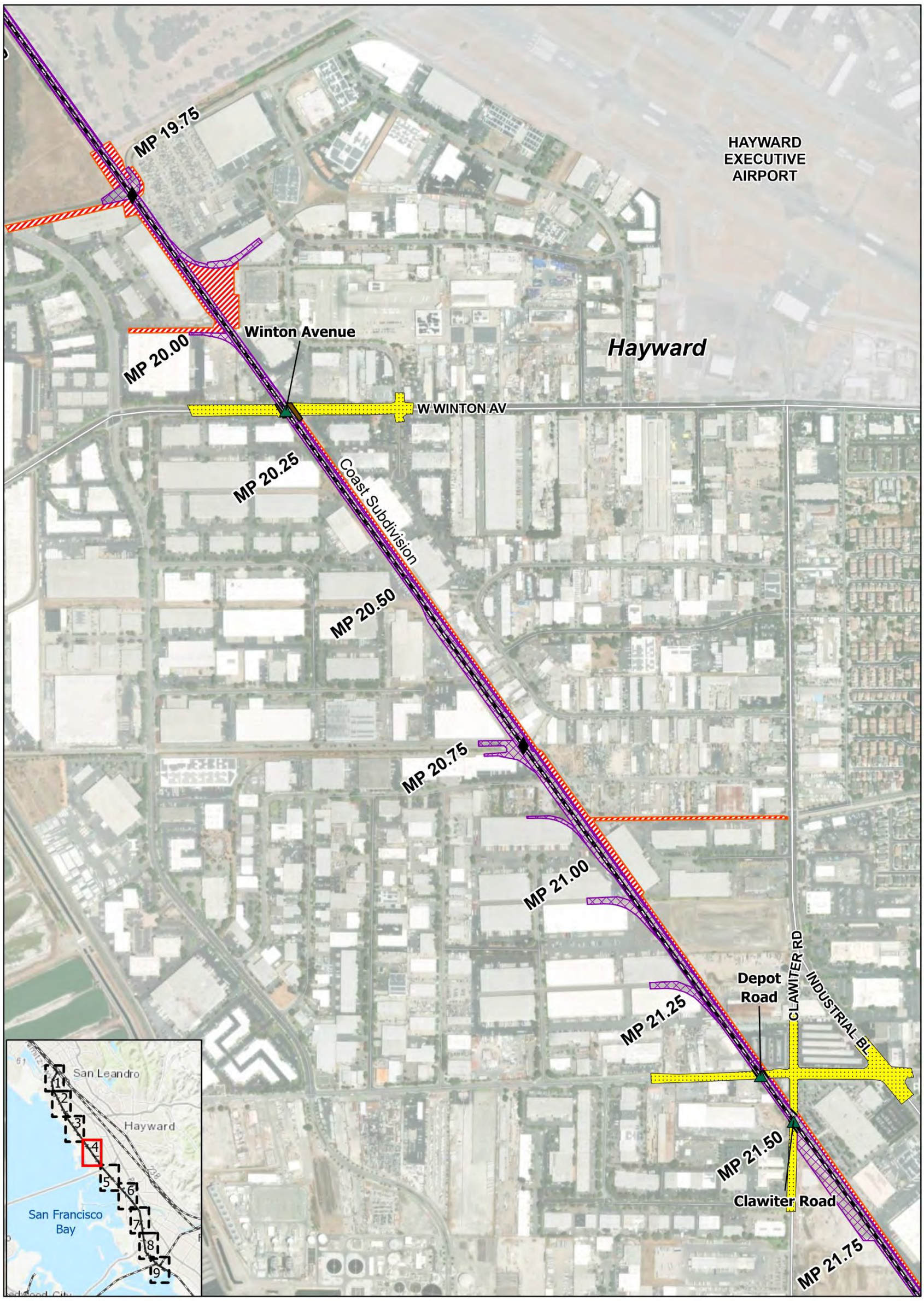
## Figure 2-3. Proposed Project Footprint – Segment B



## Figure 2-4. Proposed Project Footprint – Segment C

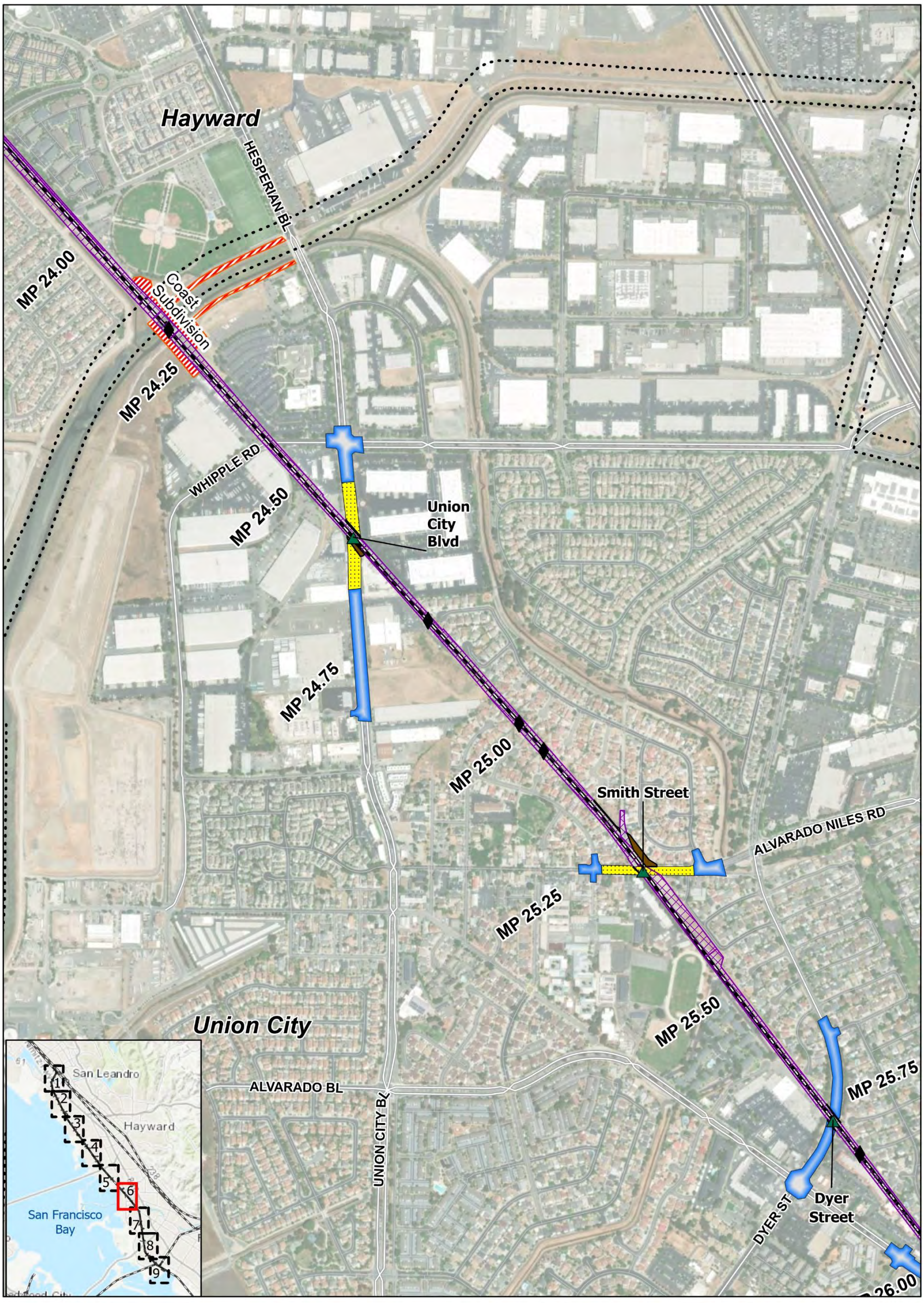


## Figure 2-5. Proposed Project Footprint – Segment D



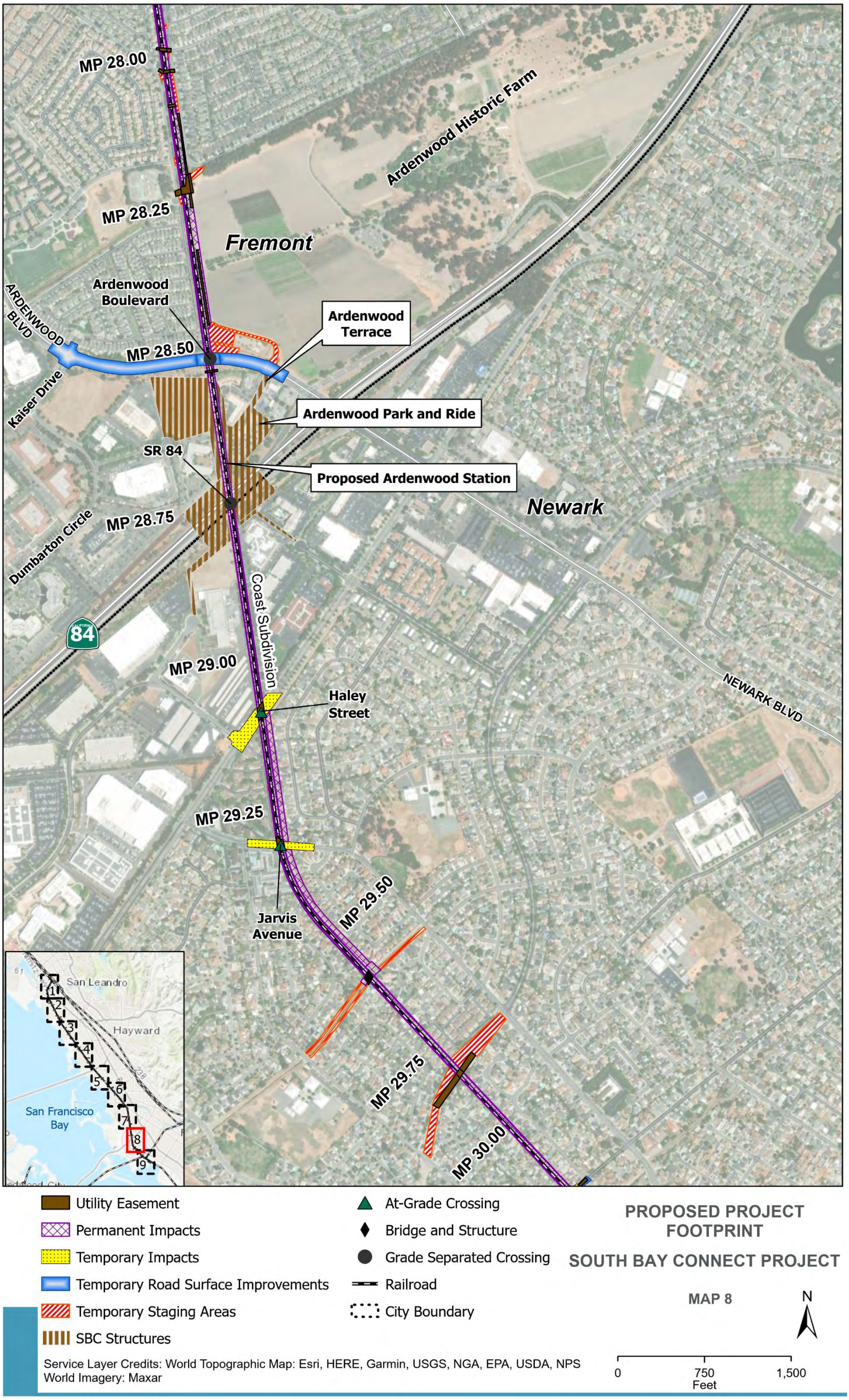
## Figure 2-6. Proposed Project Footprint – Segment E

## Figure 2-7. Proposed Project Footprint – Segment F

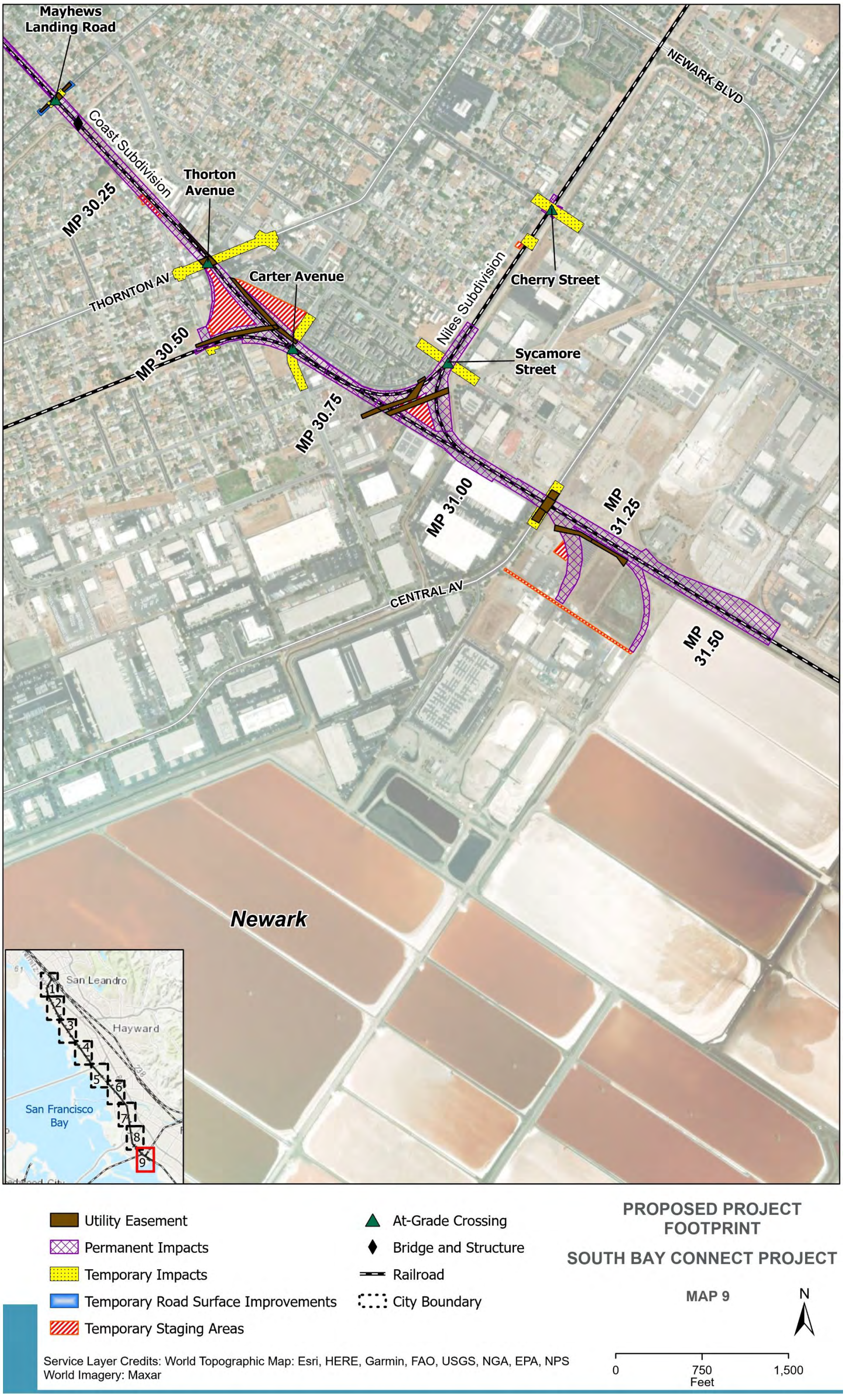


## Figure 2-8. Proposed Project Footprint – Segment G

## Figure 2-9. Proposed Project Footprint – Segment H



## Figure 2-10. Proposed Project Footprint – Segment I



### 2.2.3.1. Track and Civil Improvements

The proposed Project includes improvements within or adjacent to the existing railroad right-of-way on the Coast Subdivision between the railroad junction at Elmhurst in Oakland and the railroad junction at Newark. The following improvements are proposed on the Coast Subdivision within the Project footprint.

- Replacement of existing rail and ties on the existing track for the entire Coast Subdivision railroad corridor within the Project footprint.
- The addition of several inches of ballast to help level the existing main track and siding tracks.[1]
- Installation of new wayside and grade crossing signal technology and associated equipment.
- Modifications to discourage trespassing, which could include fencing and signage improvements.
- Upgrades and slight shifts of existing tracks to allow higher train speeds.
- Installation of an additional track from Elmhurst to Newark to improve operations and allow trains to meet or pass each other at any location between Elmhurst and Newark.
    - The additional track would extend the entire distance between the junctions at Elmhurst and Newark, approximately 17.4 miles. The existing track in some locations would be shifted from 5 feet to 10 feet (laterally) from its existing alignment to make space for the additional track. The new track is proposed to be constructed about 10 to 15 feet from its original location. Track spacing[2] of the existing track and proposed new track will be 15 to 20 feet along the entire distance between Elmhurst and Newark junctions.
    - Existing bridges would be either upgraded or replaced and new bridges constructed to accommodate the additional track.
    - Existing culverts would be replaced, resized, or lengthened to accommodate the additional track. If water flow conditions warrant, additional culverts may be added to address changes in drainage.
    - Any other existing timber structures would be replaced with bridges or culverts or be removed.
    - Siding tracks, railyard tracks, and industrial spur tracks[3] along the proposed Project corridor may be reconfigured to maintain connection to the new or existing tracks, or new tracks constructed to keep these railyards, tracks, and industrial spurs connected to the rest of the railroad. Minor temporary construction may be conducted outside UPRR ROW and would require access agreements.

1 A siding is a segment of track used for trains to pass by or overtake one another, or a track where engines and cars may be parked when they are not being used or are being loaded or unloaded by customers.
2 Distance between the centers of each of two tracks running parallel on double-track railway lines.
3 A stub track that diverges from main or other tracks and provides access to industrial or commercial areas.

- The elevations of proposed tracks would generally match those of existing tracks in most areas. At bridges, the proposed track may be slightly higher (approximately 1 to 3 feet higher) than the existing track.
- All turnouts[4] on the existing main track would be replaced and industrial spurs realigned to connect to the new turnouts. Minor work may be conducted outside UPRR ROW and would require access agreements.
- Newark and Mulford Yards within the existing UPRR ROW would be reconfigured. Minor work outside the UPRR ROW may be needed at industrial spurs where their alignment changes slightly and would require access agreements.

- Existing utilities within or crossing the UPRR ROW would be relocated or protected. Where utilities are relocated, the connections to the existing facilities may occur outside the UPRR ROW and would require access agreements.
- Reconfiguration of tracks within the UPRR Niles Subdivision at Elmhurst to accommodate the new track connection to and within the Coast Subdivision.
- Addition of a new track crossover in UPRR Niles Subdivision immediately north of Elmhurst Junction.
- Permanent ROW acquisitions and temporary construction easements (TCE) would be required throughout the Project corridor for construction of the second track, bridges, and potential utility protection or relocation activities. These include permanent ROW acquisition up to 10 feet from the existing UPRR ROW and TCEs required at bridge construction locations up to 50 feet from the existing UPRR ROW.

The mapbook included in Appendix A illustrates the areas of the Coast Subdivision where permanent rail improvements are proposed. Areas that would be temporarily affected during construction, by road and rail crossing improvements, bridge improvements or replacements (that is, in-water work), construction buffers at the new Ardenwood Station, and utility relocations, as well as proposed staging areas along the Project corridor, are also identified in Appendix A.

### 2.2.3.2. At-Grade Crossing Improvements

The proposed Project includes modifications at 25 existing at-grade crossings along the Coast Subdivision due to the installation of new rail infrastructure, potentially including new or modified active warning devices. Where an additional track is proposed, improvements would be needed to the roadway profiles, paving, curbs, gutters, sidewalks, signage, and striping to conform to the proposed new track profile. Improvements would also include upgrades for compliance with the Americans with Disabilities Act of 1990 (ADA) and California Title 24 Regulations, and improvements such as interconnected roadway traffic signals and signage to reduce potential conflicts with cars, bikes, and pedestrians crossing the tracks. Some of these improvements may occur outside the UPRR ROW and would require access agreements.

4 A turnout (also referred to as a switch) describes the movable rails that guide train wheels from one track to another diverging track.

The proposed at-grade crossing improvements are identified in Table 2.2-1 and shown in Figure 2-2 through Figure 2-10.

**Table 2.2-1. Proposed Improvements to At-Grade Crossings along the Coast Subdivision**

| At-Grade Crossing | Proposed Improvements | Jurisdiction |
|---|---|---|
| **98th Avenue** | Sidewalk ADA improvements, replace existing crossing equipment (gates, arms, signal cabins) as needed, potential roadway surfacing, striping, and signage | Oakland |
| **105th Avenue** | ADA improvements, replace existing crossing equipment (gates, arms, signal cabins) as needed, potential roadway surfacing, striping, and signage | Oakland |
| **Edes Avenue** | Addition of one track, potential road re-profiling near crossing, sidewalk ADA improvements, replace existing crossing equipment (gates, arms, signal cabins) as needed, striping, and signage | Oakland |
| **Knight Street/ Kerwin Avenue** | Addition of one track, potential road re-profiling near crossing, sidewalk ADA improvements, replace existing crossing equipment (gates, arms, signal cabins) as needed, striping, and signage | Oakland |
| **Williams Street** | Addition of one track, potential road re-profiling near crossing, sidewalk ADA improvements, replace existing crossing equipment (gates, arms, signal cabins) as needed, striping, and signage | San Leandro |
| **Marina Boulevard** | Addition of one track, potential road re-profiling near crossing, sidewalk ADA improvements, replace existing crossing equipment (gates, arms, signal cabins) as needed, striping, and signage | San Leandro |
| **Fairway Drive** | Addition of one track, potential road re-profiling near crossing, sidewalk ADA improvements, replace existing crossing equipment (gates, arms, signal cabins) as needed, striping, and signage | San Leandro |
| **Farallon Drive** | Addition of one track, potential road re-profiling near crossing, sidewalk ADA improvements, replace existing crossing equipment (gates, arms, signal cabins) as needed, striping, and signage | San Leandro |
| **Lewelling Boulevard** | Addition of one track, potential road re-profiling near crossing, sidewalk ADA improvements, replace existing crossing equipment (gates, arms, signal cabins) as needed, striping, and signage | San Leandro |
| **Grant Avenue** | Addition of one track, potential road re-profiling near crossing, sidewalk ADA improvements, replace existing crossing equipment (gates, arms, signal cabins) as needed, striping, and signage | San Leandro |
| **Winton Avenue** | Addition of one track, potential road re-profiling near crossing, sidewalk ADA improvements, replace existing crossing equipment (gates, arms, signal cabins) as needed, striping, and signage | Hayward |

**Table 2.2-1. Proposed Improvements to At-Grade Crossings along the Coast Subdivision**

| At-Grade Crossing | Proposed Improvements | Jurisdiction |
|---|---|---|
| **Depot Road** | Addition of one track, potential road re-profiling near crossing, sidewalk ADA improvements, replace existing crossing equipment (gates, arms, signal cabins) as needed, striping, and signage | Hayward |
| **Clawiter Road** | Addition of one track, potential road re-profiling near crossing, sidewalk ADA improvements, replace existing crossing equipment (gates, arms, signal cabins) as needed, striping, and signage | Hayward |
| **Baumberg Avenue** | Addition of one track, potential road re-profiling near crossing, sidewalk ADA improvements, replace existing crossing equipment (gates, arms, signal cabins) as needed, striping, and signage | Hayward |
| **Union City Boulevard** | Addition of one track, potential road re-profiling near crossing, sidewalk ADA improvements, replace existing crossing equipment (gates, arms, signal cabins) as needed, striping, and signage | Union City |
| **Smith Street** | Addition of one track, potential road re-profiling near crossing, sidewalk ADA improvements, replace existing crossing equipment (gates, arms, signal cabins) as needed, striping, and signage | Union City |
| **Dyer Street** | Addition of one track, potential road re-profiling near crossing, sidewalk ADA improvements, replace existing crossing equipment (gates, arms, signal cabins) as needed, striping, and signage | Union City |
| **Alvarado Boulevard** | Addition or one track, potential road re-profiling, sidewalk ADA improvements, potential realignment of pedestrian sidewalk, potential realignment or restriping of bike lane, and minor roadway work, replace existing crossing equipment (gates, arms, signal cabins) as needed, striping, and signage | Union City |
| **Jarvis Avenue** | Addition of one track, potential road re-profiling near crossing, sidewalk ADA improvements, replace existing crossing equipment (gates, arms, signal cabins) as needed, striping, and signage | Newark |
| **Haley Street** | Addition of one track, potential road re-profiling near crossing, sidewalk ADA improvements, replace existing crossing equipment (gates, arms, signal cabins) as needed, striping, and signage | Newark |
| **Mayhews Landing Road** | Addition of one track, potential road re-profiling near crossing, sidewalk ADA improvements, replace existing crossing equipment (gates, arms, signal cabins) as needed, striping, and signage | Newark |
| **Thornton Avenue** | Addition of one track, potential road re-profiling near crossing, sidewalk ADA improvements, replace existing crossing equipment (gates, arms, signal cabins) as needed, striping, and signage | Newark |

**Table 2.2-1. Proposed Improvements to At-Grade Crossings along the Coast Subdivision**

| At-Grade Crossing | Proposed Improvements | Jurisdiction |
|---|---|---|
| **Carter Avenue** | Addition of one track, potential road re-profiling near crossing, sidewalk ADA improvements, replace existing crossing equipment (gates, arms, signal cabins) as needed, striping, and signage | Newark |
| **Sycamore Street** | Sidewalk ADA improvements, replace existing crossing equipment (gates, arms, signal cabins) as needed, potential road re-profiling near crossing, striping, and signage | Newark |
| **Cherry Street** | Sidewalk ADA improvements, replace existing crossing equipment (gates, arms, signal cabins) as needed, potential road re-profiling near crossing, striping, and signage | Newark |

Additional street and traffic signal modifications to adjacent signalized roadway intersections may also be required to accommodate updates to existing railroad crossing equipment and allow for updates to interconnected traffic signals. In some cases, adjacent stop-controlled (i.e., not signalized) roadway intersections may require interconnected traffic signals to provide for improved traffic flow at at-grade crossings. These areas are included in the proposed Project Study Area and effects have been assessed in this EIR, although the need for these additional modifications will not be confirmed until the design is finalized and planning is complete.

### 2.2.3.3. Grade Separated Crossing Improvements

The proposed Project includes modifications to seven existing grade-separated crossings on the Coast Subdivision. Proposed grade-separated improvements are shown in Figure 2-2 through Figure 2-10.

Improvements are proposed at the following grade-separated crossings:

- Interstate 880, City of Oakland;
- Davis Street, City of San Leandro;
- State Route (SR) 92, City of Hayward;
- Eden Shores Boulevard, City of Hayward;
- Paseo Padre Parkway, City of Fremont;
- Ardenwood Boulevard, City of Fremont; and
- SR 84, City of Fremont/City of Newark.

The SR 84 crossing would require abutment modification, while the other crossings would require pier protection. No other improvements to the existing grade-separated crossings are proposed.

A grade separation (overpass) is scheduled to be constructed at Central Avenue, in the City of Newark. The proposed improvements at Central Avenue will be constructed by others prior to the proposed Project and are not part of this Project.

## 2.2.3.4. Ardenwood Station Improvements

The proposed Project includes construction of a new passenger rail station on the Coast Subdivision adjacent to the existing Ardenwood Park-and-Ride facility. The proposed Ardenwood Station would provide a new passenger platform, with a pedestrian overcrossing for grade-separated access across the tracks and to the platform. The proposed passenger rail station would be configured to include a center boarding platform located between two tracks. The proposed north pedestrian overcrossing would be approximately 42 feet high. Figure 2-11 provides a conceptual design for the proposed Ardenwood Station.

**Figure 2-11. Ardenwood Station Conceptual Design**

(looking north from SR-84; existing Park & Ride is to the right of proposed new station on figure)

The proposed station would be within the City of Fremont, except for the south pedestrian overcrossing, which would be within City of Newark jurisdiction. The station plaza and platforms are proposed within parcels zoned as Public Facility, which would be considered a compatible use. The proposed north pedestrian overcrossing structure, approximately 42 feet high, would, however, encroach on parcels zoned as Industrial-Tech (T) on the west and Commercial-General (CG) on the east. The Project would comply with zoning requirements on all parcels.

Pedestrian access would be constructed to connect adjacent business complexes to the new Ardenwood Station. A pedestrian pathway would be constructed under SR 84 facilitating access to areas south of the freeway, where currently there is no direct pedestrian access between the north and south sides of SR 84.

Parking for the new passenger rail station would be built northwest of it on a vacant parcel. The parking facility would initially consist of a surface parking lot with the potential for the construction of a future two-level parking garage, depending on the need for additional parking. Station parking

would be accessible via Ardentech Court on the west side of the Coast Subdivision. In the area of the proposed Ardenwood Station, improvements at the intersections on Kaiser Drive, Dumbarton Circle, Ardentech Court, and Ardenwood Terrance are proposed, including but not limited to pavement resurfacing and signal phasing improvements.

## 2.2.3.5. Bridge and Structure Improvements

### Bridges

The proposed Project would replace or modify existing railroad bridges to accommodate the addition of a track between the junctions at Elmhurst in Oakland and at Newark. Bridge foundations are anticipated to be drilled shafts or driven piles, depending upon the location and geotechnical conditions. It is anticipated that dewatering, drilling, and/or pile-driving activities would be required during the replacement of or modification to the existing bridges. In some locations, temporary "shoofly"[5] bridges and tracks may also be required to make space for construction of new bridges. At the ends of the bridges, short sections of the bridge wingwalls and retaining walls may be constructed approximately 3 feet to 5 feet outside UPRR ROW and would require access agreements.

The existing single-track bridges are anticipated to either be widened to accommodate an additional track or replaced entirely with new bridges that would accommodate two tracks.

The proposed bridge and structure improvement locations are identified in Table 2.2-2.

**Table 2.2-2. Proposed Bridge and Structure Improvements**

| Milepost | Existing Structure | Proposed Structure |
|---|---|---|
| **14.29** | 1-track concrete bridge | 2-track bridge |
| **16.93** | 1-track timber trestle | 2-track bridge |
| **17.13** | 1-track timber trestle | 2-track bridge or culvert |
| **18.24** | 1-track timber and steel bridge | 2-track |
| **18.38** | 1-track timber trestle | 2-track culvert or fill |
| **18.97** | 1-track timber trestle | 2-track bridge |
| **19.23** | 1-track timber trestle | 2-track bridge |
| **19.77** | 1-track timber trestle and in-creek hydraulic structure | 2-track bridge |
| **20.77** | Multi-track concrete box | Multi-track bridge or culvert |
| **23.68** | 1-track timber trestle | 2-track bridge |
| **24.16** | 1-track timber trestle | 2-track bridge |

5 A temporary road or track detour that allows traffic to continue flowing around a construction zone. Could also be a temporary bridge or fill with pipes buried in it to allow a creek to flow while constructing a permanent bridge.

**Table 2.2-2. Proposed Bridge and Structure Improvements**

| Milepost | Existing Structure | Proposed Structure |
|---|---|---|
| **24.76** | 1-track timber trestle | 2-track culvert or fill |
| **24.93** | 1-track timber trestle | 2-track culvert or fill |
| **25.03** | 1-track timber trestle | 2-track culvert or fill |
| **25.81** | 1-track timber trestle | 2-track culvert or fill |
| **26.80** | 1-track timber trestle | 2-track culvert or fill |
| **26.98** | 1-track concrete bridge (Lowry Road) | 2-track bridge |
| **27.01** | 1-track concrete bridge (Alameda Creek) | 2-track bridge |
| **27.37** | 1-track timber trestle | 2-track bridge |
| **27.40** | 1-track timber trestle | 2-track culvert or fill |
| **27.52** | 1-track timber trestle | 2-track culvert or fill |
| **29.57** | 1-track multiple pipe culvert | 2-track multiple pipe culvert |
| **30.09** | 1-track multiple pipe culvert | 2-track multiple pipe culvert |

At some utility crossing locations (such as storm drains, water pipes, or gas pipes), utility bridges may be installed to reduce loading on the utilities that might be created by the additional or shifted track. These utility bridges would be structurally similar to a short-span concrete bridge, but are anticipated to be mostly below ground, with only a thin portion of the superstructure visible above ground. The exact locations will be determined in conjunction with utility owners; however, the new locations would occur within the construction buffer assumed as part of the proposed Project footprint (Section 2.1).

## Retaining Walls

Retaining walls would also be required to accommodate railroad improvements on the Coast Subdivision. Potential locations where retaining walls would be needed include the following:

- Installation of low retaining walls or ballast retainers would occur intermittently along most of the corridor on one or both sides of the UPRR ROW to facilitate the proposed additional track and shifts to the existing track. In most areas of the corridor, the existing embankment is 3 feet to 6 feet above existing grade, and the height of new retaining walls would be 3 feet to 6 feet, generally matching the existing embankment height.
- Between Milepost (MP) 26.25 and MP 27.60, a 5- to 30-foot-high retaining wall on one or both sides of the rail ROW would be constructed to make space for an additional track. These retaining walls would be variable in height.

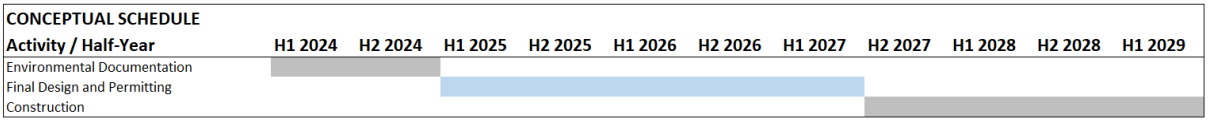
- Near Alvarado Boulevard (near MP 26.25), the retaining wall would be approximately 3 to 10 feet high. Extending southward from Alvarado Boulevard, the retaining wall would increase in height, generally matching the height of the existing track, with the highest portions (approximately 30 feet high) being closest to Lowry Road overpass near MP 26.98. The existing track is on a tall embankment at this location to cross over Lowry Road and the Alameda Creek levees. The proposed track elevation would be as much as 2 feet higher than the existing track elevation at Lowry Road; the elevation of the proposed track would be set to maintain the existing levee height, with the span of the proposed structure crossing above the crown of the levee, rather than passing through it.
- On the south side of Alameda Creek, the existing track embankment is approximately 5 feet to 10 feet above the surrounding ground. The new retaining walls would be approximately 7 feet to 12 feet tall to allow the new bridges and embankments to be approximately 2 feet higher than the existing bridges and embankments, reducing in height to match the existing grade progressing southward.
- Where determined necessary by noise analysis, the existing sound walls in this vicinity may be raised similarly to the track raise (e.g., by approximately 2 feet) to retain their effectiveness.

- Near MP 31.25, a retaining wall about 4 to 8 feet tall and about 500 feet long is proposed on the west side of the UPRR ROW, adjacent to the Cargill property. This wall would support reconfigured industrial switching tracks.

## 2.2.3.6. Proposed Schedule

CCJPA is currently in design and plans to initiate permitting by early 2025; final design and permitting are planned to be completed by July 2027. CCJPA is proposing construction to begin as early as summer 2027 and be completed by July 2029. Figure 2-12 presents this timeline. Project schedule may change as project funding plans change.

**Figure 2-12. South Bay Connect Proposed Planning and Construction Schedule**




## 2.2.3.7. Construction Methods and Materials

The following is an example of the general nature of construction work in the segment between Mt. Eden (just south of the Winton Avenue grade crossing) and the Baumberg Avenue at-grade crossing. This segment includes three at-grade crossings: Depot Road, Clawiter Road, and Baumberg Avenue. Although this is one segment of the Project, the work in this segment is typical of much of the construction along the corridor. This description explains the types of activities that a construction contractor would likely undertake in this segment. These construction methods would be typical of the work activities and sequences along the other segments of the Coast Subdivision.

## Retaining Walls and Structures

Construction would likely commence with construction of a low soldier pile retaining wall, which would be used to support grading and the new tracks. The wall would project approximately 3 feet above grade. The wall would be installed by drilling shallow holes with a small drill rig with auger or auger-equipped excavator into which steel H-pile shapes would be placed, and then cement slurry, delivered by cement truck, poured around them. After curing, horizontal lagging panels would be placed between the soldier piles. Lagging panels and piles would be handled by a wheel loader or forklift.

Another element of structural work that would be similar to work at other segments would be construction of new pier protection underneath SR 92. This would include using a drill rig with auger to excavate several holes adjacent to the existing piers. Rebar cages would be inserted into these holes, then the holes would be filled with concrete. These would form a foundation for concrete walls (projecting approximately 7 feet above top-of-rail elevation) to be constructed between the existing support piers for SR 92 and the railroad tracks.

## Grading and Track Construction

Once sections of the soldier pile wall are completed, the area to be graded would be cleared of debris and grading would commence, progressing behind the wall installation. Relocation of underground utilities in the railroad ROW would occur either prior to grading, or simultaneous with the grading. Utility relocation in the ROW would generally consist of excavating shallow trenches with a backhoe or small excavator to allow placement of a new utility, then backfilling the trench and compacting the resulting soil.

Grading would consist of shallow excavations to remove unsuitable soils at the surface, or simply breaking up soil by tilling and recompacting the existing soils. Suitable fill would be installed behind the retaining wall and under the proposed track. Rough excavation would be performed by excavators and bulldozers, followed by motor graders for finish grading, followed by compactors.

As grading is completed, railroad track would be constructed. The existing main track is at the approximate center of the ROW in this section. The proposed configuration is for two main tracks. Depending upon location, the two-main track configuration would be achieved in one of two methods. The first method would construct a new track adjacent to the existing track. The second method would shift the existing track to one side by approximately five feet, then a new track would be constructed approximately 15 feet away to the just-shifted track. The second method, involving an initial shift of the existing track prior to construction of a new, second main track, would be required where there is insufficient space to construct the new track adjacent to the existing track while leaving the existing track in its original position.

Construction of new tracks would involve laying out railroad rail and ties on the prepared sub-ballast, then positioning the rail on the ties, and then driving spikes to fasten the rail to the ties. After spiking, spring clips called anchors would be fastened to the rail adjacent to the ties. These operations would involve end-loaders, spike driving machines, a machine to position the rail, and machines to position the rail anchors on the rail.

In the case of new tracks, a train would distribute railroad ballast from hopper cars directly onto the track. Then, a track tamper would lift the track vertically and shift the track laterally into its final position by compacting the ballast around the ties, thereby holding the ties securely in place. The

track tamper would be followed by a ballast regulator to shape the ballast to the appropriate cross section. The same operation of distributing ballast, tamping, and regulating would also occur where existing tracks are upgraded or shifted. In locations where tracks would be shifted several feet, that operation would begin with a machine such as an end-loader pushing the track laterally to its approximate position, followed by a track tamper which would perform final positioning of the track laterally and vertically.

Existing tracks would be upgraded, with up to 75 percent of the old ties replaced with new ties, and new rail installed on the ties. Tie replacement involves several machines operating on the railroad tracks, following one another to remove the spikes from the ties, shift anchors away from the ties, remove steel bearing plates (called tie plates), pull the old tie perpendicularly out of the track, push a new tie in place of the old tie, replace the tie plates, then add spikes to the new tie, and shift the rail anchors back into position. Along with the tie replacement operation would be a rail replacement operation, which would remove the old spikes, remove the old rail, install new rail, and install new spikes to hold the rail in place. These would typically be followed by tampers and regulators to smooth the resulting track.

## Roadway and Utilities

In conjunction with railroad track construction, roadway work would also take place at the grade crossings. Roadway work would be necessary because a second track would be added at grade crossings. In this example segment, the affected crossings would be Depot Road, Clawiter Road, and Baumberg Avenue.

There are often utilities buried in roadways that cross the railroad track. To prepare for track construction, utility protection, such as installation of split-steel casings around existing utilities, would occur. Installation of a split-steel casing would be accomplished by excavating a small hole around the utility carrier pipe with a backhoe or excavator to expose the carrier pipe. Then, two half-round piece of steel tubing, larger in diameter than the existing carrier pipe, would be installed on either side of the carrier pipe and the longitudinal seams of the split-steel casing welded together to form a full-round tube around the existing carrier pipe. In other instances, utilities may elect to assemble a section of new carrier pipe inside a casing above ground, then lower that assembly into the ground and connect each end to existing carrier pipes, thereby avoiding the need for welding along the seams of a casing.

The second track would be added by excavating a shallow trench across the road, deep enough for new track (rail, ties, ballast, and subballast) to be installed, with the new top-of-rail elevation approximately matching that of the adjoining track. Concrete crossing panels would be installed on top of the track to provide a smooth driving surface. This would alter the roadway profile slightly and, as a result, the existing asphalt would be removed and replaced approximately 100 to 200 feet to either side of the tracks and a new asphalt driving surface installed with an asphalt paving machine and compacted. Minor concrete flatwork would also be performed at the grade crossings where sidewalks would be modified or installed; this minor concrete work would consist mostly of removing small portions of existing sidewalk with a backhoe, constructing formwork with hand tools, and pouring small amounts of concrete for the new sidewalk.

Traffic signal upgrades would also occur at the intersections near the grade crossing. These upgrades would allow traffic signal timing to interconnect with the grade crossing signals and discourage motorists from queuing on the tracks. This work would include installation of new traffic signals, foundations, and controller cabinets, as well as installation of new control cables between

traffic signals and grade crossing signals and between different traffic signals (where multiple signals would need to be interconnected to each other).

Railroad signals, including wayside signals and grade crossing signals (e.g., crossing gates and flashing lights) would be added or relocated to accommodate the new track. For most areas, this would occur simultaneously with the trackwork.

## Typical Timber Bridge Construction

Although there are no bridges in the Mt. Eden to Baumberg segment, there are several along the Project corridor. Thus, this section includes a description of the new bridges that could replace existing bridges along the corridor. Section 2.2.3.7 includes a discussion of the proposed Alameda Creek crossing, which is a much larger bridge, so is unique in both configuration and in how it would be constructed.

The final configuration of the proposed Project involves two main tracks in the ROW, whereas the existing condition has only a single main track, approximately centered in the ROW. Due to the constrained width of the ROW, two proposed tracks would need to "straddle" the one existing track. The same would be true at bridge locations. To keep the existing track and bridge in service, one new bridge, wide enough to accommodate one track, would be constructed adjacent to the existing bridge. After the new bridge is constructed and rail traffic has been shifted over to it, the existing bridge would be removed and another new bridge would be constructed in its place, providing sufficient width for a second new track.

Bridge construction would begin by constructing the piers for the bridge under one of the tracks. A drill rig would auger holes for new piles adjacent to the existing bridge at each pier location. Subsequently, a cage of reinforcing steel would be lowered into the resulting hole and the hole filled with concrete. In some locations, a crane with pile driver attachment may be used in lieu of an auger; this approach would result in steel H-piles, rather than round concrete cast-in-place piles. With either method, a cast-in-place concrete cap would be formed on top of the piles, locking them together and forming a support for the bridge spans. The cast-in-place cap would be constructed with hand tools to build the formwork and small cranes or forklifts to place reinforcing steel. After placing concrete in the forms, the forms would be removed. In general, the piers on existing single-track timber trestles are spaced approximately 15 feet apart. The new concrete structures for the proposed two-track configuration would have piers that are spaced approximately 30 feet apart.

At the abutments (piers at the ends of the bridge), short concrete wing walls would extend as required for grading. These wing walls would be either precast off site and installed with a crane or forklift, or may be cast-in-place, and may connect to short retaining walls constructed adjacent to the track.

After the abutments and piers are constructed, precast or prefabricated bridge sections forming the bridge superstructure would be lowered onto the piers with a crane and secured to each other and to the piers. Once secured, prefabricated walkways and handrails would be attached to the bridge sections and waterproofing installed on the bridge deck. Then, new railroad track would be constructed on the bridge (by distributing ties and rail, fastening rail to the ties, spreading ballast, tamping, and regulating) and the new track connected to previously constructed railroad track on either side.

Once the first bridge (adjacent to the existing bridge) is complete and ready for rail traffic, the original timber bridge would be removed in order to make space for construction of the second, adjacent bridge and its track. In most cases, the original bridge consists of a timber trestle. The track on the trestle would be disassembled and removed with a forklift or end loader. Subsequently, the trestle would be disassembled by un-bolting timber pieces from one another or cutting them apart with hand tools. Pieces of the trestle would be removed with a crane and pilings would be cut off below the groundline or removed with a pile extractor. Then, a new bridge and new track on the bridge would be constructed in place of the original bridge, following the process described above.

## Alameda Creek Bridge Replacement

The existing bridge over Alameda Creek, near MP 27, is a long, single-track structure composed of concrete piers supporting a superstructure of concrete girders and concrete deck. To keep the existing bridge in service, a new, single-track bridge would be constructed to one side of the existing bridge. Once that new bridge is in-service, the existing bridge would be removed and another new, single-track bridge would be constructed slightly to one side of the existing bridge. Note that there would likely be lateral overlap between second new bridge and the existing bridge; if the existing bridge were not removed, this second new bridge would interfere with the existing bridge.

Construction would commence when Alameda Creek channel is mostly dry. As was performed for construction of the fish ladder further upstream, some temporary diversion of the remaining waters flows may be necessary. Temporary access would be established into the channel by routing a temporary road over the levee, but not excavating the levee. New piers would be installed in the creek, with the substructure being either driven piles or drilled shafts. Above ground, the piers for the new bridge would be circular or oblong in cross section. These would be cast-in-place concrete.

The bridge superstructure components would be lifted in place by crane. Once the superstructure for the first bridge is installed, the track would be constructed across the first bridge and rail traffic shifted onto the new structure. The existing bridge, including its piers, could be removed after the first new structure is in place. After removal of the superstructure of the existing bridge, the superstructure for the second bridge would be placed.

## New Ardenwood Rail Station

The Ardenwood station construction would include the station facility, parking lot, and center island platform with grade-separated access via a pedestrian overpass over the tracks (Figure 2-11). The rail station would not replace the existing Ardenwood Park and Ride, but would be co-located with the existing service. Construction would start with foundation work, setting the long footings for the platform, using hand tools and a small excavator. At this time, a foundation for the elevator and stairway would also be constructed, likely excavated by a small excavator or providing drilled shafts for the taller structure. The same process would be used for the foundations on both sides of the pedestrian overpass. A grade beam foundation for the station facility would also be constructed by excavating shallow trench with a small excavator. At the same time, conduits for future electrical wiring would be placed by hand.

Once foundation work has been completed, the superstructure work would commence. Forming and installation components for the elevator shafts would occur, with either steel beams placed via crane or concrete walls formed with hand tools and a forklift for lifting forms. After concrete is placed with a pump truck and cured, forms would be removed. Once concrete has cured sufficiently, the overpass bridge itself would be placed with a crane. After these major construction items are

complete, finish work, such as electrical wiring, installing light poles, passenger information equipment, painting, signage, etc., would commence. This finish work would be completed with hand tools.

Parking lot construction would occur in parallel with other work. The parking lot would involve grading with small earthmoving equipment, such a small motor grader, end loader, or compactor. At the same time, forms for concrete curbs would be placed with hand tools. Concrete would be placed directly from trucks, followed by form removal by hand. Paving would follow, with asphalt placed by a paving machine followed by a compactor.

### 2.2.3.8. Construction Equipment and Crews

As shown in Figure 2-12, construction is anticipated to occur over two years, beginning as early as Summer 2027. Construction would occur in multiple "segments" of the Project footprint, generally grouped as follows:

- Elmhurst to Williams Street;
- Williams Street to Mt. Eden;
- Mt. Eden to Baumberg Avenue;
- Baumberg Avenue to Alvarado Boulevard;
- Alvarado Boulevard to Lowry Road;
- Lowry Road to Ardenwood Boulevard (no at-grade crossings);
- Ardenwood Boulevard to Jarvis Avenue (including construction of proposed new rail station);
- Jarvis Avenue to Thornton Avenue, and
- Newark Rail Yard.

Within each segment, construction would generally consist of the following types of actions (see Section 2.2.3.7 for more details). Estimated construction periods and maximum numbers of workers for any one segment are also shown below:

- Grading and earthwork to prepare Project footprint for construction (estimated 3 to 6 months and a maximum of 20 construction workers across segment);
- Construction of structures, such as bridges and retaining walls (estimated 3 to 7 months and a maximum of 22 construction workers across segment);
- Roadway and utility improvements at at-grade rail crossings (estimated 1 to 2 months and a maximum of 37 construction workers across segment, not including proposed Ardenwood Station);
- Track and rail signal upgrades within the rail right of way (estimated 3 to 5 months and a maximum of 52 construction workers across segment).
- Ardenwood Station construction (estimated to take up to 12 months with a maximum number of 20 construction workers onsite per day).

Multiple activities could occur concurrently within a segment, although they would likely stagger in location across the segment. It is also anticipated that multiple segments could be under construction at the same time, with work likely commencing at either end of Project footprint and meeting in middle to reduce overall proposed Project construction period. Note that estimated time frames for activities within a segment could be increased due to weather conditions that would require temporary stops in work due to site stability, access limitations, and/or worker safety concerns.

### 2.2.3.9. Proposed Operations and Maintenance

Train operations on the Coast Subdivision would be updated by the service operators (UPRR, Amtrak) to accommodate the relocated Capitol Corridor passenger rail service and would not affect the frequency of existing passenger or freight services along the rail line. No changes to freight service operations on the Niles and Oakland Subdivisions would occur as a result of Project implementation.

Maintenance of all railroad subdivisions would continue to follow the standards and guidelines currently in place and implemented by UPRR; no changes to the maintenance requirements would result from implementation of the proposed Project. Operations and maintenance at the proposed new Ardenwood Station would be consistent with procedures and guidelines implemented at existing Capitol Corridor rail stations.

## 2.2.4. Best Management Practices

During Project implementation, CCJPA will implement a range of best management practices (BMPs) to avoid or minimize adverse effects on the environment. The proposed BMPs and their full descriptions are presented in Table 2.2-3. The BMPs are named after the primary resource area. BMP titles are included in relevant resource sections in Chapter 3, with reference back to this section for full text.

**Table 2.2-3. Proposed Best Management Practices**

| BMP | BMP Description | Related Resource Areas |
|---|---|---|
| **BMP AES-1: Special Permits and/or Variance from Local Jurisdictions where Work is Outside of UPRR Right-of-Way (ROW)** | To the extent possible, CCJPA will comply with the local jurisdictional codes and regulations pertaining to aesthetics and visual quality for those areas proposed for construction outside of the UPRR ROW. In these non-UPRR areas, CCJPA will obtain the required jurisdictional approvals for any concurrences, variances, and/or permits required related to visual quality. Design elements and/or public art reflective of community aesthetics will also be coordinated with the city or county in areas outside of UPRR ROW. | |
| **BMP AQ-1: Implement Bay Area Air Quality Management District (BAAQMD) Basic Construction Mitigation Measures** | Construction of the proposed Project will require that all construction contractors implement the basic construction mitigation measures recommended by BAAQMD. The emissions reduction measures will include, at a minimum, the following:<br>• All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) will be watered two times per day.<br>• All haul truck loads will be covered when transporting soil, sand, or other loose material off site.<br>• All visible mud or dirt track-out material on adjacent public roads will be removed using wet-power vacuum-type street sweepers at least once a day. The use of dry-power sweeping is prohibited.<br>• All vehicle speeds will be limited to 15 miles per hour on unpaved roads.<br>• All roadways, driveways, and sidewalks that are to be paved will be paved as soon as possible. Building pads will be laid as soon as possible after grading, unless seeding or soil binders are used.<br>• All excavation, grading, and/or demolition activities will be suspended when average wind speeds exceed 20 mph.<br>• All trucks and equipment, including their tires, will be washed off prior to leaving the site.<br>• Unpaved roads providing access to sites that are located 100 feet or further from a paved road will be treated with a 6- to 12-inch compacted later of wood chips, mulch, or gravel.<br>• Publicly visible signs will be posted with the telephone number and person to contact at CCJPA regarding dust complaints. CCJPA will respond and take | Air Quality<br>Recreation |

**Table 2.2-3. Proposed Best Management Practices**

| BMP | BMP Description | Related Resource Areas |
|---|---|---|
| | corrective action within 48 hours. BAAQMD's phone number will also be visible to ensure compliance with applicable regulations. | |
| **BMP CUL-1: Conduct Cultural Resources Awareness Training Prior to Project-Related Ground Disturbance** | Prior to any Project-related ground disturbance, CCJPA will ensure that all construction workers receive training by a registered professional archaeologist who is experienced in teaching non-specialists to ensure that contractors can recognize archaeological resources in the event that any are discovered during construction. A tribal representative will be invited to participate in the training. Construction staff directly overseeing or engaged in ground disturbing activities will be required to participate in this preconstruction training.<br><br>This training will be administered as standalone training or included as part of the overall environmental awareness training required as a result of the proposed Project. The training will include, at minimum, the following:<br>• The types of cultural resources that are likely to be encountered;<br>• The procedures to be taken in the event of an inadvertent cultural resource discovery; and<br>• The penalties for disturbing or destroying cultural resources. | Cultural Resources<br><br>Tribal Cultural Resources |
| **BMP CUL-2: Stop Work if Archaeological Deposits and/or Human Remains are Encountered During Ground-Disturbing Activities** | If archaeological deposits are encountered during Project-related ground disturbance, work in the area (100-foot radius) should stop immediately and the procedures outlined in the AMATP will be implemented.<br><br>If any human remains are discovered during ground-disturbing activities, there should be no further excavation or disturbance of the site, or any nearby area reasonably suspected to overlie adjacent human remains. These remains should be treated in accordance with existing state laws, including California PRC Section 5097.98 and California Health and Safety Code Section 7050.5. | Cultural Resources<br><br>Tribal Cultural Resources |
| **BMP GEO-1: Geotechnical Investigations** | CCJPA will require geotechnical investigations during the Project design phase. The Project will be designed to minimize slope failure, settlement, and erosion using recommended construction techniques and BMPs. | Geology and Soils |

**Table 2.2-3. Proposed Best Management Practices**

| BMP | BMP Description | Related Resource Areas |
|---|---|---|
| **BMP GEO-2: Expansive Soil** | Where expansive soils are present, the structures will be designed and constructed to withstand the increased earth pressures exerted by the expansive clays and to specifications determined by the geotechnical investigation prepared during final design. As necessary, expansive clays will also be treated with lime to reduce the shrink-swell potential in localized areas or removed and replaced with a non-expansive fill material. | Geology and Soils |
| **BMP GHG-1: Implement BAAQMD Construction Measures** | Construction of the proposed Project will require implementation of the following measures that would ensure that GHG emissions during construction would be minimized.<br><br>Use zero-emission and hybrid-powered equipment to the greatest extent possible, particularly if emissions are occurring near sensitive receptors or within a BAAQMD-designated Community Air Risk Evaluation (CARE) area or AB 617 community.<br>• Require all diesel-fueled off-road construction equipment to be equipped with U.S. Environmental Protection Agency Tier 4 Final engines or better.<br>• Require all on-road heavy-duty trucks to be zero emissions or meet the most stringent model-year emissions standard where feasible.<br>• Minimize idling time, either by shutting equipment off when not in use or reducing the time of idling to no more than 2 minutes. Provide clear signage that posts this requirement for workers at the entrances to the site.<br>• Use California Air Resources Board-approved renewable diesel fuel in off-road construction equipment and on-road trucks where feasible.<br>• Use U.S. Environmental Protection Agency SmartWay-certified trucks for deliveries and equipment transport where feasible.<br>• Require all construction equipment to be maintained and properly tuned in accordance with the manufacturer's specifications.<br>• Where grid power is available, prohibit portable diesel engines and provide electrical hook-ups for electric tools, such as saws, drills, and compressors; use electric tools whenever feasible. | Greenhouse Gas Emissions |

**Table 2.2-3. Proposed Best Management Practices**

| BMP | BMP Description | Related Resource Areas |
|---|---|---|
| | • Where grid power is not available, use alternative fuels, such as propane or solar electrical power, for generators at construction sites whenever feasible.<br>• Encourage and provide carpools, shuttle vans, transit passes, and/or secure bicycle parking to construction workers and offer meal options onsite or shuttles to nearby meal destinations for construction employees.<br>• Reduce electricity use in the construction office by using LED bulbs, powering off computers every day, and replacing heating and cooling units with more efficient ones.<br>• Minimize energy used during site preparation by deconstructing existing structures to the greatest extent feasible.<br>• Recycle or salvage nonhazardous construction and demolition debris, with a goal of recycling at least 15 percent more, by weight, than the diversion requirement in Title 24.<br>• Use locally sourced or recycled materials for construction (goal of at least 20 percent, based on cost of building materials and volume of roadway, parking lot, sidewalk, and curb materials).<br>• Use low-carbon concrete, minimize the amount of concrete used, and produce concrete on-site where feasible if it is more efficient than transporting ready-mix.<br>Develop a plan to efficiently use water for adequate dust control.<br>• Include all requirements in applicable bid documents, purchase orders, and contracts, with successful contractors demonstrating the ability to supply compliant on- or off-road construction equipment prior to any ground-disturbing and construction activities. | |
| **BMP HAZ-1: Prepare a Construction Hazardous Material Management Plan (HMMP)** | Prior to construction, CCJPA will ensure that an HMMP is prepared by the construction contractor, which will outline provisions for safe storage, containment, and disposal of chemicals and hazardous materials, contaminated soils, and contaminated groundwater used or exposed during construction, including the proper locations for disposal. The HMMP will be prepared to address construction activity within the Project footprint and include, but not be limited to, the following:<br>• A description of hazardous materials used (29 C.F.R. 1910.1200). | Hazards and Hazardous Materials |

**Table 2.2-3. Proposed Best Management Practices**

| BMP | BMP Description | Related Resource Areas |
|---|---|---|
| | • A description of handling, transport, treatment, and disposal procedures, as relevant for each hazardous material or hazardous waste (29 C.F.R. 1910.120).<br>• Preparedness, prevention, contingency, and emergency procedures, including emergency contact information (29 C.F.R. 1910.38).<br>  ○ A description of personnel training including, but not limited to: (1) recognition of existing or potential hazards resulting from accidental spills or other releases; (2) implementation of evacuation, notification, and other emergency response procedures; (3) management, awareness, and handling of hazardous materials and hazardous wastes, as required by their level of responsibility (29 C.F.R. 1910).<br>• Instructions on keeping Safety Data Sheets on site for each on-site hazardous chemical (29 C.F.R. 1910.1200).<br>• Identification of the locations of hazardous material storage areas, including temporary storage areas, which will be equipped with secondary containment sufficient in size to contain the volume of the largest container or tank (29 C.F.R. 1910.120).<br>• A description of accidental hazardous materials release measures and spill cleanup procedures, including, but not limited to, contacting the correct regulating agency about the spill; evacuating the spill area; securing the spill; placing barriers and absorbents around the spill to prevent contamination from spreading; putting up signs or caution tape to prevent entry to the spill area; characterizing the spill; and cleanup by qualified personnel. | |
| **BMP HAZ-2: Property Acquisition Phase 1 and Phase 2 Environmental Site Assessments** | Prior to or during the ROW acquisition phase, CCJPA will ensure that Phase 1 Environmental Site Assessments are conducted in accordance with standard ASTM methodologies to characterize each high-risk parcel prior to acquisition within the Project footprint. The determination of parcels that require a Phase 2 Environmental Site Assessments (for example, soil, groundwater, soil vapor subsurface investigations) would be informed by a Phase 1 Environmental Site Assessments and may require coordination with state and local agency officials. Major work areas requiring substantial ground disturbance and excavation outside of acquired properties will also be subject to Phase 2 investigations. | Hazards and Hazardous Materials |

**Table 2.2-3. Proposed Best Management Practices**

| BMP | BMP Description | Related Resource Areas |
|---|---|---|
| **BMP HAZ-3: Prepare a General Construction Soil Management Plan** | Prior to construction, CCJPA will ensure that a General Construction Soil Management Plan is prepared, which will include general provisions for how soils will be managed within the Project footprint for the duration of construction. General soil management controls to be implemented by the contractor, and the following additional topics, will be addressed within the General Construction Soil Management Plan:<br>• General worker health and safety procedures.<br>• Dust control/wind erosion control.<br>• Management of soil stockpiles.<br>• Traffic control.<br>• Stormwater erosion control using BMPs. | Hazards and Hazardous Materials |
| **BMP HAZ-4: Prepare Parcel-Specific Soil Management Plans and Health and Safety Plans (HASP)** | Prior to construction, CCJPA will ensure that parcel-specific Soil Management Plans be prepared for known contaminated sites for submittal and approval by the Department of Toxic Substances Control (DTSC). The plans will include specific hazards and provisions for how soils will be managed for known contaminated sites. The nature and extent of contamination varies widely across the Project footprint, and the parcel specific Soil Management Plan will provide parcel-specific requirements addressing the following:<br>• Soil testing and soil characterization.<br>• Soil disposal protocols.<br>• Protocols governing the discovery of unknown contaminants.<br>• Soil management on properties within the Project footprint with known hazardous contaminants.<br><br>Prior to construction on individual properties with known contaminants, a parcel-specific HASP will also be prepared for approval by DTSC. The HASP will be prepared to meet OSHA requirements, Title 29 of the C.F.R. 1910.120 and CCR Title 8, Section 5192, and all applicable federal, state, and local regulations and agency ordinances related to the proposed management, transport, and disposal of contaminated media during construction. The HASP will be signed and sealed by a Certified Industrial Hygienist, who is licensed | Hazards and Hazardous Materials<br><br>Public Services |

**Table 2.2-3. Proposed Best Management Practices**

| BMP | BMP Description | Related Resource Areas |
|---|---|---|
| | by the American Board of Industrial Hygiene. In addition to general construction soil management plan provisions, the following parcel-specific HASP provisions will also be implemented:<br>• Training requirements for site workers who may be handling contaminated material, including the transport and disposal of contaminated material.<br>• Chemical exposure hazards in soil, groundwater, or soil vapor that are known to be present on a property.<br>• Mitigation and monitoring measures that are protective of site worker and public health and safety.<br><br>Prior to construction, CCJPA will coordinate proposed soil management measures and reporting activities with regulatory agencies with jurisdiction in order to establish an appropriate monitoring and reporting program that meets all federal, state, and local laws at each of the contaminated sites. | |
| **BMP HAZ-5: Leaking Underground Storage Tank (LUST) Sites and Coordination with DTSC** | Prior to construction on properties with a LUST, CCJPA will coordinate with DTSC regarding any plans, construction activities, and/or public outreach that is needed to verify that construction activities on properties with LUSTs would be conducted in a manner protective of public health. | Hazards and Hazardous Materials |
| **BMP HAZ-6: Halt Construction Work if Potentially Hazardous Materials/ Abandoned Oil Wells are Encountered** | During construction, CCJPA will ensure that contractors will follow all applicable local, state, and federal regulations regarding discovery, notification, response, disposal, and remediation for hazardous materials and/or abandoned oil wells encountered during the construction process. | Hazards and Hazardous Materials |
| **BMP HAZ-7: Pre-Demolition Investigation** | Prior to the demolition of any structures constructed prior to the 1970s, CCJPA will ensure that a survey be conducted for the presence of hazardous building materials, such as Asbestos-Containing Material (ACMs), Lead-Based Paints (LBPs), and other materials falling under the Universal Waste requirements. The results of this survey will be submitted to CCJPA and applicable agencies as deemed appropriate by CCJPA. If any hazardous building materials are identified prior to demolition of any structures, a plan for proper removal will be prepared in accordance with applicable OSHA and | Hazards and Hazardous Materials |

**Table 2.2-3. Proposed Best Management Practices**

| BMP | BMP Description | Related Resource Areas |
|---|---|---|
| | Alameda County Department of Environmental Health requirements. The contractor performing the work will be required to implement the removal plan, will be required to have a C-21 license in the State of California, and possess an A or B classification. If asbestos-related work is required, the contractor or their subcontractor will be required to possess a California Contractor License (Asbestos Certification). Prior to any demolition activities, the contractor will be required to secure the site and ensure utilities are disconnected. | |
| **BMP HYD-1: Temporary Erosion and Sediment Controls** | All temporarily disturbed slopes will be protected with temporary erosion control and sediment controls. Temporary erosion control includes temporary bonded fiber matrix, temporary hydraulic mulch, temporary hydroseeding, and temporary cover with geotextiles or rolled erosion control products (RECPs). Temporary sediment controls include temporary silt fence, temporary check dams, temporary fiber rolls, and storm drain inlet protection. | Hydrology and Water Quality |
| **BMP HYD-2: Construction Management Practices** | CCJPA and/or its contractor will practice good housekeeping throughout the construction limits and within staging areas using BMPs such as stabilized construction entrances, material delivery and storage, stockpile management, hazardous waste management, liquid water management, vehicle and equipment fueling and maintenance. Wind erosion, resulting in fugitive dust emissions, will be avoided or minimized by implementing construction roadway speed limits, halting activities during high-wind conditions, and dust suppression by wetting disturbed soil areas. The California Stormwater Quality Association's (CASQA) *Stormwater Best Management Practice Handbook: Construction* (2023) provides further details on these construction BMPs. | Hydrology and Water Quality |
| **BMP HYD-3: Creek Diversion to Address In-Creek Construction** | Construction work in live perennial streams and creeks will include temporary creek diversion BMPs. Temporary clear water diversions and dewatering operations would be implemented in accordance with CASQA's *Stormwater Best Management Practice Handbook: Construction* (2023). These | Hydrology and Water Quality |

**Table 2.2-3. Proposed Best Management Practices**

| BMP | BMP Description | Related Resource Areas |
|---|---|---|
| | BMPs for dewatering operations, erosion control, and soil stabilization will avoid discharging water in a manner and at rates that cause substantial changes in surface water hydrology and water quality. This will be achieved by controlling pumping rates and using velocity dissipation devices or similar methods that minimize impacts on the flow rates of streams. | |
| **BMP HYD-4: Delineate Environmentally Sensitive Areas (ESAs) Near Construction Areas** | All environmentally sensitive areas will be protected with high visibility fencing to avoid impacts or disturbance. Thus, preserving existing vegetation and avoiding sensitive wetland and riparian habitats to the extent feasible. | Hydrology and Water Quality |
| **BMP HYD-5: Permanent Erosion Control** | All unpaved slopes will be protected with permanent erosion control such as RECP or permanent hydroseeding with hydraulic mulch. | Hydrology and Water Quality |
| **BMP HYD-6: Addressing Additional Impervious Surface Impacts** | Permanent water quality impacts from added and replaced impervious areas will be avoided or minimized with the implementation of permanent treatment BMPs and trash capture devices. | Hydrology and Water Quality |
| **BMP HYD-7: Addressing Hydromodification Impacts** | Hydromodification impacts from added impervious in susceptible areas will be avoided or managed with the inclusion of flow control features and energy dissipators such as flared end sections, rock slope protection and check dams. | Hydrology and Water Quality |
| **BMP HYD-8: Dewatering at High Groundwater** | BMPs for dewatering operations will be used within excavation areas with high groundwater. | Hydrology and Water Quality |
| **BMP HYD-9: Monitoring Weather Forecast to Avoid Construction Impacts During Storm Events** | CCJPA and its contractors will need to monitor weather forecasts for intense storm events that have the potential to create flood conditions for areas within the floodplains. When there is a possibility for flooding within the Project footprint, the contractor will remove temporary structures, equipment, and materials from aquatic resources to avoid substantial increases in the WSE of 100-year floodplains. If needed, formworks and falseworks will be designed to remain within floodplains during the winter rainy season and withstand the hydraulic forces of flood flows without increasing WSE by 1 foot. | Hydrology and Water Quality |

**Table 2.2-3. Proposed Best Management Practices**

| BMP | BMP Description | Related Resource Areas |
|---|---|---|
| **BMP REC-1: Protection of Alameda Creek Regional Trail** | When construction work occurs over the Alameda Creek Regional Trail, the trail will be closed for as short duration as feasible. Protective measures will be installed when the trail is open to ensure the safety of trail users. | Recreation |
| **BMP REC-2: Coordinate and Provide Advance Notice of Construction Activities Adjacent to Public Trails** | CCJPA will coordinate construction activities adjacent to publicly accessible trails with the East Bay Regional Parks District (EBRPD). CCJPA's contractors will be responsible for informing trail users regarding upcoming construction activities and any potential detours. At least 10 days in advance, notices will be posted along the trail regarding any trail closures or detours. To the extent possible, the trail will be kept open at all times. | Recreation |
| **BMP TR-1: Transportation Management Plan (TMP)** | During final design, a TMP will be developed by CCJPA in coordination with affected jurisdictions, fire and police departments, and adjacent construction projects to reduce construction‐related impacts. The TMP will include, at a minimum, the following measures:<br>• Identifying full closures, short‐term closures, and detour routes for all modes of travel, including the pedestrian, bicycle, vehicular, public transit, freight, and emergency vehicle modes.<br>• Coordinating and communication with fire and police departments during development of TMP to ensure adequate access is maintained during construction.<br>• Identifying locations of short‐term and long‐term capacity reductions on the transportation system and coordinating with local agencies to minimize congestion effects.<br>• Installing temporary traffic control measures to promote safety in construction zones.<br>• Installing signage to alert drivers to upcoming closures and lane reductions.<br>• Coordinating with public transit agencies to notify riders about stop closures or diversions.<br>Identifying construction vehicle routings that minimize effects on the transportation system. | Transportation<br>Hazards and Hazardous Materials<br>Land Use and Planning<br>Public Services<br>Recreation<br>Wildfire |

**Table 2.2-3. Proposed Best Management Practices**

| BMP | BMP Description | Related Resource Areas |
|---|---|---|
| **BMP UT-1: Utility Verification and Coordination with Utility Providers and California Public Utilities Commission (CPUC)** | CCJPA and the contractor will coordinate with utility providers regarding protection, relocation, or removal of their utilities, and the following measures will be implemented:<br>• Prior to and during construction, CCJPA will coordinate with service providers to obtain necessary permits and to minimize or avoid interruptions.<br>• At least two days prior to excavation of any subsurface installation, the construction contractor will notify the regional notification Underground Service Alert per the Regional Notification Center System (California Government Code 4216). The Underground Service Alert then notifies utilities that may have buried lines within 1,000 feet of the excavation. Representatives of the utilities will mark the specific location of their facilities within the work area prior to the start of excavation. The construction contractor will probe and expose the underground facilities by hand prior to using power equipment.<br>• Service interruptions will be minimized to the extent feasible.<br>• CCJPA will notify pipeline operators of proposed demolition, excavation, tunneling, or construction near or affecting a pipeline, in accordance with Norman Y. Mineta Research and Special Programs Improvement Act.<br>• Affected utilities will be relocated in-kind.<br>CCJPA will coordinate with CPUC to ensure compliance with General Orders 95 and 131-D. A permit to construct (for powerlines) or a certificate of public convenience and necessity (for transmission lines) will be obtained should it be determined during final design that the proposed Project would require the modification, alteration, or addition of electrical lines over 50 kV.<br>• CCJPA will observe relevant ACWD Standard Specifications for Water Main Extension.<br>• CCJPA will observe the California Department of Health Services (DHS) standards, which require: a 10-foot horizontal separation between parallel sewer and water mains, and a 1-foot vertical separation between perpendicular water and sewer line crossings. In the event that separation requirements cannot be maintained, the Project proponent will obtain a DHS variance through provisions of water encasement or other means deemed suitable by the department. | Utilities and Service Systems |

**Table 2.2-3. Proposed Best Management Practices**

| BMP | BMP Description | Related Resource Areas |
|---|---|---|
| **BMP UT-2 Minimize Potable Water Use** | The contractor will maximize use of recycled water and minimize use of potable water. | Utilities and Service Systems |
| **BMP UT-3: Water Efficient Landscaping** | Landscaping, outside of the UPRR ROW, will comply with Water Efficient Landscape Ordinance and Bay Friendly Landscaping criteria. The proposed Project will coordinate with municipalities to ensure landscape improvements at all grade crossings comply with local ordinances. Outside of the UPRR ROW, the Project will:<br>• Use low-water, native plants and avoid planting invasive species.<br>• Use recycled, reclaimed, and/or non-potable water for irrigation where available.<br>• Limit turf to no more than 25 percent of the total planted area on the project.<br>• Utilize the whole systems/watershed approach to design and maintenance of landscaping to support the integrity of the San Francisco Bay watershed through best practices. | Utilities and Service Systems |
| **BMP UT-4: Public Notification** | Prior to construction in areas where utility service interruptions are unavoidable, the construction contractor, CCJPA, and/or the affected utility will notify the affected public through a combination of communication media (e.g., by phone, email, mail, newspaper notices, or other means) within that jurisdiction and the affected service providers of the planned outage. The notification will specify the estimated duration of the planned outage and would be published no less than seven days prior to the outage. Construction will be coordinated to avoid interruptions of utility service to hospitals and other critical users. | Utilities and Service Systems |
| **BMP UT-5: Coordinate with Hayward Water System (HWS) and Alameda County Water District (ACWD) in Dry Construction Years** | The Project will coordinate with HWS and ACWD in dry years (as defined in their Urban Water Management Plans [UWMPs]). The proposed Project will comply with HWS and ACWD requirements during water shortages, including submittal of a construction water use plan in Level 3 shortages to HWS that addresses how impacts to existing water uses will be minimized, such as by selecting SWPPP measures with lower water requirements. The Project may | Utilities and Service Systems |

**Table 2.2-3. Proposed Best Management Practices**

| BMP | BMP Description | Related Resource Areas |
|---|---|---|
| | also evaluate acquiring potable and/or non-potable water from outside sources to supplement construction within HWS and/or ACWD service area. | |
| **BMP UT-6: Minimize Construction and Demolition (C&D) Debris** | C&D debris will be minimized to the maximum extent practicable, prioritizing reuse of C&D materials and then recycling. Where applicable, the proposed Project will at minimum meet the current state and county recycling requirements and will comply with the municipal recycling requirements at the time of construction to the extent feasible.<br><br>Where required by regulations, a Waste Reduction and Recycling Plan will be prepared by the Contractor that shows how the proposed Project will meet current recycling requirements. Contractor will provide documentation that recycling requirements were met. | Utilities and Service Systems |
| **BMP UT-7: Treated Wood Waste (TWW) Handler Notification** | The contractor will notify DTSC within 30 days if generating more than 10,000 pounds of TWW per calendar year. The contractor will comply with AB 332's Alternative Management Standards for TWW. | Utilities and Service Systems |
| **BMP WF-1: Prepare Fire Prevention Plan** | Prior to construction, the contractor will prepare a Fire Prevention Plan for CCJPA approval. This plan will outline fire prevention measures that will be applicable within 500 feet of very high fire hazard severity zones (VHFHSZs) during the dry season (June through December, or earlier if a fire season is declared by a fire protection authority). The Fire Prevention Plan will be prepared in consultation with and comply with the City of Fremont's Fire Department and the East Bay Regional Parks Fire Department requirements. The construction contractor will implement any fire protection measures that are applicable within the VHFHSZ. The plan would include at minimum the following measures:<br>• No parking or driving on dry grasses.<br>• Smoking is prohibited on vegetated areas.<br>• Generators and gas-powered equipment will have spark arrestors.<br>Any flame- or spark- producing activities (e.g., welding, rail cutting) requires 30 feet of clearance to any flammable material (such as grass, weeds, wood chips, | Wildfire<br><br>Hazards and Hazardous Materials |

**Table 2.2-3. Proposed Best Management Practices**

| BMP | BMP Description | Related Resource Areas |
|---|---|---|
| | brush, removed rail ties). A suitable fire extinguisher will be immediately accessible for the duration of this work.<br>During Extreme or Very High Fire Danger, use of gasoline powered equipment (e.g., mowers in rough areas, weed eaters, chain saws, welders and generators) may require extra protection measures. | |
| **BMP WF-2: Use Drought-Tolerant and Fire-Resistant Native Plants** | Within 500 feet of VHFHSZs and outside of UPRR ROW, landscape design and soil stabilization will use drought-tolerant and fire-resistant native plants and least flammable mulches (e.g., coarse compost) to the extent feasible. CCJPA will ensure that this is included in final design of the project and in construction specifications. | Wildfire<br>Hazards and Hazardous Materials |

# 2.3. Alternatives Considered but Rejected

As discussed in Section 2.3.1, the following project alternatives (Alternatives A through D) were considered during early planning but were rejected as infeasible or because they did not reduce impacts to below thresholds of significance. Since the alternatives were eliminated from consideration, they are not included in the resource assessments in Chapter 3; however, brief summaries are included below and overview plans (conceptual designs) for Alternatives B through D are included in Appendix A. Alternative A was eliminated from consideration prior to conceptual designs being developed by project engineers, so no design sheets are included in the appendix for this alternative.

Alternatives to the single proposed new station location at Ardenwood were also considered and eliminated; a summary is provided in Section 2.3.5.

Like the proposed Project, Alternatives A, B, C, and D proposed to move Capitol Corridor passenger service to the Coast Subdivision; however, improvements on the Coast Subdivision under Alternatives A, B, C, and D were less extensive than those included in the proposed Project. As discussed above, Alternatives A, B, C, and D also proposed to move some freight service currently operating on the Coast Subdivision to the Niles/Oakland subdivisions. As a result, Alternatives A, B, C, and D's proposed improvements to the Niles and Oakland subdivisions would be more expansive than the proposed Project to support increasing demands in freight rail services. Alternatively, the proposed Project includes upgrades at the Niles Subdivision only in the vicinity of the connection points between the Niles Subdivision and Coast Subdivision (at Elmhurst and Newark) and does not include any improvements to the Oakland Subdivision.

The proposed improvements to the Coast Subdivision are identical for Alternatives A, B, C, and D described below in Sections 2.3.1 through 2.3.4. These four alternatives differ only in proposed upgrades and/or new bridges on the Niles and Oakland Subdivisions.

## 2.3.1. Alternative A

Alternative A proposed to relocate all Capitol Corridor passenger service to the Coast Subdivision and some UPRR freight service to the Niles and Oakland subdivisions. Alternative A proposed track improvements, grade crossing improvements, and new or extended sidings along the Coast, Niles, and Oakland subdivisions. Like the proposed Project, the existing Hayward and Fremont-Centerville passenger stations on the Niles Subdivision would be no longer be serviced by Capitol Corridor and a new passenger rail station would be constructed on the Coast Subdivision at the existing Ardenwood Park-and-Ride facility. Alternative A would also construct a new connection between the Niles and Oakland Subdivisions at Industrial Parkway to allow trains traveling southward on the Niles Subdivision to connect with and continue southward on the Oakland Subdivision to reach Niles Canyon (and vice versa for northward trains).

### 2.3.1.1. Alternative A Screening Findings

#### Alignment with Project Goals and Objectives

As introduced in Section 2.1.1, this alternative does not meet the objective of maintaining freight service with no change in operations since it would involve the movement of some freight service to

the Niles and Oakland Subdivisions. This shift in freight operations would require upgrades for structural improvements on the Niles and Oakland subdivisions. These upgrades along those rail lines would be costly and cause substantial resource impacts. Based on this, Alternative A does not meet this screening criterion.

### Feasibility of Implementation

This alternative is physically feasible to implement. However, it would require a shift in some or all freight service from the Coast Subdivision to the Oakland and Niles subdivisions. Alternative A includes upgrades to the Niles and Oakland subdivisions to allow for additional freight service may not be financially justifiable (that is, may be financially infeasible). Upgrades to the Niles and Oakland Subdivisions would not benefit Capitol Corridor passenger rail services, and the cost of those improvements would not be offset by further increases in anticipated ridership gains associated with the proposed Project. Therefore, this alternative does not meet this screening criterion.

### Reduction of Significant Impacts

As defined in Section 2.3.1, this alternative would not "avoid or substantially lessen one or more of the significant effects of the project", because none were identified during the environmental analysis of the proposed Project. Based on this, Alternative A did not meet this screening criterion.

## 2.3.2. Alternative B

Alternative B would have many of the same features as Alternative A, including shifting all Capitol Corridor passenger service to the Coast Subdivision, and some UPRR freight service to the Niles and Oakland subdivisions.

This alternative included a new grade-separated structure elevated over Industrial Parkway on the Niles Subdivision and proposed a new connection south of Industrial Parkway between the Niles and Oakland Subdivisions to allow trains traveling southward on the Niles Subdivision to connect with and continue southward on the Oakland Subdivision to reach Niles Canyon (and vice versa for northward trains). Alternative B would also have extended the existing Hayward siding (on the Niles Subdivision) southward as well as construct a new siding on the Oakland Subdivision approximately between Decoto Road and Alameda Creek.

Further, Alternative B would also construct new connections between the Oakland Subdivision and Niles Subdivision in the Fremont area, in the vicinity of Shinn Street. These new connections in the Fremont area would have allowed trains traveling southward on the Oakland Subdivision to reach either Niles Junction or the junction at Newark. Property acquisitions would have been required in Fremont near Shinn Street to facilitate these new connections. Two options were considered:

- *Option B1: Industrial Parkway Design Option*: Under this design option, Industrial Parkway would remain as an at-grade crossing. Safety enhancements would be implemented for the existing at-grade crossing.
- *Option B2: Shinn Area Design*: This design provides an alternative location for the new connection between the Oakland Subdivision and Niles Subdivision, in the Shinn Area. Option B2 would connect to Niles Subdivision approximately 350 yards east of Shinn Street.

#### 2.3.2.1. Alternative B Screening Findings

Findings for the three screening criteria (that is, Alignment with Project Goals and Objectives, Feasibility of Implementation and Reduction of Significant Impacts) for Alternative B are the same as Alternative A.

### 2.3.3. Alternative C

This alternative proposed the same rail and ancillary improvements discussed under Alternatives A and B for the Coast Subdivision, Niles Subdivision, and Oakland Subdivision. Further, like Alternative B, Alternative C proposed track improvements, grade crossing improvements, and new or extension of existing sidings along the Coast, Niles, and Oakland subdivisions. This Alternative also included a new grade-separated structure over Industrial Parkway and the Industrial Parkway Design Option (Alternative B).

The differences in design and freight rail improvements for Alternative C for the Shinn area included constructing a new connection from the Oakland Subdivision to the Niles Subdivision, allowing southbound trains on the Oakland Subdivision to continue westbound on the Niles Subdivision (and vice versa) via a new connection constructed under the existing BART tracks. Another new connection would be constructed to allow westbound trains on the Oakland Subdivision (i.e., trains coming from Niles Canyon) to continue westbound on the Niles Subdivision towards Newark (and vice versa).

At the Niles Junction area, the following features would be included as part of Alternative C:

- The new connection linking Oakland and Warm Springs Subdivisions would cross over a portion of the Niles Cone Groundwater Basin that is actively managed by the Alameda County Water District on a new approximately 500-foot-long bridge structure with retaining walls at either end.
- Removal of a portion of the existing Niles Subdivision between Niles Junction and Shinn Street.
- Removal of the connection between the Oakland Subdivision and the Niles Subdivision at Niles Junction.
- Construction of a new, additional railroad bridge over Mowry Avenue.

#### 2.3.3.1. Alternative C Screening Findings

Findings for the three screening criteria (that is, Alignment with Project Goals and Objectives, Feasibility of Implementation and Reduction of Significant Impacts) for Alternative C are the same as Alternative A.

### 2.3.4. Alternative D

Alternative D would include all proposed improvements on the Coast Subdivision as discussed under Alternatives A, B and C, including a new passenger rail station at the Ardenwood Park-and-Ride facility. Alternative D would make improvements to the Niles Subdivision north of and in Niles Junction and would establish a new connection between the Niles Subdivision and Oakland Subdivision across and over Mission Boulevard and Alameda Creek in the northeast quadrant of

Niles Junction. This alternative would also construct a new grade-separated structure at Nursery Avenue by lowering Nursery Avenue and Mission Boulevard to pass under the Niles Subdivision.

Improvements to the Niles Subdivision under Alternative D would occur in the areas of Hayward siding improvements (as discussed under Alternative B and Alternative C). Additional improvements would be constructed starting at Decoto Road and extend southward to a point south of Alameda Creek where the Niles Subdivision would connect to the Oakland Subdivision. Overall track improvements to accommodate freight rail service and improve connectivity include:

- Hayward siding would be extended by approximately 7,000 feet to allow trains to pass each other.
- New siding would be constructed between Decoto Road, through Niles, and over Alameda Creek on a new, curved bridge, in order to allow trains to pass each other while connecting to the Oakland Subdivision east of Niles Junction.
- A new bridge would be constructed over Alameda Creek, in the northeast quadrant of Niles Junction, to establish a connection between the Niles Subdivision and Oakland Subdivision. The new bridge would be approximately 630 linear feet long, extending over both Alameda Creek and over Mission Boulevard and require a curved structure (approximately 8-degree curve) to make the connection to the Oakland Subdivision. The new bridge would cross Alameda Creek between the existing Niles Subdivision railroad bridge and the existing Mission Boulevard roadway bridge. The new railroad bridge would be wide enough to accommodate two tracks. Due to the width of the creek, the structure would not be a clear span; likely up to five piers in the channel would be required.
- Retaining walls and additional tracks would be constructed on the Oakland Subdivision between Niles Junction and Clarke Drive, the first rail-highway grade crossing east of Niles Junction.

Under Alternative D, no connections at Shinn Street or Industrial Parkway would be required. Niles Junction itself would remain unchanged.

#### 2.3.4.1. Alternative D Screening Findings

Findings for the three screening criteria (that is, Alignment with Project Goals and Objectives, Feasibility of Implementation and Reduction of Significant Impacts) for Alternative D are the same as Alternative A.

## 2.3.5. Hayward and Newark Junction Station Alternatives

The Ardenwood station location was compared to two other potential station locations along the Coast Subdivision. Station area alternatives were selected based on their proximity to transbay bridges or rail lines, since providing an enhanced connection to transbay transit services from the East Bay to the San Francisco Peninsula is a key objective of the project. This assessment produced two additional alternatives station study areas: 1) Hayward at SR 92 and 2) Newark Junction (CCJPA 2019).

Within the study area identified at Hayward near SR 92, a parcel within a ½ mile radius of the intersection of the Coast Subdivision and SR 92 was identified as a potentially suitable location for a future rail station. At this location, near where Clawiter Road crosses the Coast Subdivision, the platform would be located on the northwest side of SR 92. Access to the station parking and

platform was proposed to be provided off Clawiter Road. A pedestrian overcrossing was proposed at the middle of the platform to provide access to the industrial area east of the alignment. Though the area's triangular shape limited potential design options, the needed station elements would be able to be fit within the space.

The Newark Junction potential alternative station study area was at the location where the Dumbarton Rail Corridor connects with the Coast Subdivision and Centerville Line (part of Niles Subdivision). The north end of the study area (north of the Centerville Line) is predominately residential. The south end (south of the Centerville Line) is industrial. Newark Slough runs along the far northern edge of the study area and Plummer Creek cuts through the middle of the study area, parallel to the Centerville Line. Incorporating a station near Newark Junction would likely require re-alignment of the existing tracks at the Junction. Further, in order to conform to design criteria, the space available only provided for a 600-foot platform length. Access to the station parking and platform was proposed to be provided from Carter Avenue. The station would be located at ground level with parking on the second floor of the structure.

The three alternatives were compared based on a series of four criteria, including:

1. Ability to meet the objectives of the 2018 Transit and Intercity Rail Capital Program (TIRCP) $51million grant awarded to CCJPA for the SBC project by Caltrans. Caltrans found that the project's multitude of benefits aligned with the goals identified in Senate Bill No.1 legislation and the 2018 TIRCP guidelines;

2. Feasibility of design, including constructability, amount of non-rail ROW required, meeting CCJPA station standards, cost and schedule;

3. Environmental factors, including land use consistency, access and circulation, impacts on sensitive air quality and noise receptors, and environmental justice; and

4. Station location benefits, including bicycle and pedestrian accessibility, available existing parking, local traffic impacts, State and local plan consistency.

Each alternative was evaluated given the four criteria, using the following scale: unfavorable (1 point), neutral (2 points), and favorable (3 points). The proposed Ardenwood Station location was the only alternative that received a favorable rating for most criteria. The location received "neutral" ratings for only two of 25 criteria considerations: Sensitivity Air Quality and Noise Receptors (reason: temporary noise and air quality impacts may occur during operation of construction vehicles and equipment); and Existing Parking (reason: additional parking may be required; existing lot often reaches capacity by 7am). In relation to the other two station alternatives, however, all three had the same "neutral" finding for Sensitivity Air Quality and Noise Receptors for the same reasons, and the Ardenwood Station alternative was the only one that did not receive an unfavorable rating for parking, as neither of the other two alternatives had any existing parking available.

The Hayward and Newark Junction station alternatives also had lower ridership projections than Ardenwood, which would lower the potential greenhouse gas emissions reduction and air quality improvement benefits of the Project. In addition, both the Hayward and Newark Junction potential stations would have required access to or acquisition of more properties outside of the railroad ROW than the proposed Ardenwood Station. New grade-separated crossings would likely be needed for both the Hayward and Newark Junction alternatives as well. Therefore, constructing a new station at either Hayward or Newark Junction was eliminated from consideration for the Draft EIR

because neither station location would result in fewer environmental impacts compared to the proposed Project.

Findings of the potential station locations evaluation are detailed in the Project Definition Report (2019), which can be reviewed at: https://southbayconnect.com/resources/SBC_ProjectDefinitionReport.pdf.

# 2.4. References Cited

CCJPA (Capitol Corridor Joint Powers Authority). 2019. Capitol Corridor South Bay Connect Project Definition Report. November 2019. https://southbayconnect.com/resources/SBC_ProjectDefinitionReport.pdf.

# Chapter 3. Existing Conditions, Environmental Impacts, and Mitigation Measures

## 3.1 Introduction

This section introduces the resource study areas, provides an overview of the proposed Project baseline, defines the overall organization of Chapter 3, and explains the general methodology for assessing proposed Project impacts. This section also identifies the environmental resource areas included in this EIR and presents the structure for the environmental impact analysis for each resource area.

### 3.1.1 Resource Study Areas

Resource study areas (RSAs) are the geographic boundaries in which the environmental investigations specific to each resource area are conducted to determine the resource characteristics and the potential for project impacts. A resource area may have more than one RSA depending on the varying types of resources present (for example, different geographic ranges for different species of wildlife) and the types of impacts being analyzed. The RSA(s) pertinent to each resource area are described in each resource section (Sections 3.2, Aesthetics through 3.21, Wildfire).

Each RSA comprises a geographic footprint that includes:

- Area necessary to define characteristics and context of the resource;
- Facilities or features within the project footprint and associated activities that could affect the resource; and
- Area necessary to determine the impacts (both beneficial and adverse) of the proposed Project.

#### California Environmental Quality Act

The California Environmental Quality Act (CEQA) requires state and local agencies within California to follow a protocol of analysis and public disclosure of environmental impacts of proposed projects and adopt all feasible measures to mitigate those impacts. The purpose of CEQA is to:

- Disclose to the public the significant environmental effects of a proposed discretionary project.
- Prevent or minimize damage to the environment through development of project alternatives, mitigation measures, and mitigation monitoring.
- Disclose to the public the agency decision-making process utilized to approve discretionary projects through findings and statements of overriding consideration.
- Enhance public participation in the environmental review process through scoping meetings, public notice, public review, hearings, and the judicial process.
- Improve interagency coordination through early consultations, scoping meetings, notices of preparation, and State Clearinghouse review.

## 3.1.2 Baseline

In this chapter, the effects that could result from implementation of the proposed Project are compared with baseline physical conditions (existing conditions), as described under each resource area. The use of the resource-specific baseline condition provides a basis for assessing the impacts of the proposed Project in accordance with California Environmental Quality Act (CEQA) requirements. The baseline year for the proposed Project is 2020, which aligns with the publication of the Notice of Preparation for the proposed Project released on June 29, 2020. The intent is to give the public and decision makers "the most accurate and understandable picture practically possible of the project's likely near-term and long-term impacts" (CEQA Guidelines 15125 (a)).

## 3.1.3 Environmental Resource Areas

The following environmental resource areas are analyzed in this chapter:

- Section 3.2, Aesthetics.
- Section 3.3, Agriculture and Forestry Resources.
- Section 3.4, Air Quality.
- Section 3.5, Biological Resources.
- Section 3.6, Cultural Resources.
- Section 3.7, Energy.
- Section 3.8, Geology, Soils, and Paleontological Resources.
- Section 3.9, Greenhouse Gas Emissions.
- Section 3.10, Hazards and Hazardous Materials.
- Section 3.11, Hydrology and Water Quality.
- Section 3.12, Land Use and Planning.
- Section 3.13, Mineral Resources.
- Section 3.14, Noise.
- Section 3.15, Population and Housing.
- Section 3.16, Public Services.
- Section 3.17, Recreation.
- Section 3.18, Transportation.
- Section 3.19, Tribal Cultural Resources.
- Section 3.20, Utilities and Service Systems.
- Section 3.21, Wildfire.

## 3.1.4 Structure of the Environmental Impact Analysis

For each environmental resource area considered in Chapter 3 *Existing Conditions, Environmental Impacts, and Mitigation Measures*, the structure of the environmental impact analysis is as follows:

- **Introduction:** Provides a brief overview of the environmental resource.
- **Regulatory Setting:** Describes the regulatory context of the environmental resource area being analyzed, including any applicable federal, state, and local regulations, plans, policies, programs, and/or laws relevant to the proposed Project.
- **Methods for Evaluating Environmental Impacts:** Outlines the analysis methodology (quantitative and/or qualitative) for assessing the proposed Project's potential to impact each resource area. This section also identifies the sources of data used for the analysis and identifies the criteria used to determine the significance of potential impacts.
- **Affected Environment:** Provides an overview of the existing physical conditions of an environmental resource in the RSA at the time of publication of the NOP that could be affected by implementation of the proposed Project. Establishing the existing conditions provides a basis for the analysis of potential impacts related to each environmental resource.
- **Best Management Practices (BMPs):** Provides a list of BMPs incorporated into the proposed Project relevant to each resource area. The BMPs are considered part of the proposed Project and, therefore, resource impacts are assessed with the BMPs incorporated.
- **Environmental Impacts:** Provides a discussion of impacts associated with implementation of the proposed Project. For each potential impact, a significance determination is made (that is, no impact, less than significant, less than significant with mitigation, or significant and unavoidable).
- **Mitigation Measures:** If required, feasible mitigation measures are identified to reduce significant impacts.
- **Cumulative Impact Analysis:** Provides a qualitative evaluation of the potential for cumulative impacts on each resource area.
- **CEQA Significance Summary Table:** A table summarizing the impact significance determinations, including cumulative, for each criterion in each resource area.
- **References:** Provides references relevant to each resource area.

## 3.1.5 General Methodology for Assessing Impacts

### 3.1.5.1 Determining Significance under CEQA

Thresholds of significance for each resource area were developed consistent with CEQA Guidelines Appendix G to determine the significance of potential impacts. Additionally, the CEQA Guidelines Appendix G checklist was augmented, where necessary, to ensure that all potential impacts of the proposed Project are addressed.

The environmental review focuses on the potentially significant environmental effects of the proposed Project. As defined in CEQA Guidelines Section 15382, a "significant effect on the

environment" is "a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. An economic or social change by itself would not be considered a significant effect on the environment. A social or economic change related to a physical change may be considered in determining whether a physical change is significant."

In evaluating the significance of the environmental effect of a project, the CEQA Guidelines require the lead agency to consider direct physical changes in the environment and reasonably foreseeable indirect physical changes in the environment that may be caused by the project (CEQA Guidelines Section 15064[d]). A direct physical change in the environment is a physical change in the environment that is caused by, and immediately related to, the project (CEQA Guidelines Section 15064[d][1]). An indirect physical change in the environment is a physical change in the environment that is not immediately related to the project, but that is caused indirectly by the project (CEQA Guidelines Section 15064[d][2]). An indirect physical change is to be considered only if that change is a reasonably foreseeable impact that may be caused by the project (CEQA Guidelines Section 15064[d][3]).

Further, as defined in CEQA Guidelines Section 15064(e), "economic and social changes resulting from a project will not be treated as significant effects on the environment. Economic or social changes may be used, however, to determine that a physical change would be regarded as a significant effect on the environment. Where a physical change is caused by economic or social effects of a project, the physical change may be regarded as a significant effect in the same manner as any other physical change resulting from the project."

### 3.1.5.2 Impact Analysis

CEQA requires a lead agency to determine the significance of all environmental impacts (California PRC Section 21082.2; CEQA Guidelines Section 15064). A threshold of significance for a given environmental impact defines the level of effect above which the lead agency will consider impacts to be significant and below which it will consider impacts to be less than significant. Thresholds of significance are identifiable, quantitative, qualitative, or performance levels for a particular environmental effect, whichever is most applicable to each specific type of environmental impact (CEQA Guidelines Section 15064.7[a]). The following terminology is used in this EIR to describe the various levels and types of environmental impacts associated with the proposed Project:

- **Significance threshold:** A significance threshold is a criterion used by CCJPA, as lead agency under CEQA, to determine whether the magnitude of an adverse physical environmental impact would be significant. In accordance with CEQA Guidelines Section 15022(a), the CCJPA used significance criteria that are based on CEQA Guidelines Appendix G and augmented, as necessary; factual and scientific information and data; and the regulatory standards of the federal, State, regional, and local jurisdictions (as applicable) where the proposed Project activities are proposed.
- **No Impact:** No impact indicates that the construction, operation, and maintenance of the proposed Project would not have a direct or indirect effect on the environment. It means no measurable or observable change from existing conditions would occur. This impact level does not require mitigation.

- **Less-than-Significant Impact:** An impact is less than significant if the analysis concludes that the implementation of the proposed Project would not exceed the applicable significance threshold. This impact level does not require mitigation, even if feasible, under CEQA.
- **Significant Impact:** A significant impact is defined by CEQA Section 21068 as one that would cause "a substantial, or potentially substantial adverse change in any of the physical conditions within the area affected by the project." Levels of significance can vary by project, based on the change in the existing physical condition. Under CEQA, mitigation measures or alternatives to the project must be provided, where feasible, to reduce the magnitude of significant impacts.
- **Significant and Unavoidable Impact:** A significant, unavoidable impact is one that would result in a substantial or potentially substantial adverse effect on the environment, and that could not be justifiably reduced to a less-than-significant level even with any feasible mitigation. Under CEQA, a project with significant and unavoidable impacts could proceed, but the lead agency would be required to prepare a "statement of overriding considerations" in accordance with CEQA Guidelines Section 15093 explaining why the lead agency would proceed with the project despite the potential for significant impacts.

### 3.1.5.3 Mitigation Measures

CEQA Guidelines Section 15126.4(a)(1) states that an EIR "will describe feasible measures which could minimize significant adverse impacts." Mitigation measures identified in this EIR were developed during the analysis and designed to reduce, minimize, or avoid potential environmental impacts associated with the proposed Project. Since measures may apply to multiple resource areas, they are labeled by the resource area where they are first defined, so full descriptions can be easily located in this EIR. Summaries and a reference to where the details can be found will be included in any subsequent resource section that applies that measure. The description of a mitigation measure states which specific proposed Project activity the measure applies to.

## 3.1.6 Cumulative Impacts

CEQA requires that EIRs include a discussion of cumulative impacts, specifically stating:

> "Cumulative impacts" refer to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.
>
> (a) The individual effects may be changes resulting from a single project or a number of separate projects.
>
> (b) The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time (CEQA Guidelines Section 15355).

According to the CEQA Guidelines, "cumulatively considerable" means that "the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects." (CEQA Guidelines Section 15065(a)(3)).

CEQA Guidelines also provide guidelines for assessing the potential for proposed projects to contribute to cumulative impacts when the project would include implementing measures (including mitigation) to reduce effects as defined in previously approved plans or regulations:

> A lead agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project will comply with the requirements in a previously approved plan or mitigation program (including, but not limited to, water quality control plan, air quality attainment or maintenance plan, integrated waste management plan, habitat conservation plan, natural community conservation plan, plans or regulations for the reduction of greenhouse gas emissions) that provides specific requirements that will avoid or substantially lessen the cumulative problem within the geographic area in which the project is located (CEQA Guidelines Section 15064 (h)(3)).

Further, the CEQA Guidelines state that "the mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project's incremental effects are cumulatively considerable" (CEQA Guidelines Section 15064 (h)(4)).

### 3.1.6.1 Methods Used in the Cumulative Analysis

Two methods can be used for cumulative impact analysis (CEQA Guidelines Section 15130). In the list approach, the lead agency identifies related projects or activities that could add to the proposed Project's environmental impacts. In the projection, or plan, approach, the lead agency relies on projections in an adopted planning document or prior environmental document. This EIR uses the list approach.

The following terminology is used in this EIR to describe the various levels and types of environmental impacts associated with the proposed Project:

- **Cumulative Impact:** As defined in CEQA Guidelines Section 15355, a cumulative impact consists of an impact that is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts.
- **Significance Threshold:** Consistent with thresholds used to evaluate the impacts resulting from the proposed Project in Chapter 3, this is the criterion used in the EIR to determine whether the magnitude of a cumulative environmental impact would be significant.
- **Significant Cumulative Impact:** A cumulative impact is considered significant if it would result in a substantial adverse change in the physical conditions of the environment, as determined by whether it exceeds the applicable significance threshold.
- **Cumulatively Considerable:** Pursuant to CEQA Guidelines Section 15065(a)(3), "cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, other current projects, and probable future projects. Where a lead agency is examining a project with an incremental effect that is not "cumulatively considerable," the lead agency need not consider that effect significant (CEQA Guidelines Section 15130).

Table 3-1 lists and describes the reasonably foreseeable probable future projects and activities considered for the cumulative impact analysis. This list of foreseeable probable future projects and activities was developed based on a review of publicly available information. The potential cumulative effects when the proposed Project is added to cumulative activities listed in Table 3-1

are discussed in each resource section. Maps presenting activities considered for the cumulative impact analysis are shown in Figure 3-1.

**Table 3-1. Cumulative Projects List**

| Project ID | Project Title | Project Location | Project Description | Project Status |
|---|---|---|---|---|
| **I-1** | Washington Avenue/UPRR Crossing Improvement | San Leandro | Railroad Crossing Improvements at Washington Avenue near Chapman. | Constructed |
| **I-2** | Centerville Complete Streets | Fremont, Newark | Pilot project focuses on Centerville's business district along Fremont Boulevard from Thornton Avenue to Parish Avenue. Project improvements include lane reduction from four lanes to three lanes (2 southbound lanes and 1 northbound lane), additional on-street parking on both sides of the street, pop-up patios for outdoor dining and seating in on-street parking spaces at key locations, and enhanced bike facilities with separation from both pedestrians and vehicles. | Construction to begin in 2024 |
| **I-3** | Centerville Railroad Safety Improvements | Fremont | Safety improvements at six at-grade crossings (Blacow Road, Dusterberry Way, Maple Avenue, Fremont Boulevard, Shinn Street, and Clarke Drive) in coordination with UPRR, the California Public Utilities Commission (CPUC) and the Federal Railroad Administration (FRA). | Submit Notice of Intent– Early 2024 |
| **I-4** | Station East Residential/ Mixed Use Project | Union City | Demolition of existing buildings and surface parking lots and development of up to 1.8 million square feet (including 974 new residential units and approximately 30,800 square feet of commercial uses). The project site would include 11 planning areas with 33 residential buildings and one community building. | Construction to begin in mid-2023 with anticipated completion in late 2026. |
| **I-5** | 4150 Point Eden Way Industrial Development Project | Hayward | Construction of a new industrial building and creation of an open space/wetland preserve. | Environmental Review Completed February 2022 |

**Table 3-1. Cumulative Projects List**

| Project ID | Project Title | Project Location | Project Description | Project Status |
|---|---|---|---|---|
| **I-6** | Niles Gateway Mixed Use | Fremont | Construction of a proposed residential development in the Niles Historical Overlay District that would include 75 attached residential units on approximately 6.08 acres. | Environmental Review Completed March 2021 |
| **I-7** | Division 4 Modifications to Accommodate Battery Electric Buses as part of the 45 Zero Emission Bus Purchase | Oakland | Construction of charging infrastructure for zero-emission buses, including electrical service, transformers, switchgear, charging equipment, and additional emergency power units. | Environmental Review Completed August 2020 |
| **I-8** | 2075 Williams Street Industrial Project | San Leandro | Modifications to existing facility to increase the maximum tonnage of materials that could be received and processed from 174 tons per day to 350 tons per day. | Environmental Review Completed May 2020 |
| **O-1** | Draft Environmental Assessment for Cargill, Inc. Solar Sea System Maintenance and Operations Activities | Regional | Analysis of environmental impacts as a result of continued maintenance and operation activities of Cargill Inc. Solar Salt System within historic salt-flat areas in Newark and Redwood City. | Completed in April 2021 |
| **O-2** | Waterfront Ballpark District at Howard Terminal | Oakland | Construction of a new, open-air, waterfront multi-purpose Major League Baseball ballpark with a capacity of up to 35,000 persons and a mixed-use development, including up to 3,000 residential units and up to 1.5 million square feet of commercial space. | Environmental Review Completed March 2022 |
| **O-3** | General Electric Site Remediation and Redevelopment Project | Oakland | Demolition of existing buildings, remediate the site, and construction of a 535,000-square foot industrial building on the site previously owned by General Electric. | Environmental Review Completed May 2020 |

**Table 3-1. Cumulative Projects List**

| Project ID | Project Title | Project Location | Project Description | Project Status |
|---|---|---|---|---|
| **O-4** | Brooklyn Basin Marina Expansion Project | Oakland | Modification of a previously approved 64.2-acre project (2009 Oak-to-Ninth Avenue EIR), which would include a residential density increase of 600 units (for a project site total of up to 3,700 units), an update to parking ratios to current zoning code requirements in other zoning districts, and an expansion of the approved marina infrastructure and operation including increasing the number of slips by 158 and incorporating provisions with the marina improvements to accommodate an existing water taxi/shuttle currently operating on San Francisco Bay. | Currently in Environmental Review |
| **O-5** | Ardenwood Technology Park Planned District | Hayward | The District would rezone 32 existing industrial parcels located within a portion of the Ardenwood Technology Park to enable more intensive office space, manufacturing and research and development uses. Additionally, the District intends to create small-scale retail service uses. | Constructed |
| **P-1** | Fairmont Terrace Renovation and Expansion | Fairmont | Design and construction of park improvements and expansion of an existing 1.67-acre park to 5 acres. Improvements include on-site ADA parking, new restroom building, renovated playground and basketball, pathways, etc. | Constructed |
| **P-2** | Ashland-Mateo Street Neighborhood Park | Ashland | Construction of new 1.43-acre neighborhood park in Ashland. | Construction to begin in 2025 with anticipated completion in 2026. |

**Table 3-1. Cumulative Projects List**

| Project ID | Project Title | Project Location | Project Description | Project Status |
|---|---|---|---|---|
| **P-3** | Ashland-East 14th Street Park | Ashland | Extension of the Mateo Street Park to E 14th Street to create a large, through-block park for the Ashland neighborhood. This future park will also front the new Ashland community center, part of the Madrone Terrace Housing Project. | Park development project is anticipated to start in 2025 |
| **P-4** | Community Center at Madrone Terrace | Ashland | Development of a new 7-story affordable housing facility, at East 14th Street and 162nd Avenue with creation of a new community center. | Under Construction |
| **P-5** | Ashland Common | Ashland | Construction of recreational facilities at the 1-acre site at the corner of 166th Avenue and E 14th Street in San Leandro. | Under Construction |
| **P-6** | Mission and Mattox Acquisition | Ashland | Acquisition of the vacated Coca Cola Bottling facility and its 2.6 acres of land at the northeast corner of Mission Boulevard and Mattox Road in Ashland for future park and recreational facilities. | Preliminary Planning Review |
| **P-7** | Sunset Futsal Courts | Hayward | Development of a new futsal court facility. | Constructed |
| **P-8** | Kennedy Park Renovation | Hayward | Construction of improvements to Kennedy Park including renovated picnic areas, group picnic shelters, new central play areas, new teacup amusement ride, new concession building and public restrooms, improved pathways with seating, and informal lawn areas. | Constructed |
| **P-9** | San Lorenzo Community Park Phase 2 | San Lorenzo | Construction of Phase 2 improvements to existing 31-acre community park. Phase 2 improvements include a multi-purpose field, two soccer fields, a concession | Constructed |

**Table 3-1. Cumulative Projects List**

| Project ID | Project Title | Project Location | Project Description | Project Status |
|---|---|---|---|---|
| | | | building, a dog park, community green, a neighborhood play area, additional picnic facilities, and exercise stations and parking. | |
| **P-10** | Hayward Plunge Renovation | Hayward | Evaluation of the Hayward Plunge Aquatic Center. | Construction to begin in 2025 |
| **P-11** | Sulphur Creek Nature Center Master Plan | Hayward | Evaluation of improvements from access to new recreation features at the Sulphur Creek Nature Center. | Preliminary Design |
| **P-12** | Eden Greenway Improvements | Hayward | Renovation of greenways to provide new recreational features, improve pathways, planting and irrigation, fencing, and signage as needed. | Construction to begin spring 2025 |
| **P-13** | Weekes Community Center Renovation | Hayward | Renovation of an existing 10,092-square foot community center. | Preliminary Planning Review |
| **P-14** | Weekes Community Park Renovation | Hayward | Construction of improvements to the 16.6-acre Weekes Community Park including open lawn areas, restrooms, concession building, playground, half-court basketball, bocce courts, fitness plaza, central plaza, group picnic areas, pavilion, shade structure, bandstand, promenade, and walking loop. | Preliminary Planning Review |
| **P-15** | Mia's Dream All-Access Playground | Hayward | Construction of a 1-acre all-access playground for inclusive play opportunities for child developmental needs. It replaces an existing playground in Tennyson Park in Hayward. | Constructed |
| **P-16** | El Rancho Verde Park | Hayward | Construction of park improvements at an existing park site including renovated sports fields and planting/irrigation upgrades. | Design Development |

**Table 3-1. Cumulative Projects List**

| Project ID | Project Title | Project Location | Project Description | Project Status |
|---|---|---|---|---|
| **P-17** | Family Aquatics Center Competition Pool | San Leandro | Construction of a competition pool and additional parking. | Constructed |
| **P-18** | Marina Mulford Branch Library Construction | San Leandro | Construction of a new 2,500-square foot library. | Constructed |
| **P-19** | Bidwell Park Master Plan | Hayward | Expansion of the existing Bidwell Park to include the former Bidwell Elementary School campus and improve the existing park facilities. | Design Development |
| **P-20** | MLK Regional Shoreline Bay Trail Gap (Doolittle Drive South) and Improvements Project | Regional | Construction of 2,300 linear feet of new Bay Trail to close an existing gap, including resurfacing, trail widening modifications, park facility upgrades, and a boat launch. | Constructed |
| **P-21** | Merritt Community College Child Care Development Center Project | Oakland | Construction of a two-story, 20,000 gross square-foot Child Care Development Center (CCDC) that would replace the existing Child Care Development buildings on campus. The new CCDC would be designed to accommodate both childcare programs and college student classrooms. | Constructed |
| **B-1** | Invasive Spartina Removal and Tidal Marsh Restoration | Regional | Continued eradication of invasive cordgrass (invasive Spartina) and enhancement of critically important tidal marsh and mudflat habitat throughout the entire nine-county San Francisco Estuary. Activities include invasive Spartina monitoring and treatment, native marsh plant revegetation, California Ridgeway's Rail monitoring, and community outreach and job training in partnership with the long-term Invasive Spartina Project led by the State Coastal Conservancy. | Implementation underway |

**Table 3-1. Cumulative Projects List**

| Project ID | Project Title | Project Location | Project Description | Project Status |
|---|---|---|---|---|
| **T-1** | Irvington BART Station | Fremont | Future Irvington BART Station to be located in the Irvington District at the intersection of Washington Boulevard and Osgood Road, approximately halfway between the existing Fremont BART Station and the Warm Springs/South Fremont BART Station. | Construction to begin in mid-2026 with anticipated completion in 2031 |
| **T-2** | Oakland Alameda Access Project | Alameda, Oakland (Countywide) | Construction of roadway improvements to increase mobility for travelers between I-880, the Posey and Webster Tubes, and the Cities of Oakland and Alameda. Existing interstate ramps would be reconstructed, local streets in downtown Oakland would be reconfigured, and bicycle and pedestrian connectivity would be improved within and between both cities. | Construction to begin in spring 2025 |
| **T-3** | Morrison Canyon Road Traffic Safety Project | Fremont | Project includes the permanent closure of 0.8 mile of Morrison Canyon Road to automobiles, from the intersection of Morrison Canyon Road and Ridge Terrace to where Morrison Canyon Road intersects Vargas Road. | Constructed |
| **T-4** | Quarry Lakes Parkway Project (also known as East-West Connector) | Fremont, Union City | Construction of a new roadway from Paseo Padre Parkway to Mission Boulevard and improving Mission Boulevard where it intersects with the new roadway in 5 phases. | Preliminary design and planning |
| **T-5** | Bayside Newark (formerly Dumbarton Transit-Oriented Development) | Newark | Proposed new neighborhood that will provide a broad range of new housing, retail, and business opportunities in western Newark. | Under construction |

**Table 3-1. Cumulative Projects List**

| Project ID | Project Title | Project Location | Project Description | Project Status |
|---|---|---|---|---|
| **T-6** | Interstate 880 Interchange Improvements (Winton Avenue/A Street) | Hayward | Interchange and local roadway improvements along I-880 at Winton Avenue and A Street that would enhance access to the surrounding commercial, residential, and retail land uses. Improvements would include interchange on- and off-ramp reconfigurations, implementing Complete Streets features at both interchanges, and providing northbound and southbound auxiliary lanes along the mainline between the two interchanges. | Preliminary design |
| **T-7** | Interstate 880 Interchange Improvements Project (Whipple Road/Industrial Parkway Southwest and Industrial Parkway West) | Hayward, Union City | Interchange and local roadway improvements along I-880 from 0.6 mile south of the I-880/Whipple Road-Industrial Parkway Southwest Interchange to 0.3 mile north of the I-880/Industrial Parkway West Interchange. Improvements would include interchange on- and off-ramp reconfigurations, modifications and/or replacement of bridge structures, local roadway realignments and restriping, and bicycle and pedestrian improvements. | Preliminary planning and design |
| **T-8** | Tennyson Road Grade Separation | Hayward | Proposed grade-separation project and associated safety infrastructure improvements at the existing at-grade Tennyson Road railroad crossing. | Current/Past |

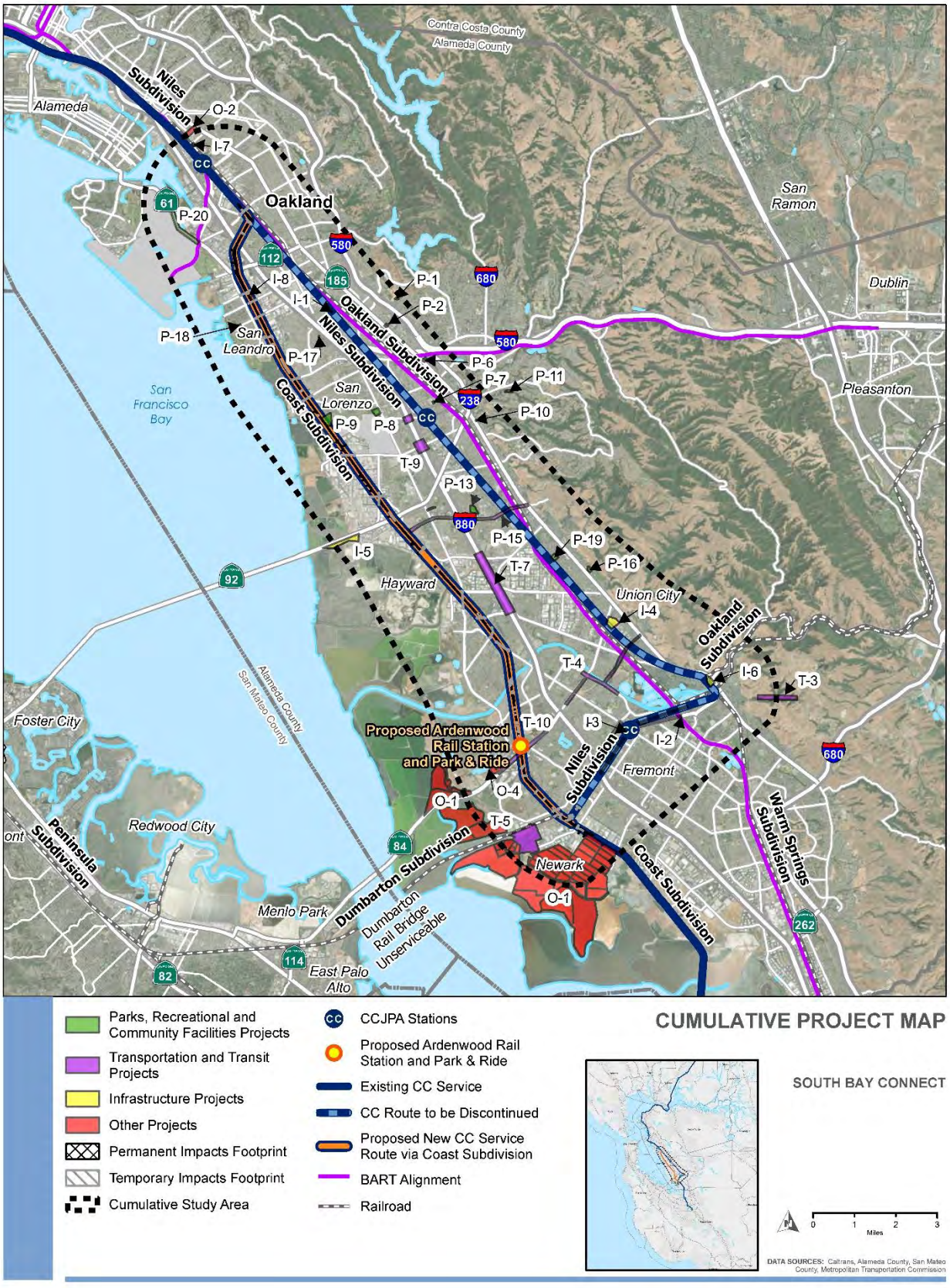
**Table 3-1. Cumulative Projects List**

| Project ID | Project Title | Project Location | Project Description | Project Status |
|---|---|---|---|---|
| **T-9** | State Route 262 Cross Connector | Fremont | Development of project alternatives to reduce congestion and improve traffic flow for the local and regional transportation network in the vicinity of SR-262/Mission Boulevard. Improvements would address delay, cut-through traffic, and safety along SR-262. From I-880 to I-680, through traffic will be grade separated at the Warm Springs and Mahove Drive intersections. New separate, local multimodal road facilities will be provided to access local business, transit facilities, and residences. Finally, the configuration of the interchange at I-680 and SR-262 will be improved to balance operations and accommodate all users. | Preliminary planning and design |
| **T-10** | State Route 84 Intermodal Bus Facility | Newark, Fremont | Construction of Intermodal Bus Facility to be located on SR-84 near the Ardenwood Park-and-Ride Facility to improve access and travel times for regional buses along the SR-84 corridor. Improvements include construction of westbound and eastbound bus stop platforms on SR-84. | Environmental review to be completed in summer 2026 |
| **D-1** | Plan Bay Area 2050 | Regional | Long-range regional plan that outlines 35 integrated strategies across four key issues: housing, the economy, transportation, and the environment. The plan proposes to make the Bay Area more equitable for all residents and more resilient in the face of unexpected challenges | Current/Past |
| **D-2** | Alameda General Plan 2040 | Alameda | Update to the Alameda General Plan, which was last updated in 1991. | Current/Past |

**Table 3-1. Cumulative Projects List**

| Project ID | Project Title | Project Location | Project Description | Project Status |
|---|---|---|---|---|
| **D-3** | West Oakland Specific Plan | Oakland | Redevelopment of BART parking to accommodate a new mixed-use transit village at the West Oakland BART Station consisting of residential, commercial, a new plaza, pedestrian walkways, and additional improvements. | Current/Past |

## Figure 3-1. Cumulative Project Map



# 3.2 Aesthetics

## 3.2.1 Introduction

This section describes the regulatory setting and affected environment for aesthetics. This section addresses aesthetic resources that are known to occur or have the potential to occur in the aesthetics RSA and describes the potential impacts on those resources during construction and operation of the proposed Project. This section also identifies the cumulative impacts of the proposed Project on aesthetics.

CEQA defines aesthetic resources as scenic vistas, scenic resources (such as trees, rock outcroppings, and historic buildings within a State Scenic Highway), existing visual character, and quality of public views. As required by the CEQA Guidelines, this section also describes potential impacts to views due to new sources of light and glare.

## 3.2.2 Regulatory Setting

This section identifies the applicable federal, state, regional, and local laws, regulations, and orders that are relevant to the analysis of aesthetics. This section also addresses the proposed Project's consistency with the regulations described herein.

### 3.2.2.1 Federal

#### National Scenic Byways Program

The Intermodal Surface Transportation Efficiency Act of 1991 established the National Scenic Byways Program (23 U.S.C. 162), implemented and administered by the Federal Highway Administration. Under this program, a roadway can be designated as a State Scenic Byway, a National Scenic Byway, or an All-American Road based upon intrinsic scenic, historic, recreational, cultural, archeological, or natural qualities.

#### Wild and Scenic Rivers Act of 1968

The Wild and Scenic Rivers Act of 1968 was enacted to "protect selected rivers of the Nation which, with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural or other similar values." Protected rivers are designated as wild, scenic, or recreational rivers, and segments of a given river may be designated with one or all these classifications.

#### National Trails Systems Act of 1968

The National Trails System Act of 1968 (as amended) allows Congress to establish national historic trails to identify and protect routes of travel with national historic importance (National Park Service 2019a). National historic trails connect sites of interest related to a significant historical event, often crossing multiple jurisdictions and land uses and permitting auto traffic where roads overlap the historic trail route.

As described in the National Park Service's Reference Manual No. 45, one of the route selection criteria for a national historic trail relates to tour route quality that optimizes visitor experience by directing views to landscapes and features that might have been viewed by historic trail travelers. This criterion further encourages local projects to avoid design features that would inhibit an appreciation of the adjacent landscape values when alternatives exist (National Park Service 2019b).

The Juan Bautista de Anza National Historic Trail (Anza Trail) was created through an Act of Congress in 1990 to mark the overland route traveled by Captain Juan Bautista de Anza of Spain from Sonora, Mexico, to San Francisco, California, in the years 1775 to 1776. The 12,000-mile trail connects Nogales, Arizona to the San Francisco Bay Area and passes through Alameda County in the study area. The Anza Trail has three recreational components: historic route, auto tour route, and recreational trail (National Park Service 2020).

The Juan Bautista de Anza National Historic Trail Comprehensive Management and Use Plan states that its management objective is to protect a trail right-of-way (ROW), to protect cultural and scenic resources along the trail, to foster public appreciation and understanding of the trail, and to encourage facilities for resource protection and public information and use. The plan acknowledges that portions of the historic trail have been altered by urbanization, which is the characteristic of the trail within the Project Study Area (National Park Service 1996).

### 3.2.2.2 State

#### California Wild and Scenic Rivers Act of 1972

The California Wild and Scenic Rivers Act states that "certain rivers which possess extraordinary scenic, recreational, fishery, or wildlife values shall be preserved in their free-flowing state, together with their immediate environments, for the benefit and enjoyment of the people of the state." Those rivers or segments of rivers are classified as wild, scenic, or recreational rivers.

#### State Scenic Roadways and Highways

The State Legislature established the California Scenic Highway Program in 1963 through Senate Bill 1467 with the purpose of protecting and enhancing the natural scenic beauty of California highways and adjacent corridors through special conservation treatment. The California Department of Transportation (Caltrans) manages the State Scenic Highway Program. Caltrans defines a scenic corridor as the "land that is visible from, adjacent to, and outside the highway ROW and is comprised primarily of scenic and natural features. Topography, vegetation, viewing distance, and/or jurisdictional lines determine the corridor boundaries" (Caltrans 2008). Designated scenic corridors are subject to protection, including regulations regarding land use, site planning, advertising, earthmoving, landscaping, and the design and appearance of structures and equipment.

As described in Caltrans' Scenic Highway Guidelines, highways can be nominated to be an eligible State Scenic Highway under Streets and Highways Code Section 263 when they are believed to have outstanding scenic values (Caltrans 2008). Becoming an eligible State Scenic Highway does not require any legislative action. The following conditions must be met to nominate a route: the state or county highway is a scenic corridor with a memorable landscape that showcases the natural scenic beauty or agriculture of California; ¬existing visual intrusions do not significantly affect the scenic corridor; there is demonstration of strong local support for the proposed scenic highway designation; the length of the proposed scenic highway is not less than one mile and is not segmented.

Once a state route (SR) is identified as eligible under Streets and Highways Code Section 263, it may be nominated for official designation by the local governing body with jurisdiction over lands adjacent to the proposed scenic highway. Division 1, Chapter 2, Article 2.5, Section 261 of the California State Streets and Highway Code establishes that "the standards for official scenic highways shall also require that local governmental agencies have taken such action as may be necessary to protect the scenic appearance of the scenic corridor, the band of land generally adjacent to the highway ROW, including, but not limited to, (1) regulation of land use and intensity (density) of development, (2) detailed land and site planning, (3) control of outdoor advertising, (4) careful attention to and control of earthmoving and landscaping, and (5) the design and appearance of structures and equipment" (State of California 1935).

A route may be removed for consideration as a scenic route or taken out of the State Scenic Highways program when there has been significant degradation of scenic quality due to visual intrusions and changes in visual character. Examples of visual intrusions that would degrade scenic corridors (as stipulated by Caltrans) and would apply to the proposed Project and the alternatives, analyzed at an equal level of detail, include extensive cut and fill, scarred hillsides and landscapes, steep slopes with little or no vegetation, exposed and unvegetated earth, and a scale and appearance for the roadway that would be incompatible with the landscape (Caltrans 2008).

#### San Francisco Bay Conservation and Development Commission

The San Francisco Bay Conservation and Development Commission (BCDC) is a state commission in charge of the protection, enhancement, and responsible use of the San Francisco Bay. BCDC's jurisdiction includes the Bay, a shoreline band extending inland 100 feet from the Bay's shoreline, salt ponds, managed wetlands, and named waterways subject to tidal action. The San Francisco Bay Plan (BCDC 2020) states that "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."

Per BCDC adopted public access findings and policies (2001), public access is an integral component of development and should consist of pedestrian and other non-motorized access to the Bay. A critical aspect is visual access for the public. Per BCDC, there are numerous shoreline areas without existing visual access to the Bay. Transportation facilities near the edge of the water should be designed as scenic parkways for slow moving recreational traffic. Transportation ROW should maintain and enhance visual access for its users and provide separated access to/from the shoreline.

### 3.2.2.3 Regional

There are no applicable visual goals or objectives identified in regional plans, policies, or regulations.

### 3.2.2.4 Local

#### Alameda County General Plan

The Alameda County General Plan (Alameda County 1996) describes the county-wide network of scenic routes (Alameda County 1966), which include Interstate 580 (I-580), I-880 (Nimitz Freeway), and Mission Boulevard within the study area. These routes do not specifically contain rail corridors;

however, roadways and areas visible from scenic routes are discussed. Objectives and policies for areas visible from scenic routes would apply to areas of the proposed Project and include the following:

- Establishing a continuous system of scenic routes to improve the environment and increase opportunities for recreational and cultural activities and tourism in Alameda County and adjacent counties.
- Conserving, enhancing, and protecting scenic views observable from scenic routes.
- Providing multiple recreational uses, trails, roadside rest areas, picnicking, and observation points on present or future publicly owned lands adjacent to scenic routes and to provide a means of coordinating scenic route trails with other trail systems within the county.
- Assisting in stabilizing or increasing property values and the economy of Alameda County through preserving and adding to its attractions.

Alameda County's scenic route corridor development standards include minimum lot size and setback requirements for developments and a height limitation of 35 feet for structures within the scenic viewshed. Moreover, to preserve and enhance natural topography, vegetation, and "ridge skylines" in developed areas along scenic corridors, Alameda County requires grading permit reviews by the local jurisdictions.

## Alameda County General Ordinance Code

The Alameda County Board of Supervisors adopted an amendment to the Alameda County General Ordinance Code to create the Scenic Corridor Combining District in unincorporated Alameda County in order to preserve the character of the scenic corridors in 2013. Any future development within the Scenic Corridor Combining District would be subject to more stringent standards designed to reduce the visual impact of new structures, parking, signs, and other features that might obstruct existing vistas (Alameda County 2012). East Bay Regional Park District Master Plan

East Bay Regional Park District's Master Plan vision includes preserving biologic, scenic, and historic resources within the East Bay Regional Park District's jurisdiction. It also notes maintaining and restoring the parklands so that they retain their scenic, natural, and cultural value (East Bay Regional Park District 2013). Objectives and policies include the following:

- Policies PRPT2, PRPT3, PRPT7, PRPT8, and PRPT9 classify parklands into Regional Park, Preserve, Recreation Area, Shoreline, and Trail to preserve these areas of intact, natural open space that are significant for their natural conditions, views and potential to provide visitors with experience of nature. Ardenwood Historic Farm is one of the 21 designated Regional Preserves (East Bay Regional Park District 2022a). Quarry Lakes Regional Recreational Area is one of the regional recreational areas within the district (East Bay Regional Park District 2022b). Martin Luther King Jr. shoreline is one of the 14 regional shorelines, and Alameda Creek Regional Trail is one of the regional trails within the district.
- Policy PRPT24 aims to locate facilities in a manner that preserves open space whenever possible. The district will design proposed facilities so that their color, scale, style, and materials will blend with the natural environment.
- Policy PRPT28 aims to place new utility lines underground on land owned, operated, or managed by the district to retain the optimal visual qualities of the area.

- Policy KEP4 aims to protect scenic or cultural resources, develop larger, multi-agency open space preserves, provide recreational opportunities, protect agricultural use, avoid hazards, and plan for appropriate urban growth boundaries.

## County of Alameda Eden Area General Plan

Chapter 3, Land Use Element, of the County of Alameda Eden Area General Plan (County of Alameda 2010) includes the following policies that are relevant to the proposed Project:

- **Goal LU-12** Improve the visual quality of the Eden Area.
    - **Policy P1.** The County should not approve projects that have a substantial adverse effect on scenic vistas, substantially damage scenic resources, or substantially degrade the existing visual character or quality of the Eden Area.

## City of Oakland General Plan

The *City of Oakland General Plan* includes the Scenic Highways Element and Open Space, Conservation, and Recreation Element, which pertain to the following scenic resources:

- The Scenic Highways Element addresses the preservation and enhancement of attractive roadways and major streets going through the City. MacArthur Freeway and Skyline Boulevard/Grizzly Peak Boulevard/Tunnel Road are designated scenic corridors (City of Oakland 2018); however, these areas are not within the Project Study Area.
- Objective OS-10 in the Open Space, Conservation, and Recreation Element aims to protect scenic views and improve visual quality. Scenic views to be protected within the Project Study Area include views of the Oakland Hills from the flatlands and views of the shoreline.

## San Leandro General Plan

The *City of San Leandro General Plan* includes the Historic Preservation and Community Design Element that acknowledges the open waters of San Francisco Bay (on the west) and the San Leandro Hills (on the east) as significant views to be preserved. The General Plan also designates Nimitz (I-880) and MacArthur (I-580) freeways as scenic highways. Other streets, such as Davis Street, Marina Boulevard, and East 14th Street, are not formally designated as "scenic" but remain priorities for streetscape improvements due to their high volumes and function as gateways. The objectives for these streets are to enhance safety and to preserve scenic value (City of San Leandro 2016). These routes are within the Project Study Area.

Important views and scenic highways are addressed in the policies and actions under the following goals in the City of San Leandro General Plan:

- Goal CD-5 promotes a stronger "sense of place" in the City of San Leandro. The key factors contributing to the City's sense of place include gateways, activity centers, views and vistas, and visual landmarks within the City.
- Goal CD-7 aims to create a more visually attractive City, with well-landscaped and maintained streets, open spaces, and gathering spaces.

## Hayward General Plan

The Natural Resources Element in the *Hayward 2040 General Plan* describes the intent to provide opportunities for residents and visitors to view scenic resources.

- Goal NR-8 strives to enhance, preserve, and increase the aesthetic qualities of the City of Hayward's undisturbed natural hillsides and shoreline and designated scenic transportation corridors. There are several designated scenic transportation corridors in the Project Study Area, including I-580, I-880, and SR 92, that the City aims to protect (City of Hayward 2014).

## City of Hayward Design Guidelines

The *City of Hayward Design Guidelines* require computer simulations, photomontages, or scale models for review for projects, which would limit or block views of natural open spaces, view corridors, or vista points (City of Hayward 1993).

## Union City General Plan

The *Union City 2040 General Plan* Community Design Element, Resource Conservation Element, and Mobility Element include the following policies to protect and enhance the visual environment (Union City 2019):

- Policy CD-2.5 aims to minimize visual impacts to the natural setting of the San Francisco Baylands by using buffers, such as pedestrian trails, linear parks, and landscaped rights-of-way, between new developments and the Baylands.
- Policy CD-4.3 aims to provide landscaping near gateways into Union City to reduce the visual impact of sound walls.
- Policy RC-1.2 aims to protect scenic views of ridgelines, valleys, and wetlands through regulation, public acquisition, or dedication of development rights or scenic easements.
- Policy M-4.7 encourages grade separations to improve safety and aesthetics.

## City of Fremont General Plan

The *City of Fremont General Plan* includes the Community Character Element, which describes how urban and historic buildings, streets, and open spaces work together in the City's development. The following goal is relevant to aesthetics:

- Goal 4-5 follows City Beautiful's call for the protection and enhancement of the City of Fremont's aesthetic and visual character.

  Goal 4-5 is implemented through policies to use landscaping as visual buffering/screening, maintain a network of designated scenic routes, protect Niles Canyon, and install landscaping and art for the beautification of the City. There are several designated scenic routes in the study area including Paseo Padre Parkway, the San Francisco Bay Area Rapid Transit (BART) line, Mission Boulevard, SR 84, and Niles Canyon Road. Transportation and capital improvement decisions, as well as landscaping, operations, and maintenance activities, should maintain or improve visual quality; however, that does not necessarily limit abutting uses (City of Fremont 2011).

- Policy 4-1.6 protects the City of Fremont's open space "frame" defined by wetlands, marshes, and salt ponds on the west, the hills to the east, and Alameda Creek and Quarry Lakes to the north.
- Policy 4-3.7 requires appropriate massing and scale for proposed structures.
- Policy 4-5.5 provides protection for scenic routes.

### Newark General Plan

The *Newark General Plan* includes goals, policies, and actions to protect Newark's aesthetic quality and scenic vistas.

- Policy ED-5.8 aims to communicate a positive image of the City and enhance visual quality and aesthetics for major gateways into Newark, including Mowry Avenue, Thornton Avenue, Stevenson Boulevard, Newark Boulevard, and Cherry Street (City of Newark 2013). These gateways are within the Project Study Area.
- Policy LU-2.2 pertains to Context-Sensitive Design and requires that new structures, additions, and major renovations are aesthetically compatible with the existing structures and the surrounding context and contribute positively to the visual quality of neighborhoods.
- Policy LU-4.14 aims to protect and enhance panoramic views and vistas of horizon features such as Coyote Hills, Mission Peak, the East Bay and Peninsula Hills, and San Francisco Bay.
- Policy T-6.6 aims to reduce the number of at-grade rail crossings in Newark by encouraging grade separations at crossings.
- Policy T-7.5 aims to manage parking lot aesthetics by requiring parking lots to be attractively designed and landscaped, including the use of screening, in areas of high pedestrian volumes or high visibility to passing traffic such that parking areas do not dominate street frontages.
- Action LU-8.G calls for the installation of fences or sound walls along railroad tracks to reduce visual impacts.
- Goal PR-1 aims to protect open space to preserve aesthetics.

## 3.2.2.5 Consistency with Plans, Policies, and Regulations

As described in more detail in the following paragraphs, the proposed Project is consistent with applicable plans, policies, and regulations related to aesthetics and visual resources.

### Federal Plans, Policies, and Regulations

There are no federally designated National Wild and Scenic Rivers (U.S. Fish and Wildlife Service 2021), National Scenic Byways (Federal Highway Administration 2021), or National Parks (National Park Service 2021) in the Project Study Area. No lands administered by the Bureau of Land Management would be affected (Bureau of Land Management 2022).

A portion of the auto tour route of the federally designated historic trail, Anza Trail, traverses the Project Study Area. However, the auto tour route does not cross the RSA. Additionally, recreational trails, which are a part of this trail system, do not cross the RSA. The map of auto tour route and recreational trails in Alameda County is included in "San Francisco Bay Area, The Anza Trail Guide, Alameda County – San Lorenzo Creek to the East Bay" (National Park Service 2022).

### State Plans, Policies, and Regulations

There are no state-designated Wild and Scenic Rivers within the Project Study Area (as defined by Public Resource Code Section 5093.54). Furthermore, there are no state parks within the Project Study Area (California State Parks 2021).

The segment of I-580 from San Leandro Circle to SR 24 in Oakland is an eligible state scenic highway in the Project Study Area (Caltrans 2021). The segment of SR 84 from SR 238 (Mission Boulevard) East to I-680 is an officially designated state scenic highway in the Project Study Area (Caltrans 2021). Though portions of these highways are in the Project Study Area, none of them are within the RSA (viewshed) of the proposed Project.

### Local Plans, Policies, and Regulations

The proposed Project would not remove or alter existing public access to the San Francisco Bay. In addition, the proposed Project would use existing railroad right-of way. BCDC does not require public access to be provided where "access would be clearly inconsistent with the project because of public safety considerations" (BCDC 2001), although alternative access elsewhere could be required if removed/altered by a project. Limited project ROW and safety considerations would preclude incorporating new public access into the proposed Project. However, the proposed Project would provide enhanced visual access for passenger train riders by bringing them closer to the Bay along the Coast subdivision. This would provide previously inaccessible public views of the Bay.

## 3.2.3 Methods for Evaluating Environmental Impacts

This section defines the RSA for aesthetics and describes the methods used to analyze the impacts on aesthetic resources within the RSA.

### 3.2.3.1 Resource Study Area

As defined in Section 3.1, Introduction, RSAs are the geographic boundaries within which the environmental investigations specific to each resource topic are conducted.

For the aesthetics analysis, the RSA is the portion of the proposed Project that would be clearly seen by sensitive viewers at publicly accessible locations within the Project Study Area (that is, within their viewshed).

### 3.2.3.2 Data Sources

A visual impact assessment begins with a review of online information pertaining to aesthetics and visual resources. This review informs which visual receptors and views would be important to study further using key viewpoints. In accordance with CEQA Guidelines, key viewpoints are selected based on a variety of criteria, including public accessibility of the viewpoint, scenic views in the viewshed, locations where the proposed Project would construct new vertical structures, and known areas of visual sensitivity. Visual simulations allow for a comparison of each viewpoint's visual resources before and after the proposed Project is built. Key viewpoints aid in understanding the potential impacts on aesthetics, based on the CEQA criteria for visual impacts described in Section 3.2.3.4.

A viewshed is the geographical area from which an object is visible. It can include all surrounding points in line of sight with that object, and it excludes points that are beyond the horizon or obstructed by terrain and other features, such as buildings and vegetation. Sensitive viewers include travelers along highways and surface streets, and pedestrians, bicyclists, and recreational viewers on sidewalks and trails.

Viewer groups in the Project Study Area include travelers, pedestrians, bicyclists, recreational viewers, residents, commuters, and workers. Travelers, pedestrians, bicyclists, and recreational viewers along recreational trails and the scenic corridors listed in Section 3.2.4.2 Local Setting, are considered sensitive viewers, because they travel at a slower pace and are more attuned to their surroundings. Commuters along arterial streets or highways, rail passengers, and park-and-ride users are moderately sensitive to visual quality because these viewers regularly travel the same route and become less attuned to their surroundings over time. Viewers likely to exhibit lower sensitivity to visual quality include freight train workers and workers in industrial or commercial areas adjacent to the rail corridor; these viewers tend to concentrate on their day-to-day business activities.

It should be noted that the aesthetics impact analysis is focused on "public views" consistent with the threshold of significance established in the CEQA Guidelines. Thus, residents of the existing residential areas in the RSA are considered part of the previously mentioned viewer groups only when they view the proposed Project from a public vantage point, such as a public ROW or open space.

This analysis of aesthetics is based on physical and tangible evidence of the proposed Project's visual consistency with its surroundings. Thus, physical elements and structures proposed as part of the proposed Project constitute the basis for evaluating potential visual impacts pertaining to the proposed Project.

### 3.2.3.3 CEQA Thresholds

To satisfy CEQA requirements, Aesthetics impacts were analyzed in accordance with Appendix G of the CEQA Guidelines. According to the CEQA Guidelines, CCR, Title 14, Section 15002(g), "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in CEQA Guidelines Section 15064(b)(1), the significance of an activity may vary with the setting. The impact analysis identifies and analyzes construction (short-term) and operation (long-term) impacts, as well as direct and indirect impacts (see PRC Section 21065). The proposed Project would have significant Aesthetics impacts under CEQA if it would:

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; or
d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

# 3.2.4 Affected Environment

This section identifies the regional and local settings that are relevant to the analysis of aesthetics. It also lists visual receptors in these settings and whether the proposed Project would be in vicinity of these visual receptors.

## 3.2.4.1 Regional Setting

The proposed Project is in Alameda County in the cities/communities of Ardenwood, Fremont, Hayward, Oakland, Newark, San Leandro, and Union City. Existing land uses consist of suburban residential; commercial; institutional; light, and heavy industrial; and recreational open space (parks). The proposed Project is primarily within an urbanized area of Alameda County. The views of rolling hills, ridgelines, and canyons of California Coast Ranges have a recurrent presence throughout the region. The views from open spaces, scenic corridors, and other vantage points include views of the East Bay Hills to the east and southeast, Mission Peak to the southeast, and Coyote Hills to the west. These views are more prominent and vivid looking east due to proximity of California Coast Ranges in this direction. Additionally, views of low-lying areas fronting San Francisco Bay are available from certain vantage points, such as elevated freeway sections, multistory buildings, and hillside developments facing west. Alameda Creek flows west through Niles Canyon into San Francisco Bay and is visible from several locations within the Project Study Area. The Alameda Creek Regional Trail follows the creek with recreational access on each side of the creek. Expansive views of marshlands and the California Coast Ranges are visible from the Alameda Creek Regional Trail.

Figure 3.2-1 and Figure 3.2-2 show the BCDC jurisdiction and associated shorelines and waterways within the Project Study Area. Figure 3.2-3 shows the visual resources within the Aesthetics RSA (that is, within the viewshed of sensitive viewers in the Project Study Area).

## 3.2.4.2 Local Setting

### Views of Scenic Quality

Visual resources in the viewshed include the following:

- Martin Luther King Jr. Regional Shoreline is part of the East Bay Regional Park District. It is a 748-acre park that conserves marshland and includes the Martin Luther King Jr. Memorial Grove, Arrowhead Marsh, the “Duplex Cone” sculpture and Garretson Point.
- Oyster Bay Regional Shoreline Is part of the East Bay Regional Park District. It includes picnic areas, multipurpose trails, and a significant diversity of wildlife in its salt marsh ecosystem.
- Marina Park: this 30-acre regional park borders the beautiful San Leandro Shoreline. Amenities include picnic areas with barbecue grills, play apparatus, three newly renovated large group picnic areas, a large grassy area, and a mile-long par course.
- Hayward Regional Shoreline consists of 1,841 acres of salt, fresh, and brackish water marshes, seasonal wetlands, and public trails. Activities at Hayward Regional Shoreline include hiking, bicycling, jogging, birdwatching, picnicking, and fishing.
- San Lorenzo Community Center Park this 31.4-acre park features barbecues, baseball/softball, basketball, community center, lagoon, meeting rooms, open lawn area, par course, parking, picnic tables, playground, restrooms, snack bar, soccer, and trails.

- Eden Landing Ecological Reserve is approximately 6,400 acres of restored salt ponds, adjacent diked marshes, and transitional areas to uplands that are managed for resident and migratory waterbirds and tidal marsh habitats and species. Along with a segment of the Bay Trail, the reserve now hosts a 3-mile seasonal loop trail along the managed ponds and the restored marsh. A 4-mile, year-round trail follows the perimeter of the restored and managed wetlands, where a boardwalk and interpretive exhibits allow wildlife viewing and education.
- Eden Greenway is a 36.1-acre recreation area in Hayward that includes a dog park, basketball court, fitness court, barbeques, open lawn area, par course, picnic tables, playground, and trails.
- Coyote Hills Regional Park comprises 1,266 acres of marshland and rolling grassland-covered hills, the Coyote Hills Regional Park is located along the eastern shore of San Francisco Bay, northwest of the cities of Fremont and Newark.
- Don Edwards San Francisco Bay National Wildlife Reserve consists of 30,000 acres of habitat for millions of migratory birds and endangered species and features 38 miles of trails, a Visitor Center, and an Environmental Education Center. It was established as the first Urban Wildlife Refuge in 1972 and upon completion of the South Bay Salt Pond Restoration Project will restore an additional 15,100 acres of wetland habitat.
- Alameda Creek Regional Trail is a 12-mile trail that follows the banks of Alameda Creek in southern Alameda County from the mouth of Niles Canyon (in the Niles District of Fremont) westward to San Francisco Bay. The trail is accessible from several major roads in Fremont, Union City, and Newark.
- Ardenwood Historic Farm is a working farm and public open space with farmlands, gardens, orchards, pastures, recreational facilities, and historic buildings. It is visible from Ardenwood Boulevard and SR 84 in the City of Fremont.

Figure 3.2-3 shows the visual resources within the viewshed of the Project Study Area (that is, within the Aesthetics RSA). Note that I-880 is identified as part of the Visual Resources Boundary, as it blocks the viewshed of sensitive viewers west of the highway to resources identified east of the highway and vice versa.

**Figure 3.2-1: BCDC Jurisdiction in the Project Study Area: Northern Extent**

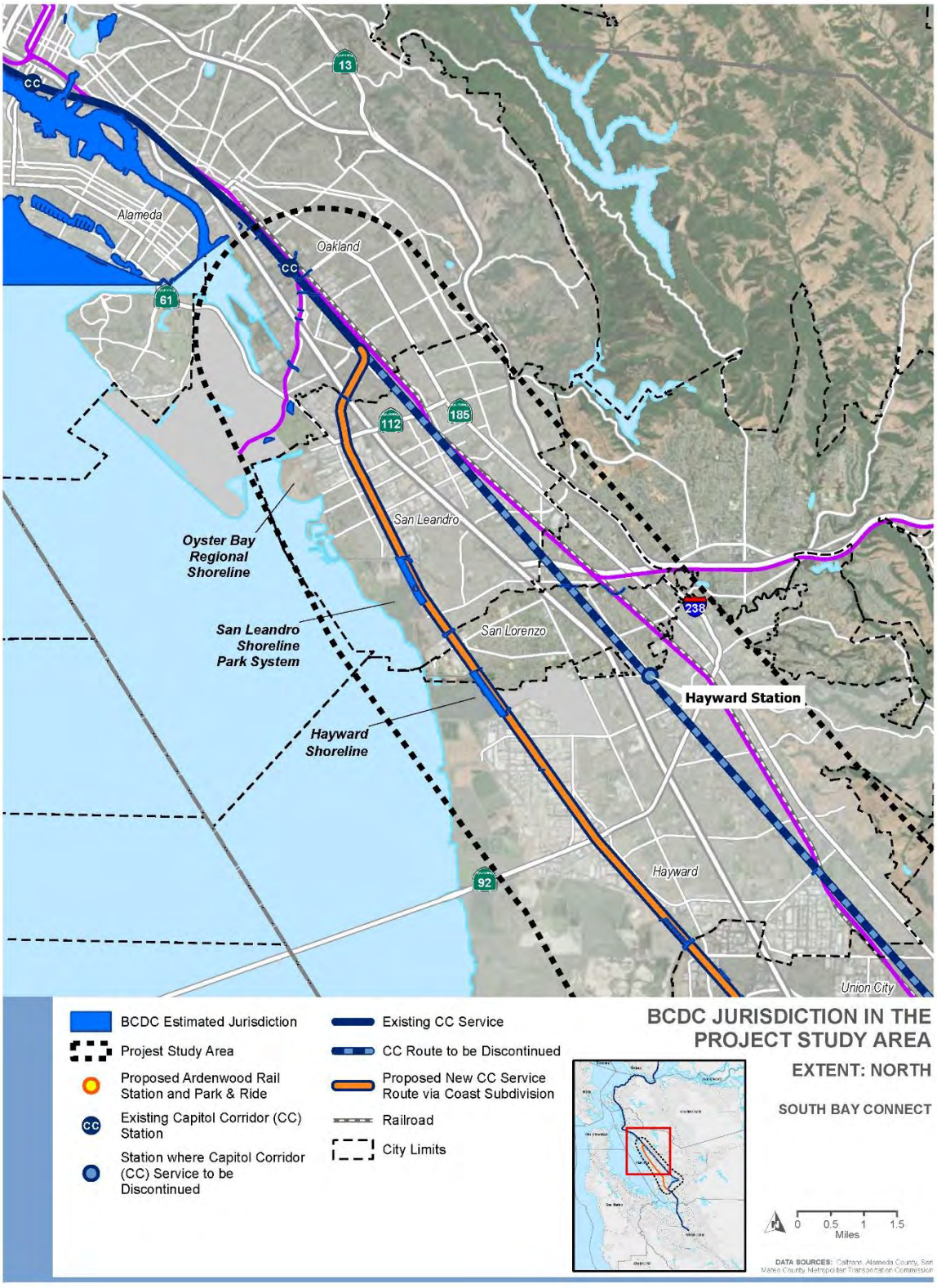


**Figure 3.2-2: BCDC Jurisdiction in the Project Study Area: Southern Extent**

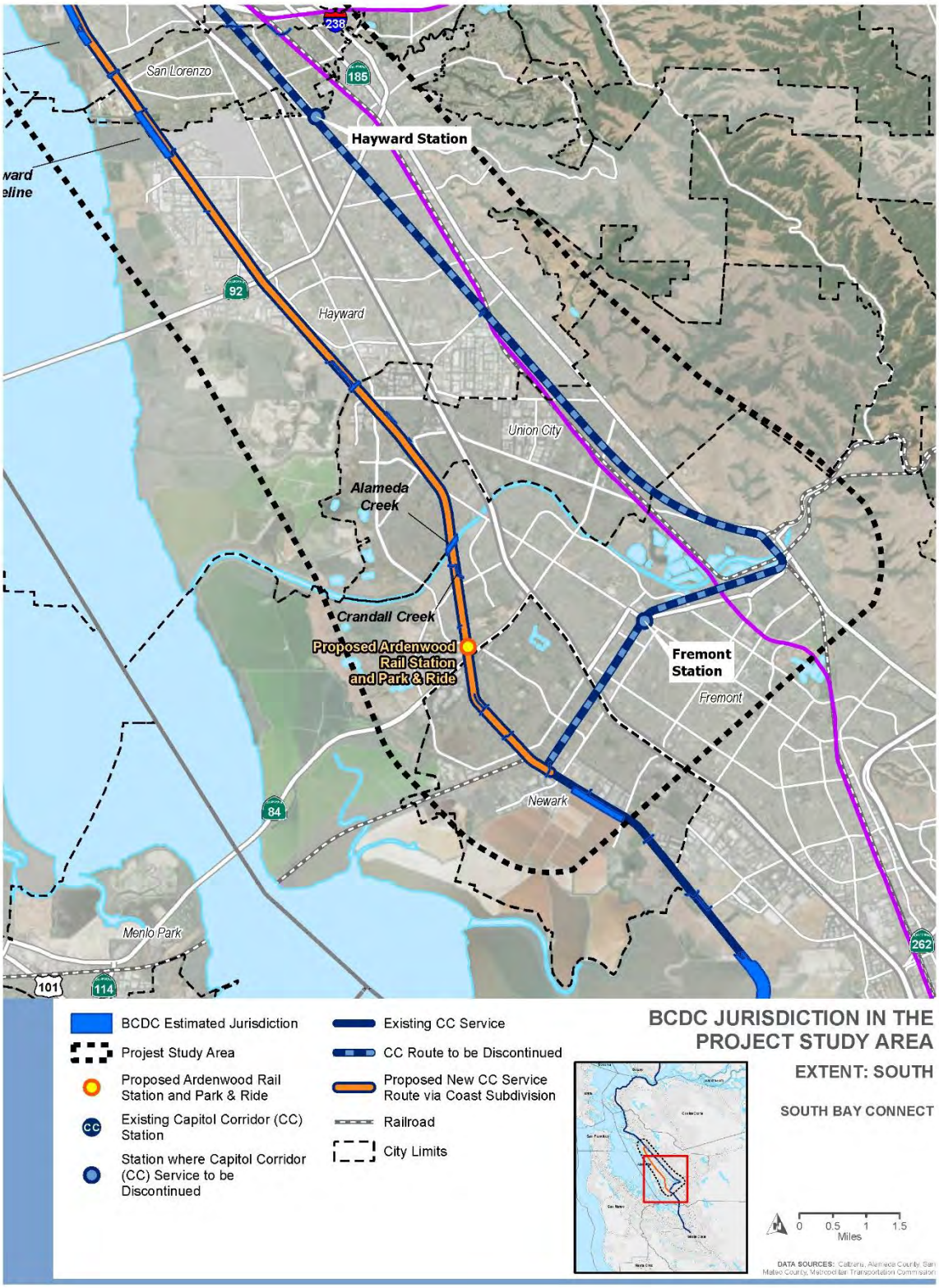
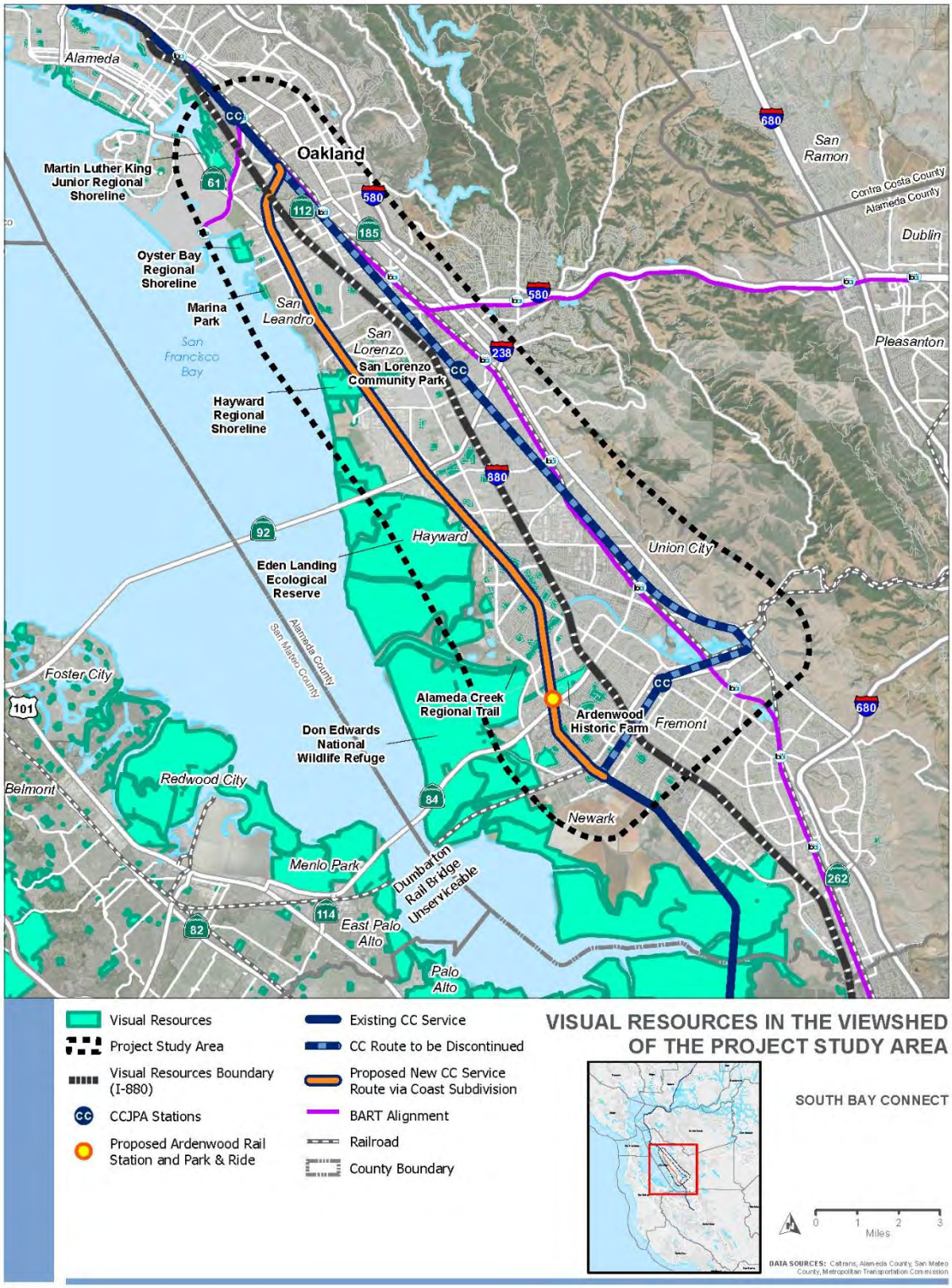


**Figure 3.2-3: Visual Resources in the Viewshed of the Project Study Area**



## Scenic Corridors

Scenic corridors that were identified as receptors of views within the RSA include the following:

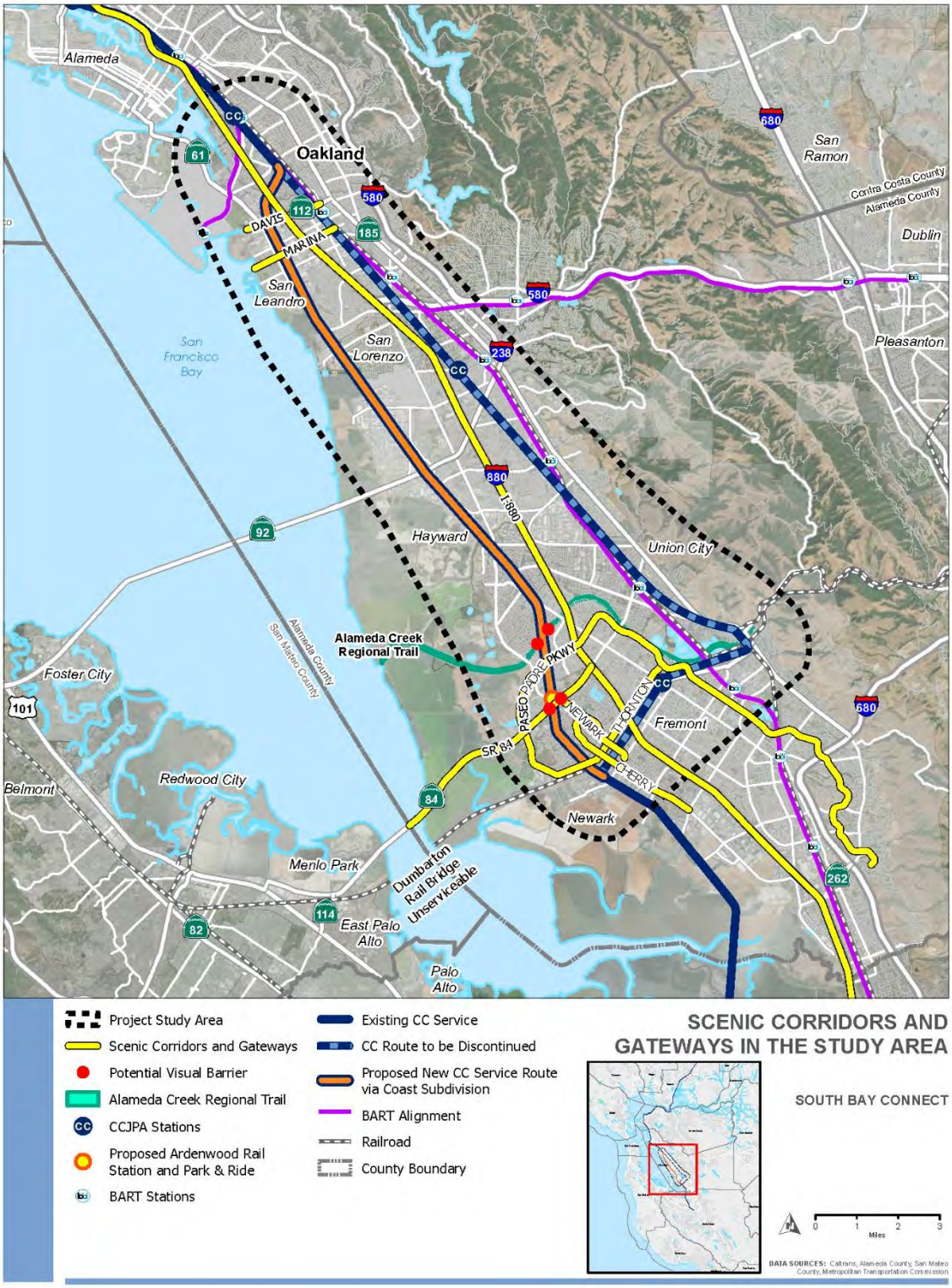
**SR 84** is identified as a scenic route by the City of Fremont. Within the RSA, this highway crosses over Ardenwood Boulevard as an overpass with diamond interchanges. Being at a higher elevation than the surrounding environment, travelers on this corridor have distant views of the hills on the northeast and Coyote Hills Regional Park on the southeast, with small to medium height trees and dense understory on both sides of the corridor as well as on highway medians. These vegetation borders soften the views of the multistory buildings, commercial and service spaces, parking lots, and at-grade rail lines in the distance. Vegetation in the median also screens views of Ardenwood Historic Farm from the northbound lanes. The farm is visible from southbound lanes outside the RSA.

**I-880 (Nimitz Freeway)** is a City of Hayward- and San Lorenzo-designated scenic route that traverses from north to south in the study area. Views of the proposed Project from I-880 are negligible as I-880 crosses Alameda Creek, Wards Creek, and San Lorenzo Creek.

**Other scenic corridors** including Marina Boulevard, Davis Street, and East 14th Street in the City of San Leandro; Paseo Padre Parkway in the City of Fremont; and Thornton Avenue in Newark have been described as corridors of scenic value by their respective cities. Cherry Street, Mowry Avenue, and Newark Boulevard are identified as major gateways into Newark.

Figure 3.2-4 shows the scenic corridors in the RSA.

**Figure 3.2-4: Scenic Corridors and Gateways in the RSA**



### 3.2.4.3 Proposed Project Elements

This discussion provides an overview of the physical elements and structures anticipated with the proposed Project that relates to aesthetics. The proposed Project would include both horizontal and vertical construction elements in varying scales and quantities. Track, siding, and at-grade crossing improvements would be part of the horizontal elements of the proposed Project. The vertical elements of the proposed Project would include grade-separated crossings, water crossings, and the construction of a new station.

#### Coast Subdivision

The Coast Subdivision would be upgraded to allow for faster and more reliable passenger train operations. Many of the proposed improvements such as ballast, rail, and tie replacement, culvert replacement, new signals and fencing, and slight shifts in the track alignment and new sidings would have little visual change noticeable to the community. Other improvements, such as new retaining walls, replacing four bridges, and constructing a new passenger rail station at the present day Ardenwood Park-and-Ride would be more noticeable from some locations along the Coast Subdivision. More train passengers, however, will have enhanced access to scenery along the corridor.

The main vertical construction work along the Coast Subdivision would be the development of the new passenger rail station located adjacent to the existing Ardenwood Park and Ride. The Ardenwood Station would provide an 800-foot-long center boarding platform between the tracks, a surface parking lot on the west side of the existing rail line, and a covered station entry plaza accessible from the Ardenwood Park and Ride. New walkways crossing under SR 84 and new north and south pedestrian overcrossings would connect adjacent business complexes to the proposed Ardenwood Station. An artist's rendering of the Ardenwood Station conceptual design is shown in Figure 3.2-5.

**Figure 3.2-5: Ardenwood Station Conceptual Design**

The proposed Project would include up to 3.9 miles of new retaining walls needed to accommodate a second main track with minimal expansion of the rail embankment footprint. Around 60 percent (12,400 linear feet) of the 3.9 miles of new retaining wall would be 5 feet high or less. Another 17 percent of the total (4,752 linear feet) would be 5 to 20 feet high and the remaining 23 percent (3,432 linear feet) between 5 feet and 30 feet high.

The proposed Project will intersect the BCDC jurisdiction in several locations along the route. From north to south, the BCDC lands are adjacent to the route at these locations:

- San Leandro Shoreline Park System marsh lands and Estudillo Canal,
- San Lorenzo Creek crossing at Railroad Ave,
- Hayward Shoreline – crossing Bockman Channel and east of the Oro Loma Marsh,
- Alameda Creek and the Alameda Creek Trail crossing,
- Crandall Creek (just south of Alameda Creek) crossing, and;
- Adjacent to the Cargill salt evaporation ponds in Newark at the southernmost part of the Project Study Area

None of the above-listed BCDC-managed lands or any public access would be affected by the proposed project. Likewise, the San Francisco Bay Trail, which generally runs along the shoreline, is not affected by the proposed Project. The San Francisco Bay Trail, at its closest point, is about a half mile from the Coast Subdivision. With the change to passenger rail on the Coast Subdivision, more rail passengers would have opportunities to view scenery from closer to the bay shoreline.

## 3.2.5 Best Management Practices

As noted in Chapter 2, Project Alternatives, CCJPA would incorporate a range of BMPs to avoid and minimize adverse effects on the environment that could result from implementation of the proposed Project. BMPs are included in the proposed Project description, and the impact analyses were conducted assuming application of these practices.

**BMP AES-1: Special Permits and/or Variance from Local jurisdictions Where Work is Outside of UPRR ROW**

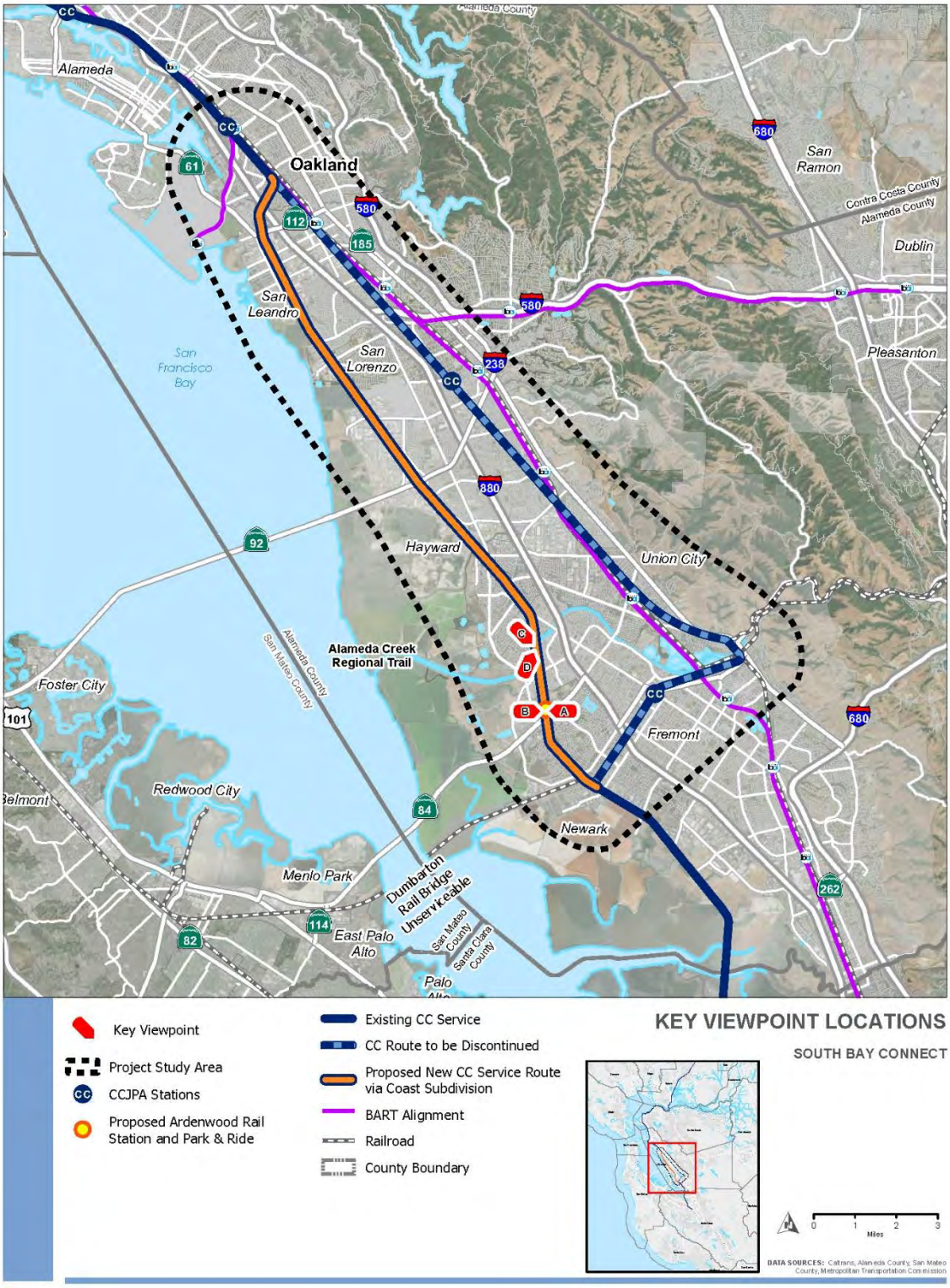
## 3.2.6 Environmental Impacts

This section describes the potential environmental impacts on aesthetics as a result of implementation of the proposed Project. Lettering shown within title for each environmental factor below correlates with CEQA Statute and Guidelines, Appendix G table lettering and numbering.

### 3.2.6.1 Viewpoints Analysis

Key viewpoints were used to represent and analyze the proposed Project's potential impacts on the quality of public views within the PSA. The segments of SR 84, Alameda Creek Regional Trail, and residential development adjacent to Coast Subdivision within the PSA were selected as key viewpoints and are shown in Figure 3.2-6.

**Figure 3.2-6: Key Viewpoint Locations in the PSA.**



## Viewpoint A and B, Views from SR 84

Figure 3.2-7 represents the view, looking southwest, towards the existing Ardenwood Park and Ride, as seen by travelers heading south on SR 84. The existing view from SR 84 consists of an urban environment with rows of trees and vegetation lining the highway in the foreground and views of a commercial center and the Ardenwood Park and Ride partially visible through street trees in the background. The view of the existing at-grade rail line that crosses under the highway is obscured by trees planted as part of parcel perimeter landscape or vegetation screening requirements in accordance with the regulations of the City of Fremont.

The proposed Project would construct a new Ardenwood Station. This at-grade station would be located on the western edge of the existing Ardenwood Park and Ride. The station would include a covered entrance plaza and platform, as well as two pedestrian overcrossings connecting the station to adjacent businesses, a parking lot, bike paths, and bus stops. Proposed project mitigation measures MM AES-3: Vegetation Impact, Protection, and Replacement Plan and MM AES-4: Landscape Plan at Ardenwood Station (see Section 3.2.7 for description of the mitigation measures pertaining to aesthetics) would be applied to minimize clearing and grading, soften the station structures with vegetation screening, and provide attractive landscape for the station plaza and parking area. MM AES-7: Aesthetic Plan at Ardenwood station structures, Pedestrian Overcrossings, Grade Separated Structures, Retaining Walls, and Bridges would be implemented to blend the structure with the built environment as well as provide visually appealing aesthetic design treatments aligned with the community aesthetics. As illustrated in the visual simulation in Figure 3.2-8, the new station entrance canopy and north pedestrian overpass would be visible from this viewpoint; however, because these elements are compatible with the existing urban environment, the proposed Project would have a less than significant visual impact at this viewpoint.

Figure 3.2-9 represents the view for travelers heading north on SR 84 looking northeast towards the commercial land uses along the highway corridor. As with the view from southbound SR 84, the visual character of this viewshed is a developed urban landscape that includes a multi-storied hotel and commercial buildings in the Four Corners Commercial Center, all of which are visible from the highway. As illustrated in the visual simulation in Figure 3.2-10, the proposed south pedestrian overcrossing to the new station would be a new visual element from the viewpoint. The top of overcrossing structure would be approximately 10 feet above the elevation of the SR 84 freeway; however, travelers along SR 84 would perceive the top of the structure at the same level as the freeway, because the structure would be located at a distance from the freeway overpass. The proposed Project would not alter the vegetation between the freeway and the overcrossing, and thus the views towards the overcrossing would continue to be softened by the existing screening vegetation. The visual quality impacts at this viewpoint would be minimal because the overpass structure would become another built element in an already urbanized corridor.

The proposed station would be within the City of Fremont, except for south pedestrian overcrossing, which would be within City of Newark jurisdiction. The station plaza and platform are proposed within parcels zoned as Public Facility, which would be considered a compatible use. The proposed north pedestrian overcrossing would be approximately 42 feet high. The maximum building height allowed for Public Facility zoned parcels is 45 feet. The proposed north pedestrian overcrossing structure, approximately 42 feet high, would, however, encroach on parcels zoned as Industrial-Tech (T) on the west and Commercial-General (CG) on the east. The portion of the overcrossing structure proposed on the T-zoned parcel would be considered a compatible use because the maximum building height allowed for T-zoned parcels is 75 feet, and the adjoining Ardenwood

Technology Park-planned district west of the existing rail line has special regulations for increased density and allows for higher building heights. However, for CG-zoned parcel on the east, the maximum building height permitted is 35 feet. The proposed Project would implement Best Management Practice 1: Special Permits and/or Variance from Local Jurisdictions at this location to obtain zoning variance to construct the north overcrossing on CG-zoned parcel. The proposed Project would apply MM AES-5: Aesthetic Plan for the Proposed Bridge Structures to Match Existing and MM AES-7: Aesthetic Plan at Ardenwood station structures, Pedestrian Overcrossings, Grade Separated Structures, Retaining Walls, and Bridges to Ardenwood Station proposed structures to ensure compliance with the City of Fremont's Policy 4-3.7, which requires appropriate massing and scale for the proposed structures, and Goal 4-5: City Beautiful, which aims to protect and enhance the City of Fremont's visual character. The City of Fremont's Policy 11-9.3. A encourages uses around SR 84 that compliment established uses at Ardenwood Technology Park and creates a prominent western gateway into the City of Fremont. The proposed station elements, including the station canopy and pedestrian overcrossings, would be compatible uses.

As described previously, Ardenwood Station's south pedestrian overcrossing would be within the Business and Technology Park zoning district in City of Newark jurisdiction. The maximum height of the proposed structure would be approximately 38 feet, which would be below the 100 feet allowable in this zoning designation. Thus, this structure would not be outside the visual parameters, established by the City of Newark, of the surrounding environment. Although a minor use permit would be required for its construction, this structure would be consistent with the applicable zoning and regulations pertaining to visual quality, including the City of Newark's Policy T-6.6 (encouraging grade separation at rail crossings) and LU-2.2 (requiring that new structures are aesthetically compatible with the surrounding environment). With the implementation of MM AES-4: Landscape Plan at Ardenwood Station, the proposed Project would also be compatible with the City of Newark's Policy T-7.5, which pertains to parking lot aesthetics.

The light and glare generated by the new station would be consistent with the surrounding commercial, industrial, and public facility land uses. City of Fremont General Plan Policy 4-4.6 is intended to protect dark skies and reduce glare. City of Newark Municipal Code (Chapter 17.17.060) contains provisions to prevent light trespass and glare in all new developments. As required by these regulations, and with implementation of MM AES-8: Lighting Plan for reducing glare and over-lighting impacts, the proposed Project would minimize impacts to nighttime views in the Ardenwood Station area.

**Figure 3.2-7. Viewpoint A – Ardenwood Park and Ride from SR 84, looking southwest (existing)**

*Source: Google Street View (n.d.)*

**Figure 3.2-8. Viewpoint A – Ardenwood Park and Ride from SR 84, looking southwest (Proposed Project)**

*Source: Google Street View (n.d.)*

**Figure 3.2-9. Viewpoint B – Four Corners Commercial Center from SR 84, looking northeast (existing)**

*Source: Google Street View (n.d.)*

**Figure 3.2-10. Viewpoint B – Four Corners Commercial Center from SR 84, looking northeast (Proposed Project)**

*Source: Google Street View (n.d.)*

## Viewpoint C, View from Alameda Creek Regional Trail

Pedestrians and cyclists along the Alameda Creek Regional Trail presently view the elevated Coast Subdivision crossing of Alameda Creek. The proposed Project includes widening of the creek

crossing with additional piers beneath the span. The superstructure would appear essentially the same as it currently appears to trail viewers.

The City of Fremont identifies Alameda Creek Regional Trail as one of the primary corridors for pedestrians and cyclists. The City also identifies the importance of Alameda Creek in providing an open space buffer that helps to define the City's northern edge, offers a visual connection to nature, and enhances the overall aesthetic of the City (City of Fremont 2011).

As shown in Figure 3.2-11, pedestrians and cyclists traveling east on the Alameda Creek Regional Trail towards I-880 currently have expansive and scenic views of Alameda Creek in the foreground and the foothills of the Diablo Range in the background with the existing rail bridge in the foreground. The elevated structure would further impede these views for trail users (see visual simulation in Figure 3.2-12). Since trail users tend to be recreational viewers who travel at a slower speed and are more perceptive of the changes to the visual environment, the additional obstruction of scenic views of the creek and foothills would normally result in a significant impact to visual quality. However, because the proposed structure obscures only a very minor amount of additional scenery, the impact is minimal.

The height of the bridge as it passes over Alameda Creek Regional Trail would be approximately 10 feet above grade. Because of the height of the proposed elevated structure relative to the trail, the lights of trains traveling on the proposed elevated structure would not generally be visible to trail users. Trail users are also less likely to use the trail at night when these lights would be brightest.

**Figure 3.2-11. Viewpoint C – View of Alameda Creek from Alameda Creek Regional Trail, looking east (Existing)**

*Source: Google Street View (n.d.)*

**Figure 3.2-12. Viewpoint C – View of Alameda Creek from Alameda Creek Regional Trail, looking east (Proposed Project)**

## Viewpoint D, View of the Coast Subdivision Tracks

The Project proposes up to 3.9 miles of new retaining wall to accommodate a second main track, and they will affect the visual quality of the users on the adjacent sites. Walls will range in height from 5 feet up to 30 feet. Around 12,400 linear feet of wall would be 5 feet or under. Walls ranging from 5 to 20 feet in height would be constructed for another 3,400 feet and walls from 5 to 30 feet in height for 4,700 feet.

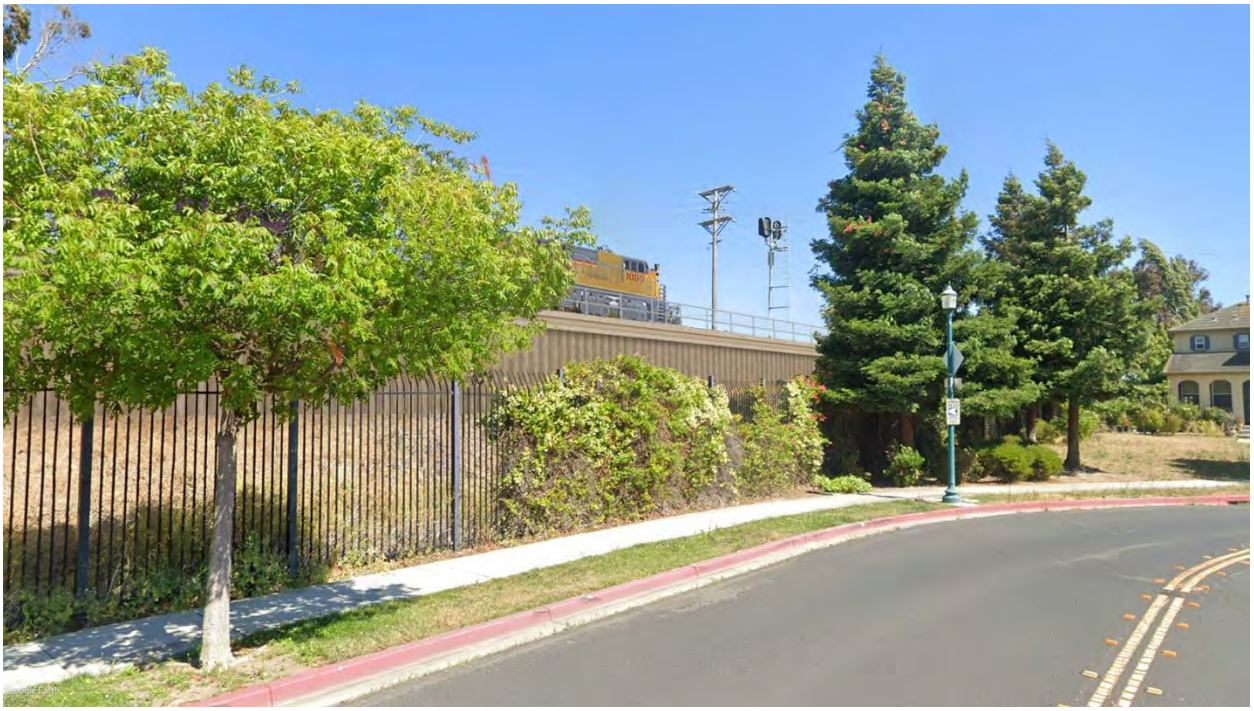
Figure 3.2-13 is a typical view of places along the Coast Subdivision where residential developments are adjacent to the rail line and where proposed retaining walls would be constructed. Along its length in the Project Study Area, the Coast Subdivision is mostly screened by walls, fences, and vegetation with only intermittent unobscured views of the rail grade. The trapezoidal elevated rail embankment acts as a visual levee in separating neighborhoods and residential developments. The track ballast and embankment don't support much vegetation growth, so the embankment appears mostly as bare soil with patchy grasses and other plants.

Figure 3.2-14 depicts a proposed retaining wall needed to add a second main track without expanding the footprint of the rail embankment. Concrete retaining walls create a more urban appearance than natural grass or soil.

**Figure 3.2-13. Viewpoint D – View of the Coast Subdivision tracks, looking east from Novato Street (Existing)**

*Source: Google Street View (n.d.)*

**Figure 3.2-14. Viewpoint D – View of the Coast Subdivision tracks, looking east from Novato Street (Proposed Project)**



### 3.2.6.2 (a) Would the project have a substantial adverse effect on a scenic vista?

#### No Project Alternative

**No Impact.** Under the No Project Alternative, the Capitol Corridor passenger rail service between Oakland and San Jose would not be relocated from the Niles Subdivision to the Coast Subdivision. Capitol Corridor passenger trains and UPRR freight trains would continue to operate based on current routes with no changes to connectivity or rail efficiency. Therefore, the No Project Alternative would not result in direct impacts or changes to scenic vistas.

#### Proposed Project

**Less than Significant Impact with Mitigation Incorporated**.

***Impacts on a Scenic Vista from Construction***

The proposed Project would include ballast and track improvements, new sidings, retaining walls, at-grade crossings, new signals, grade-separated crossings, water crossings, new second main track, and the proposed Ardenwood Station, all of which would be visible from one or more visual receptors identified in Section 3.2.4.2, Local Setting. In addition, four existing single-track water course bridges would be expanded to double-track bridges.

While the proposed Project would include construction in areas identified as having scenic vistas, these alterations would be temporary while construction activities are ongoing and perceived as minor changes to the existing built environment. Construction activities would introduce heavy equipment, associated vehicles, soil and material transport, and land clearing within and outside UPRR ROW, creating dust clouds that interrupt scenic vistas, although visual impacts resulting from these construction activities and equipment would be temporary. MM AES-1: Construction Area Visual Screening would be implemented to ensure that visual barriers are installed between construction work areas and sensitive receptors to minimize the impact on existing localized visual quality. MM AES-2: Construction Lighting Plan would be applied to limit construction to daylight hours, to the maximum extent feasible, to reduce the amount of construction experienced by the sensitive viewer groups. Implementation of these mitigation measures would reduce construction impacts to a less than significant level.

***Impacts on a Scenic Vista from Proposed Structures***

As described in Section 3.2.4.3, Proposed Project Elements, the proposed Project proposes track improvements, at-grade crossings, new sidings, new second main track, grade-separated crossings, water crossings, and the proposed Ardenwood Station. These improvements would be visible from one or more visual receptors identified in Section 3.2.4.2, Local Setting. Impacts on scenic vistas from the proposed Project structures are discussed below.

- Track Improvements and At-grade Crossings. Track improvements would upgrade infrastructure including the addition of fencing and signal equipment. New fencing will match the existing fencing within the RSA and is anticipated to be 6- or 8-foot-tall security fencing with 2-inch mesh galvanized chain link fabric and may have barbed wire top. These improvements would be compatible with the existing visual environment in the vicinity and in the existing rail corridor.

- New Siding. A new siding would allow trains on the same line to pass each other by providing space to temporarily store trains. Siding would be up to 15,000 feet in length along the existing tracks, making the rail corridor appear wider. Most new or additional sidings would be constructed within the existing UPRR ROW, however, and would not involve extensive regrading or add vertical elements that would adversely impact a scenic vista.

- New Second Main Track: The Project proposes up to 3.9 miles of new retaining wall to accommodate a second main track, which would affect the visual quality of the users on adjacent sites. Implementation of MM AES-3: Vegetation Impact, Protection, and Replacement Plan and MM AES-7: Aesthetic Plan at Ardenwood station structures, Pedestrian Overcrossings, Grade Separated Structures, Retaining Walls, and Bridges would soften the mass of these structures through vegetation screening and aesthetic design treatments and aid in blending these structures with their surroundings. Therefore, there would be no significant impacts to a scenic vista.

- Grade-separated Crossings. All grade-separated crossings proposed by the Project would be prominent elements in the visual environment and would partially obstruct scenic views of the foothills of the Diablo Range and Alameda Creek. Implementation of MM AES-3: Vegetation Impact, Protection, and Replacement Plan and MM AES-7: Aesthetic Plan at Ardenwood station structures, Pedestrian Overcrossings, Grade Separated Structures, Retaining Walls, and Bridges would soften the mass of these structures through vegetation screening and aesthetic design treatments and aid in blending these structures with their surroundings. Therefore, there would be no significant impacts to a scenic vista.

- Water Crossings. The proposed Project proposes water crossings consisting of two-track bridge structures. The Alameda Creek bridge would be constructed adjacent to, but at a slightly higher elevation than the existing rail bridge over the waterway. Section 3.2.6.1, *Viewpoint C: View from Alameda Creek Regional Trail* provides a detailed view of the Alameda Creek Regional Trail and creek with associated marshland. The proposed Project includes widening of the creek crossing with additional piers beneath the span. The superstructure mass will appear essentially the same as presently appears to trail viewers. Cyclists traveling east on the Alameda Creek Regional Trail towards I-880 currently have expansive and scenic views of Alameda Creek in the foreground and the foothills of the Diablo Range in the background with the existing rail bridge in the foreground. The elevated structure proposed by the Project would impede these views for trail users slightly more than the existing structure. By implementing MM AES-5: Aesthetic Plan for the Proposed Bridge Structures to Match Existing and MM AES-6: Aesthetic Plan for the Proposed Structural Features, the proposed structure will be similar in scale and height to the existing bridge in the viewshed of the Alameda Creek marshlands and the foothills of the Diablo Range, the impacts to a scenic vista would be less than significant.

- New Ardenwood Station. As described in Section 3.2.6.1, *Viewpoint Analysis: Views from SR 84*, the proposed Project would apply mitigation measures (MM AES-3: Vegetation Impact, Protection, and Replacement Plan, MM AES-4: Landscape Plan at Ardenwood Station, MM AES-5: Aesthetic Plan for the Proposed Bridge Structures to Match Existing, MM AES-7: Aesthetic Plan at Ardenwood station structures, Pedestrian Overcrossings, Grade Separated Structures, Retaining Walls, and Bridges, and BMP AES-1: Special Permits and/or Variance from Local Jurisdictions) to the proposed Ardenwood Station structures to ensure compliance with the applicable zoning and regulations for the Cities of Fremont and Newark pertaining to visual quality. Therefore, there would be no significant impacts to a scenic vista.

***Impacts on a Scenic Vista from Operations***

The proposed Project would shift Capitol Corridor passenger trains from the current Niles Subdivision route to the Coast Subdivision between Oakland and Newark. Increased passenger train frequency is not part of the Project. As illustrated in Figure 3.2-3**,** visual resources within the viewshed of the proposed Project include Martin Luther King Jr. Regional Shoreline, Oyster Bay Regional Shoreline, Marina Park, San Lorenzo Community Park, Hayward Regional Shoreline, Eden Landing Ecological Reserve, Eden Greenway, Coyote Hills Regional Park, Alameda Creek Regional Trail, Ardenwood Historic Farm, and Don Edwards San Francisco Bay National Wildlife Reserve. Thus, the Capitol Corridor train passengers would experience expansive scenic vistas and varied natural landscapes interspersed with urban elements as they travel along Coast Subdivision. The proposed Project would noticeably improve the quality of views for this viewer group.

Because passenger and freight trains already run on both the Niles and Coast Subdivision, and the proposed Project does not include any increase in the number of daily Capitol Corridor passenger trains, the quality of views for pedestrians, bicyclists, and recreational viewers would not greatly change from existing conditions.

Based on the analysis above, the level of impact after mitigation would be less than significant.

### 3.2.6.3 (b) Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

#### No Project Alternative

**No Impact.** Under the No Project Alternative, the Capitol Corridor passenger rail service between Oakland and San Jose would not be relocated from the Niles Subdivision to the Coast Subdivision. Capitol Corridor passenger trains and UPRR freight trains would continue to operate based on current routes with no changes to connectivity or rail efficiency. Therefore, the No Project Alternative would not result in direct impacts or changes to scenic resources within a State Scenic Highway.

#### Proposed Project

**No Impact**. There are two officially designated/eligible state scenic highways in the vicinity of the Project Study Area: I-580 and SR 84. The I-580 (McArthur Freeway) scenic highway segment runs in a north-south direction just east of the Project Study Area. The SR 84 (Niles Canyon Road) scenic highway segment is also just east of the Project Study Area. However, none of these officially designated/eligible state scenic highways occur within the aesthetics RSA. Construction and operation of the proposed Project would not take within the portions of I-580 and SR 84 that are designated as scenic. Therefore, there would be no impacts to scenic resources within a state scenic highway.

### 3.2.6.4 (c) Would the project, 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?

#### No Project Alternative

**No Impact.** Under the No Project Alternative, the Capitol Corridor passenger rail service between Oakland and San Jose would not be relocated from the Niles Subdivision to the Coast Subdivision. Capitol Corridor passenger trains and UPRR freight trains would continue to operate based on current routes with no changes to connectivity or rail efficiency. Therefore, the No Project Alternative would not result in neither direct impacts or changes to existing visual character or quality in non-urbanized areas nor conflict with applicable zoning and other regulations governing scenic quality in urbanized areas.

#### Proposed Project

**Less than Significant Impact with Mitigation Incorporated.** The proposed Project would include track improvements, at grade crossings, grade-separated crossings, water crossings, new sidings, and the proposed Ardenwood Station, all of which would be in urbanized areas.

***Visual Impacts During Construction***

Construction activities would introduce heavy equipment, associated vehicles, soil and material transport, and land clearing within and outside of UP ROW into the viewshed of all user groups. Visual impacts resulting from these construction activities and equipment would be temporary, and with implementation of mitigation measures MM AES-1: Construction Area Visual Screening and MM AES-2: Construction Lighting Plan, construction impacts are anticipated to be less than significant.

***Visual Impacts from Proposed Structures***

The Project proposes new two-track bridges to replace the existing single-track bridges over Lowry Road and Alameda Creek. Also, the proposed Project would include either new double-track bridges or culverts over Crandall creek (an engineered channel), and a drainage channel at MP 29.57. In addition to the bridges (or culverts), the proposed Project would include replacing eight existing timber structures with culverts. Conversely, there are seven existing grade separated crossings along the Coast Subdivision that may require some pier protection work, however, no additional changes to the seven grade separated crossings is proposed.

Retaining walls will also be required to accommodate railroad improvements on the Coast Subdivision. Potential locations include:

- Between MP 30.0 and MP 27.65: and approximately 5-foot-high retaining wall on one or both sides of the rail ROW
- Between MP 27.65 and MP 26.75: 5- to 30-foot-high retaining walls on one or both sides of the rail ROW

- Between MP 26.65 and MP 26.00: 5-20-foot-high retaining walls on one or both sides of the rail ROW

The proposed retaining walls proposed would be prominent elements in the visual environment and would significantly alter the visual character of their surroundings.

Implementation of MM AES-3: Vegetation Impact, Protection, and Replacement Plan and MM AES-7: Aesthetic Plan at Ardenwood station structures, Pedestrian Overcrossings, Grade Separated Structures, Retaining Walls, and Bridges would minimize clearing and grading, protect existing vegetation, soften the mass of these structures through vegetation screening outside of UPRR ROW and aesthetic design treatments, and aid in blending these structures with their surroundings. The level of impacts after mitigation are described in detail in Section 3.2.6.1, *Viewpoint Analysis*, as follows:

- Viewpoint C, Alameda Creek from Alameda Creek Regional Trail. With implementation of MM AES-3: Vegetation Impact, Protection, and Replacement Plan and MM AES-5: Aesthetic Plan for the Proposed Bridge Structures to Match Existing, impacts of the visual character or quality of public views are anticipated to be less than significant.
- Viewpoint D depicts a retaining wall needed to add a second main track. Concrete retaining walls create a more urban appearance than natural grass or soil. The level of impact after mitigation employing MM AES-3: Vegetation Impact, Protection, and Replacement Plan and MM AES-7: Aesthetic Plan at Ardenwood station structures, Pedestrian Overcrossings, Grade Separated Structures, Retaining Walls, and Bridges would be less than significant.

***Visual Impacts from Operations***

Operations and maintenance of the proposed Project would be generally consistent with existing operations and maintenance within the rail corridors with occasional maintenance vehicles and work crews present on site. Passenger and freight trains already run on both the Niles and Coast Subdivisions, so the visual effects would be the same. The proposed Project does not include any increase in the number of daily Capitol Corridor passenger trains. As such, visual impacts of the operation and maintenance of trains in the corridor would not greatly change from existing conditions. Therefore, the visual impacts from operations would not be significant.

***Conflicts with Applicable Zoning and other Regulations Governing Scenic Quality***

All proposed Project elements are consistent with federal, state, and local regulations governing scenic quality as outlined in Section 3.2.2, Regulatory Setting.

Based on the analysis above, the level of impact after mitigation would be less than significant.

### 3.2.6.5 (d) Would the Project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

#### No Project Alternative

**No Impact**. Under the No Project Alternative, the Capitol Corridor passenger rail service between Oakland and San Jose would not be relocated from the Niles Subdivision to the Coast Subdivision. Capitol Corridor passenger trains and UPRR freight trains would continue to operate based on

current routes with no changes to connectivity or rail efficiency. Therefore, the No Project Alternative would not generate a new source of light or glare within the RSA.

## Proposed Project

**Less Than Significant Impact with Mitigation Incorporated**. The existing built environment within the RSA consists of urban neighborhoods, multi-story buildings, highways, and rail corridors. The primary sources of existing daytime and nighttime light in this environment are residential lights, security lights, streetlights, parking lot lights, traffic signal lights, automobile headlights, and various sources of nighttime lighting.

Glare refers to the discomfort of vision experienced when a person is exposed to a direct or reflected source of light, causing objectionable brightness greater than that to which the eyes are accustomed. Sources of glare include sunlight reflected in the windows of buildings and cars and lighted signs on multistory buildings.

For open space areas within RSA such as Alameda Creek Regional Trail, Oyster Bay Regional Shoreline, and Eden Landing Ecological Reserve there is minimum light and glare under present conditions, except for lights from passing trains on existing rail lines and passing vehicles on surrounding roadways and freeways.

### Impacts to Day or Nighttime View During Construction

The proposed Project would create new sources of both temporary and permanent light and glare. Temporary sources of light and glare would include construction vehicles and lighting for nighttime construction. MM AES-2: Construction Lighting Plan would be implemented during construction to minimize fugitive light from portable sources used for construction.

### Impacts to Day or Nighttime View from Operations

Permanent sources of light and glare would include lights at the new Ardenwood Station and pedestrian overcrossing, new rail crossing signals, and train lights during nighttime operating schedules. New lighting sources, such as signal lights, would be balanced with existing conditions, because where signal lights are added in some areas, they would be removed in others. Further, the existing visual environment in urbanized areas of the proposed Project already contains many sources of light and glare including vehicle headlights, streetlights, traffic signals, parking lot lighting, storefront and signage lighting, and other lighting on buildings, so a slight increase in signal and train lighting would be negligible overall.

At-grade crossings are currently equipped with automatic flashing lights, bells, and gates that serve as visual warnings to travelers, pedestrians, and bicyclists approaching the crossing. The proposed Project would include these visual warnings operating 24 hours per day for an estimated 50-second duration for passenger trains and up to an estimated 240-second duration for freight trains projected in the year 2040. The proposed Project would increase the number of trains on the Coast Subdivision as all passenger trains (approximately 14 trains per day) would be shifted to this rail corridor. This would result in more frequent visual warnings in a day at each at-grade rail crossing on the Coast Subdivision; however, each warning light would be active for a shorter, 60-second duration for this proposed passenger trains-only corridor. The proposed Project would reduce the total number of trains on the Niles and Oakland Subdivisions. The proposed Project would not impact the number of freight trains but reduce the number of passenger trains per day on the Niles

and Oakland Subdivisions. This would result in less frequent visual warnings in a day at each at-grade rail crossing on the Niles and Oakland Subdivisions. In the urbanized context, the light and glare from these lights would be balanced along Niles/Oakland and Coast Subdivisions and would not substantially and adversely affect daytime or nighttime views.

In both urbanized and non-urbanized areas of the proposed Project, MM AES-8: Lighting Plan would be applied to further minimize light trespassing and glare.

Based on this discussion, and with the implementation of MM AES-2: Construction Lighting Plan and MM AES-8: Lighting Plan, impacts would be less than significant.

## 3.2.7 Mitigation Measures

The following mitigation measures associated with aesthetics would be implemented.

**MM AES-1: Construction Area Visual Screening**

Prior to the commencement of construction activities, Capitol Corridor Joint Powers Authority (CCJPA) will develop a visual resource construction plan for areas that may be affected by construction activities. Construction areas subject to this mitigation measure would be refined by CCJPA based on the size of the area, the nature of the construction activity, the proximity or visibility of the area to public vantage points or residential uses, and the type of visual screening to be implemented during construction activities. Potential visual screening may include, but is not limited to, the following:

- Fence with vinyl or mesh banners
- Fence with privacy screens
- Chain link fence with slat panels

**MM AES-2: Construction Lighting Plan**

Prior to commencement of construction activities, CCJPA will develop a construction lighting plan for areas that could be affected by construction activities. The construction lighting plan will consider the size of the area, the nature of the construction activity, the proximity or visibility of the area to sensitive receptors, and the type of lighting needed during construction activities. In addition, the construction lighting plan will evaluate the following:

- Lighting polices/requirements of the local jurisdiction;
- Use of glare-free lights, such as color corrected halide lights or balloon lights;
- Selection of light fixtures that meet or exceed industry standards for cutoff performance; and
- Installation of lights at the proper angle such that spill light is minimized beyond the construction site.

**MM AES-3: Vegetation Impact, Protection, and Replacement Plan**

During final design, CCJPA will develop a vegetation impact, protection, and replacement plan for areas outside of the UPRR right of way that would be affected by construction activities. The

Vegetation Impact, Protection, and Replacement plan will consider the following elements outside of UPRR ROW:

- Minimize size of area for clearing and grubbing;
- Require that any pruning activity be performed by a Certified Arborist;
- Including vegetation restoration requirements, including use of drought tolerant plant species and avoidance of invasive plant species in areas listed on Table 3.2-1;
- Incorporating landscape design options to soften vertical structures, minimize surface glare, reduce the visual monotony of the structures, and enhance the aesthetics of the structure;
- Using California native species with strong emphasis on vegetation and natural habitat restoration and screening of the rail corridor in non-urbanized areas;
- Selecting plant species from local (city or county) jurisdictional plant lists, if available, with an emphasis on adaptability to urban conditions and placing plants in accordance with Crime Prevention Through Environmental Design principles for urbanized areas;
- Developing an irrigation design and a maintenance program that will maximize retention of selected plant species and minimize potential for takeover by local invasive species.

**Table 3.2-1. Potential Vegetation Replacement/Visual Softening Planting Area**

| Vegetation Replacement/Visual Softening Planting Area | Planting Character |
|---|---|
| **Ardenwood Station area outside of UPRR ROW** | Urbanized |
| **North and South of Alameda Creek bridge outside of UPRR ROW** | Urbanized |
| **Alameda Creek bridge outside of UPRR ROW** | Urbanized |
| **Retaining Walls MP 30.0 to MP 27.65 outside of UPRR ROW** | Urbanized |
| **Retaining Walls MP 27.65 to MP 26.75 outside of UPRR ROW** | Urbanized |
| **Retaining Walls MP 26.65 to MP 26.00 outside of UPRR ROW** | Urbanized |
| **Lowry Road double-track bridge outside of UPRR ROW** | Urbanized |
| **Crandall Creek double-track bridge or culvert outside of UPRR ROW** | Urbanized |

**MM AES-4: Landscape Plan for Ardenwood Station**

During final design, CCJPA, in coordination with the City of Fremont, will develop a landscape plan for the proposed Ardenwood Station's surface parking lot, entrance plaza, and any disturbed vegetation at the Ardenwood Park and Ride or at other areas outside of UPRR ROW that would be affected by station construction. The landscape plan would include, at a minimum, the following measures:

- Shade trees and groundcovers at proposed surface parking lot, along the accessible walkways connecting south pedestrian overcrossing with the station, Dumbarton Court, and Overlake Place to improve aesthetics and to provide shade;
- Use of the City of Fremont's Landscape Development Requirements for all areas within the City's jurisdiction (City of Fremont 2019);
- Station entry plaza landscaping;
- Use of drought tolerant plant species and avoidance of invasive plant species;
- Mixed landscape plantings to provide multi-season visual interest while maintaining clear identification and visibility of the station for the public;
- Irrigation design and maintenance program to support landscaping and minimize takeover by invasive species.

**MM AES-5: Aesthetic Plan for Proposed Bridge Structures**

During final design, CCJPA will develop an aesthetic plan for proposed Project bridges that would replace single-track bridge structures with double-track bridge structures or where new bridges would be constructed adjacent to an existing bridge on the same roadway or waterway. The new bridge structures would match the height and aesthetic treatments of the existing bridge structures. See Table 3.2-2 for details.

**Table 3.2-2. Mitigation Measure to Match, Height, Scale, and Color of Proposed Structures to the Existing Environment**

| Proposed Structure | Height | Color and Surface Finish |
|---|---|---|
| **Alameda Creek bridge** | Match existing Alameda Creek bridges removed as part of the proposed Project | Natural steel, CCJPA-approved |
| **Lowry Road double-track bridge** | Match existing Lowry Road bridge adjacent to the proposed bridge | Natural steel, CCJPA-approved |
| **Crandall Creek double-track bridge or culvert** | Approximately match existing Crandall Creek bridges removed as part of the proposed Project | Natural steel, CCJPA-approved |

**MM AES-6: Aesthetic Plan for Proposed Structural Features**

During final design, CCJPA will develop an aesthetic plan for the coated new, relocated, and/or replaced ancillary features, fencing, and railings proposed along the proposed Project corridor, but outside of the UPRR ROW. The Aesthetic Plan will consider, but not be limited to, the following:

- Coloring or shading of ancillary features a shade that would be two to three shades darker than the general surrounding area using the prescribed color palette from U.S. Department of the Interior, Bureau of Land Management, with a finish to reduce the potential glare;
- Color and texturizing ancillary features, within or adjacent to UPRR ROW, such as signal equipment, safety gates, signal houses, and pavement markings, to be in accordance with UPRR requirements for consistency throughout the corridor;
- Constructing any new fences within the UPRR ROW to be in accordance with UPRR or CCJPA requirements. The existing fences affected by the proposed Project outside of the UPRR ROW to be replaced in kind or with black powder coated chain link fences or high-security fences, as determined by CCJPA;
- Cable railing to be used to maintain corridor-wide railing design consistency and not to block scenic vistas where applicable.

**MM AES-7: Aesthetic Plan for Ardenwood Station structures, Pedestrian Overcrossings, Grade Separated Structures, Retaining Walls, and Bridges**

During final design, CCJPA will develop an aesthetic plan for new structures with high visibility from SR 84 and Alameda Creek Regional Trail (Table 3.2-3). Aesthetic design treatments will consider but not be limited to the following:

- Selecting colors and textures to recede into views to reduce the overall apparent scale of the proposed structures. Use of earth-toned colors, such as light buff/tan or light gray colors to compliment the surrounding vegetation and provide a subtle foreground to surrounding scenic vistas. Using roughened concrete surfaces to provide visual texture, reduce glare, and deter graffiti;
- During design, considering the aesthetics of similar local structures to complement the existing cultural and natural landscape, and adhering to the local city or county jurisdictional regulations pertaining to aesthetics;
- Complying with UPRR requirements for railroad structures related to structural design and post-construction access to all facilities for inspection during operations;
- Incorporating aesthetics along the rail corridor for new, modified, or relocated retaining walls to correspond with existing retaining walls nearby or at the original locations, to the extent allowable by UPRR standards.

**Table 3.2-3. Potential Aesthetic Design Treatments**

| Proposed Structure | Aesthetic Design Treatments |
|---|---|
| **Ardenwood Station Plaza and platforms** | Design structure in a manner that provides a welcoming feel and a sense of arrival to the viewer groups<br>Incorporate Crime Prevention Through Environmental Design principles in the design<br>Incorporate design elements and/or public art reflective of community aesthetics in coordination with the City of Fremont<br>Select structure color and texture to be consistent with the surrounding built environment<br>Design railings to be visually transparent to soften the mass of the structure |
| **Ardenwood Station north overcrossing** | To the extent possible, design overcrossing as a gateway element and incorporate design features reflective of the City of Fremont community aesthetics in coordination with the City<br>Select structure color and texture to be consistent with the surrounding built environment<br>Design railings to be visually transparent to soften the mass of the structure |
| **Ardenwood Station south overcrossing** | To the extent possible, design overcrossing as a gateway element and incorporate design features reflective of City of Newark community aesthetics<br>Select structure color and texture to be consistent with the surrounding built environment<br>Design railing to be visually transparent to soften the mass of the structure |
| **Retaining Walls** | Add texture to concrete. Add cap to retaining walls. |
| **Lowry Road double-track bridge** | Concrete texture on abutments |
| **Crandall Creek double-track bridge or culvert** | Concrete texture on abutments |

**MM AES-8: Lighting Plan**

During final design, CCJPA will develop a lighting plan for the proposed Project to minimize light trespassing and glare. The lighting plan will consider, but not be limited to, the following:

- Lighting design will comply with the Engineering Society's design guidelines. Lighting fixtures and lighting control systems will conform to the International Dark-Sky Association's Fixture Seal of Approval program.
- Downcast cut-off type fixtures that direct light only toward objects requiring illumination and shields will be used where needed to minimize light pollution. Shielding for lights in parking lots, along pathways, and station platforms will be used to minimize off-site light spillage, ambient light glow, and glare.
- Lights will be installed at the lowest allowable height to cast low-angle illumination that minimizes incidental light spill onto adjacent properties and open spaces or backscatter into the nighttime sky. Lights will be screened and directed away from adjacent uses to the highest degree possible.
- The lowest allowable illuminance level and intensity feasible will be used for security, safety, and personnel access. The number of nighttime lights will be minimized to the extent feasible.
- Non-glare finishes will be applied to light fixtures to avoid reflective daytime glare. Energy efficient design with daylight sensors or timed with an on/off program will be used. Aesthetically pleasing light color rendering and fixture types will be selected.
- Note that railroad and traffic signals are subject to operational and regulatory requirements and may not meet this mitigation measure.

## 3.2.8 Cumulative Impact Analysis

### 3.2.8.1 Cumulative Impact Study Area

Cumulative impacts are two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. Cumulatively considerable means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects. The cumulative impact RSA for aesthetics is the area adjacent to the proposed Project.

### 3.2.8.2 Cumulative Condition and Contribution of the Proposed Project

A significant cumulative impact on aesthetics would occur if the cumulative effects of other projects, combined with the proposed Project, would result in adversely affecting scenic vistas or the existing visual character of public views in the cumulative impact study area.

Under the cumulative condition, the Proposed Project would be generally consistent with the visual character of the existing built environment. The projects included in this cumulative analysis RSA would be located predominantly within urban areas, and visual changes would be compatible with the existing visual character. As identified in Table 3-1 in Section 3.1, Introduction, multiple past,

present, and reasonably foreseeable projects were considered for the purpose of this cumulative impact analysis. These cumulative projects include infrastructure projects, transportation and transit projects, recreational and community facility projects, and other private development projects in close proximity of the proposed Project. These projects would be subject to the same federal, state, and local regulations regarding scenic highways and other scenic viewsheds as the proposed Project, which would help reduce the risk of cumulative impacts.

The environmental documents of those projects, if available, concluded that they would have either no impact or less than significant impacts on the visual resources. The environmental documents for the Bidwell Park Master Plan Project have not been drafted yet, however, a minor VIA will be prepared based on the questionnaire from the Preliminary Environmental Analysis Report (PEAR).

Bidwell Park Master Plan is a planned park, recreational, and community facility project proposed by Hayward Area Recreation and Park District are in the City of Hayward within the RSA. This project would add recreational elements and structures within the designated land use, and thus would be compatible with existing land uses and visual character in the area. This project and the work performed for the proposed Project are separated by two rows of single-family housing, BART tracks, and a maintenance yard, and they will not visually interact. As such, the aesthetic impacts will not be cumulative.

Mixed-use development projects proposed on the north and south side of Niles Historic District, including Station East Residential/Mixed-Use and Niles Gateway Mixed-Use, would be subject to Union City's and the City of Fremont's zoning regulations protecting public views and community aesthetics, including restrictions on height, screening, and parking. Station East Residential/Mixed Use Project is two blocks away from the proposed Project, and a solid vegetation mass visually separates the two projects. Therefore, this project will not visually interact with a new siding and at-grade crossing improvements including sidewalk and signal equipment at Decoto Road the proposed Project will build. Niles Gateway Mixed Use Project constructs a residential development in the Niles Historical Overlay District and is in the proximity of the proposed Alameda Creek Bridge in Alternative D. The existing Alameda Creek Bridge, which is approximately the same height as the proposed bridge, will remain between this project and the proposed bridge. Therefore, the Alameda Creek Trail users will not see this project and the proposed bridge together, and the aesthetic impacts are not expected to be cumulative.

The 2075 Williams Street Industrial Project would modify the existing facility to increase the maximum tonnage of materials that could be received and processed and have no effects on the appearance of the project site or its surroundings. The proposed Project will add a new siding adjacent to this project as well as at-grade crossing improvements including sidewalk and signal equipment at Williams Street. The scope of the two projects will not visually interact with each other.

CEQA defines indirect or secondary effects as the impacts that are reasonably foreseeable and caused by a project but occur at a different time or place. Planned future transportation corridor improvements and multimodal facility project, the SR 84 Intermodal Bus Facility in the vicinity of the station, also planned by CCJPA, would promote multimodal connectivity at the Ardenwood Park and Ride area and would build upon the proposed Project's intent. This project is entirely within state ROW, which is elevated over the proposed Ardenwood Station, and the project components are not exposed to public views from the ground level. SR 84 Intermodal Bus Facility would add vertical structures such as bus shelters to SR 84, which is a designated scenic corridor in the City of Fremont.

These structures as well as the Ardenwood Station structures would be visible to the travelers on SR 84. However, the scale and extent of the visual impacts of these structures would be minimized following the Caltrans regulatory framework and would be in line with the existing urbanized environment. Mitigation measures such as reflecting the visual preferences of the community in the design of the bus stop structure and replacement of removed vegetation are also anticipated. As such, the cumulative impacts from two projects are not expected to be significant.

The indirect and cumulative impacts from these projects would not be cumulatively considerable due to their compliance with existing regulations governing visual quality, compatibility with the existing urban pattern, and improvement in public access to visual resources in the RSA. The cumulative impacts from these projects in addition to the impacts from the proposed Project would not alter the CEQA findings described in Section 3.2.6, Environmental Impacts.

### 3.2.8.3 Conclusion

The proposed Project, when considered in combination with other planned projects in the RSA that would also be constrained by the existing built environment, would be consistent with existing structures and viewsheds, and therefore would not result in a significant cumulative impact on visual resources.

## 3.2.9 CEQA Significance Findings Summary Table

Table 3.2-4 summarizes the aesthetic impacts of the proposed Project.

**Table 3.2-4. Aesthetic Resources Impacts Summary**

| Impact | Level of Significance Before Mitigation | Incremental Project Contribution to Cumulative Impacts | Mitigation | Level of Significance with Mitigation Incorporated | Incremental Project Cumulative Impact after Mitigation |
|---|---|---|---|---|---|
| Would the project have a substantial adverse effect on a scenic vista? | S/M | NCC | MM AES- 1, MM AES-2, MM AES-3, MM AES-4, MM AES-5, MM AES-6, MM AES-7 | LTS | NCC |
| Would the project substantially damage scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings within a State Scenic Highway? | NI | NCC | N/A | NI | NCC |
| Would the project 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 proposed Project is in an urbanized area, would the proposed Project conflict with applicable zoning and other regulations governing scenic quality? | S/M | NCC | MM AES-1, MM AES-2, MM AES-3, MM AES-4, MM AES-5, MM AES-6, MM AES-7 | LTS | NCC |
| Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area? | S/M | NCC | MM AES-2, MM AES-8 | LTS | NCC |

Notes: LTS = Less than Significant Impact, NI = No Impact, N/A = Not Applicable, SI = Significant Impact, S/M = Significant Impact but Mitigable to a Less than Significant Level, CC = Cumulatively Considerable, NCC = Not Cumulatively Considerable.

## 3.2.10 References

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# 3.3 Agriculture and Forestry

## 3.3.1 Introduction

This section describes the regulatory setting and affected environment for agriculture and forestry resources that are known to occur or have the potential to occur in the agriculture and forestry RSA and describes the potential impacts on those resources during construction and operation of the proposed Project. In particular, the agriculture and forestry resources analysis focuses on Prime Farmland, Unique Farmland, Farmland of Statewide Importance, Williamson Act contract parcels, forest land, and timberland in the agriculture and forestry RSA where agriculture and forestry resources are most susceptible to change as a result of the proposed Project's construction and operation. This section also identifies the potential for cumulative impacts of the proposed Project on agriculture and forestry resources when considered in combination with other relevant projects.

## 3.3.2 Regulatory Setting

This section identifies the applicable federal, state, regional, and local laws, regulations, and orders that are relevant to the analysis of agriculture and forestry resources. This section also addresses the proposed Project's consistency with the regulations described herein.

### 3.3.2.1 Federal

#### Farmland Protection Policy Act of 1981

The Natural Resources Conservation Service (NRCS), a federal agency within the United States Department of Agriculture (USDA), is the agency primarily responsible for implementation of the Farmland Protection Policy Act. The purpose of this act is to minimize federal programs' contribution to the conversion of farmland to nonagricultural uses by ensuring that federal programs are administered in a manner that is compatible with state, local, and private programs designed to protect farmland. NRCS provides technical assistance to federal agencies, state and local governments, tribes, and nonprofit organizations that desire to develop farmland protection programs and policies. NRCS summarizes implementation of the Farmland Protection Policy Act in an annual report to Congress. The act also established the Farmland Protection Program and Land Evaluation and Site Assessment.

### 3.3.2.2 State

#### California Department of Conservation

The California Department of Conservation (DOC) provides services and information that promote environmental health, economic vitality, informed land-use decisions, and sound management of the state's natural resources. DOC administers and supports a number of programs that are designed to preserve agricultural land and provide data on conversion of agricultural land to urban use. These programs include, but are not limited to, the Williamson Act and the Farmland Mapping and Monitoring Program (FMMP).

## California Land Conservation Act (Williamson Act)

Commonly known as the Williamson Act, the State of California's Land Conservation Act of 1965 enables local governments to enter into contracts with private landowners for the purpose of restricting specific parcels of land to agricultural or related open space use. In return, landowners receive a reduced property tax assessment based upon farming and open space uses as opposed to full market value. The Williamson Act Contract Enrollment Status Definitions are provided below:

- **Prime Agricultural Land.** Land which is enrolled under California Land Conservation Act contract and meets any of the following criteria (as set forth under California Government Code Section 51201):
    - All land that qualifies for rating as class I or class II in the NRCS land use capability classifications.
    - Land which qualifies for rating 80 to 100 in the Storie Index Rating.
    - Land which supports livestock used for the production of food and fiber and which has an annual carrying capacity equivalent to at least one animal unit per acre as defined by the USDA.
    - Land planted with fruit or nut-bearing trees, vines, bushes, or crops which have a nonbearing period of less than five years and which will normally return during the commercial bearing period on an annual basis from the production of unprocessed agricultural plant production not less than two hundred dollars per acre.
    - Land which has returned from the production of unprocessed agricultural plant production and has an annual gross value of not less than two hundred dollars per acre for three of the previous five years.
- **Nonprime Agricultural Land.** Land which is enrolled under California Land Conservation Act contract and does not meet any of the criteria for classification as Prime Agricultural Land. Non-Prime Land is defined as Open Space Land of Statewide Significance under the California Open Space Subvention Act (see California Government Code Section 16143) and may be identified as such in other documents. Most Non-Prime Land is in agricultural uses such as grazing or non-irrigated crops. However, Non-Prime Land may also include other open space uses which are compatible with agriculture and consistent with local general plans.
- **Nonrenewal.** Enrolled lands for which nonrenewal has been filed pursuant to Government Code Section 51245. Upon the filing of nonrenewal, the existing contract remains in effect for the balance of the period remaining on the contract. During the nonrenewal process, the annual tax assessment gradually increases. At the end of the 9-year nonrenewal period, the contract expires, and the land is no longer restricted.
- **Farmland Security Zone.** Enrolled parcels containing either Prime or Non-Prime agricultural land restricted by a 20-year contract pursuant to Government Code Section 51296.
- **Mixed Enrollment Agriculture Land.** Enrolled lands containing a combination of Prime, Non-Prime, Open Space Easement, or other contracted or enrolled lands not yet delineated by the county.

## Farmland Mapping and Monitoring Program

In 1982, DOC began coordinating with the USDA Soil Conservation Service in preparation and completion of Important Farmland mapping for California through the establishment of the FMMP. The FMMP created a greater level of mapping compared to the USDA Soil Conservation Service by modifying the federal criteria for use in California and incorporating irrigation criteria for farmland significance. The primary purpose of the FMMP is to monitor the conversion of California's agricultural lands. The DOC Division of Land Resource Protection works with landowners, local governments, and researchers to conserve California's farmland and open space resource based on information provided in FMMP.

Under the FMMP, DOC produces maps and statistical data use for analyzing impacts on agricultural resources. Agricultural land is classified according to soil quality and irrigation status. The maps are updated every two years through review of aerial photographs, a computer mapping system, public review, and field reconnaissance. FMMP categories are defined as:

- **Prime Farmland.** Farmland that has the ideal combination of physical and chemical features. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields and long-term agricultural production. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.
- **Farmland of Statewide Importance.** Farmland that is similar to Prime Farmland but with minor shortcomings, such as greater slopes or lower moisture content. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.
- **Unique Farmland.** Land with lesser quality soils used for the production of the State's leading agricultural crops. This land is usually irrigated but may include land that supports non-irrigated orchards or vineyards, as found in some climatic zones in California. The land must have been used for crops at some time during the four years prior to the mapping date.
- **Farmland of Local Importance.** Land that is important to the local agricultural economy, as determined by each county's board of supervisors and a local advisory committee.
- **Grazing Land.** Land on which the existing vegetation is suited to the grazing of livestock. This category was developed in cooperation with the California Cattlemen's Association, University of California Cooperative Extension, and other groups with an interest in grazing activities.
- **Urban and Built-Up Land.** Land that is developed with structures that have been built to a density of at least one unit to 1.5 acres, or approximately six structures to a 10-acre parcel. This land supports residential, industrial, commercial, institutional, public administrative uses; railroad and other transportation yards; cemeteries; airports; golf courses; sanitary landfills; sewage treatment facilities; water control structures; and other developed uses.
- **Other Land.** Land not included in any other mapping category. Common examples include low density rural developments; brush, timber, wetland, and riparian areas not suitable for livestock grazing; confined livestock, poultry, or aquaculture facilities; strip mines and borrow pits; and water bodies smaller than 40 acres. Undeveloped and nonagricultural land surrounded on all sides by urban development and greater than 40 acres is mapped as Other Land.

The DOC considers Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance collectively as Important Farmland.

### Public Resources Code Section 21060.1

PRC Section 21060.1 uses the FMMP to define agricultural land to assess environmental impacts. The FMMP was established in 1982 to assess the location, quality, and quantity of agricultural lands and analyze the conversion of such lands. The FMMP provides analysis pertaining to agricultural land use changes throughout California.

## 3.3.2.3 Regional

### Alameda County General Plan

The Conservation Element of the Alameda County General Plan (1994) contains the following goals and objectives relevant to the proposed Project:

- **Goal:** To protect and maintain soils in Alameda County in such a manner to be beneficial to agricultural and open uses.
    - Objectives:
        - To conserve soil resources for agricultural productivity.
        - To preserve in agricultural use those areas of prime agricultural lands capable of producing a wide variety of valuable crops.
        - To guide urban development towards less productive land.
        - To join with the USDA Soil Conservation Service and Agricultural Agencies in development national criteria for resource management and land development.
- **Goal:** To protect and maintain the soil resources in Alameda County in such a manner as to be beneficial to all land users.
    - Objectives:
        - To set up rational land use and development guidelines to protect soil resources.
        - To set up rational land use and development guidelines to protect the soil resources in agricultural areas.
        - To set up rational guidelines to control non-point source pollution.
- **Goal:** To protect agriculture and agricultural lands.
    - Objectives:
        - To preserve agricultural lands.
        - To promote sound land use management on agricultural lands.
        - To identify lands with little or no agricultural value for urban development provided that they otherwise meet urban development criteria.

- To support a concept of multiple use of agricultural and grazing lands as a means of preserving economic and environmental values of the land.

### Alameda County Zoning Ordinance (Alameda County Code, Title 17)

Alameda County includes areas identified as Zone A (Agricultural District). This zoning district protects existing agricultural uses and encourages a wide range of agricultural uses in non-urban areas. Certain nonagricultural uses, including privately-owned wind-electric generators, are considered conditional uses, and are permitted in a Zone A district if approved by the board of zoning adjustments.

### Alameda County Right to Farm Ordinance (Ch. 6.28, §6.28.020 [2000])

This ordinance is designed to promote public health, safety, and welfare, and to support and encourage continued agricultural operations in the county. A Right to Farm ordinance protects farmland by requiring disclosure to purchasers and users of the property next to or near agricultural operations of the inherent potential problems associated with living near actively farmed land.

## 3.3.2.4 Local

### City of Fremont General Plan

The Land Use Element of the City of Fremont General Plan (2011) contains the following policies that are relevant to the proposed Project.

- **Policy 2-6.10: Sphere of Influence.** Advocate for open space conservation and resource protection in the unincorporated areas east of the Fremont city limits but within the city's sphere of influence. These areas should remain in agricultural and open space uses for the lifetime of this General Plan.

### Fremont Zoning Ordinance (Fremont Municipal Code, Title 18)

The City of Fremont includes areas identified as Zone OS (Open Space). This zoning district permits limited but reasonable use of open space lands while protecting the public health, safety and welfare from the dangers of seismic hazards and unstable soils; preserves the topography of the city that shapes it and gives it its identity; allows land to be used for agricultural production in its natural or as near natural state as possible; coordinates with and carries out regional, county, and city open space plans; and, where permitted, encourages the clustering of dwelling units in order to preserve and enhance the remainder of open space lands as a limited and valuable resource.

### City of Hayward 2040 General Plan

The Land Use Element of the City of Hayward General Plan (2014) contains the following goals and policies that are relevant to the proposed Project.

- **Goal NR-3:** Preserve, enhance, and expand natural Baylands, wetlands, marshes, hillsides, and unique ecosystems within the Planning Area in order to protect their natural ecology, establish the physical setting of the city, provide recreational opportunities, and assist with improved air quality and carbon dioxide sequestration.

- **Policy NR-3.3:** The City shall protect the rural character and utility of land in the East Hills Annex for grazing, agriculture, a regional park, or other open space uses by limiting subdivision of larger parcels.

## City of Hayward Zoning Ordinance (Hayward Municipal Code, Chapter 10)

The City of Hayward includes open space areas identified as Zone A (Agricultural District). This zoning district protects existing agricultural uses and encourages a wide range of agricultural uses. Certain nonagricultural uses, including hospitals and daycare centers, are considered conditional uses, and are permitted in a Zone A district if approved by the board of zoning adjustments (Section 10-1.2000 – Agricultural District [A]).

## City of Newark General Plan

The Land Use Element of the City of Newark General Plan (2013) contains the following goals, policies, or actions that are relevant to the proposed Project.

- **Goal HW-3:** Access to healthy, affordable food for all Newark residents.
- **Action HW-3.A – Urban Agriculture:** Review zoning provisions for urban agriculture and undertake revisions as necessary to remove any identified barriers.

## City of Newark Zoning Ordinance (Newark Municipal Code, Title 17)

The City of Newark includes areas identified as Zone OS (Open Space). This zoning district is intended for undeveloped park lands, wildlife habitat, and wetlands. Land within this zoning district is typically owned by public agencies. A limited number of recreational improvements such as trails and interpretive nature centers are allowed, however the intent of this district is to facilitate the restoration and enhancement of native habitat (Chapter 17.10 – Public and Semi-Public Districts).

## City of Oakland General Plan

The Open Space, Conservation, and Recreation (OSCAR) Element of the City of Oakland General Plan (1996) contains the following policies that are relevant to the proposed Project.

- **Goal OS-1:** A citywide open space system accessible to every Oakland resident which provides land for recreation, natural resource management, the protection of public health and safety, and visual enjoyment.
    - **Objective OS-1:** Resource Conservation Areas – To conserve and appropriately manage undeveloped areas in Oakland which have high natural resource value, scenic value, or natural hazards which preclude safe development.
    - **Action OS-1.3.3:** Conservation Easements – Establish a Standard Operating Procedure in the Office of Planning and Building which encourages the use of conservation easements on portions of privately owned properties which have significant aesthetic or environmental value.
    - **Objective OS-3:** Institutional and Functional Open Space – Establish a Standard Operating Procedure in the Office of Planning and Building which encourages the use of conservation easements on portions of privately owned properties which have significant aesthetic or environmental value.

- **Goal OS-3**: A beautiful city with open spaces, parks, and streets that create a positive, well defined civic image.
    - **Objective OS-9:** Landforms – To retain Oakland's natural features and topography wherever possible and recognize their important role in defining the character and image of the city and its neighborhoods.
    - **Policy OS-9.2:** Use of Natural Features to Define Communities – Use open space and natural features to define city and neighborhood edges and give communities within Oakland a stronger sense of identity. Maintain and enhance city edges, including the greenbelt on the eastern edge of the city, the shoreline, and San Leandro Creek. Use creeks, parks, and topographical features to help define neighborhood edges and create neighborhood focal points.
- **Goal CO-1:** Natural resources that are conserved and prudently used to sustain life, support urban activities, protect public health and safety, and provide a source of beauty and enjoyment.
    - **Objective CO-1:** Soil Conservation – To protect and preserve soil as a resource for healthy plant, animal, and human life.
    - **Policy CO-1.1:** Soil loss in new development – Regulate development in a manner which protects soil from degradation and misuse or other activities which significantly reduce its ability to support plant and animal life. Design all construction to ensure that soil is well secured so that unnecessary erosion, siltation of streams, and sedimentation of water bodies does not occur.

## City of Oakland Zoning Ordinance (Oakland Code of Ordinances, Chapter 17.10)

Chapter 17.10, Article II of the City of Oakland Zoning Ordinance, classifies agricultural and extractive use types, which protect the on-site production of plant and animal products by agricultural methods, and of mineral products by extractive methods. This classification also includes certain activities accessory to the above, as specified in Section 17.10.040.

## City of San Leandro 2035 General Plan

The Open Space, Parks, and Conservation Element of the City of San Leandro General Plan (2016) contains the following policies that are relevant to the proposed Project.

- **Goal LU-2:** Preserve and enhance the distinct identities of San Leandro neighborhoods.
    - **Policy LU-2.1:** Complete Neighborhoods – Strive for "complete neighborhoods" that provide an array of housing choices; easy access to retail stores, commercial services, and medical care; quality public schools; great parks and open spaces; affordable transportation options; and civic amenities.

## San Leandro Zoning Code (Chapter 2.16)

Title 12 – Base District Regulations, of the City of San Leandro Zoning Code, has identified and designated the Open Space (OS) District in order to provide a suitable classification for large public or private sites permanently designated for park or open space use; protect public health and safety by limiting lands, which are subject to flooding, slides, or other hazards to open space use, and allow the city's Planning Commission and City Council to consider the most appropriate use of a site

following discontinuance of a large public or private open space use without the encumbrance of a base zoning district that may or may not provide appropriate regulations for development of the site.

### Union City 2040 General Plan

The Resource Conservation element of the Union City 2040 General Plan (2019) contains the following policy that is relevant to the proposed Project.

- **Policy RC – 1.1, Provide for a Variety of Open Spaces**. The City shall provide a variety of open spaces including open space for public use and enjoyment and for the protection of agricultural uses including grazing, wildlife habitats, and scenic vistas.

### Union City Zoning Code (Municipal Code, Title 18)

Chapter 18.48 of the Union City Zoning Code identifies and designates Agricultural (A) Districts to preserve lands best suited for agriculture use from encroachment of incompatible uses, to preserve in agriculture use land suited to eventual development in other uses, to prevent premature development of certain lands, including lands within the "flood plain," which will eventually be appropriated for urban uses, until the installation of streets, drainage improvements, utilities, and community facilities makes orderly development feasible and possible. Change of zoning district from agriculture to any other zoning district shall only be made in general accord with the General Plan.

## 3.3.2.5 Consistency with Plans, Policies, and Regulations

Section 15125(d) of the CEQA Guidelines requires an EIR to discuss "any inconsistencies between the proposed Project and applicable general plans, specific plans, and regional plans." Applicable plans, policies, and regulations were considered during the preparation of this analysis and were reviewed to assess whether the proposed Project would be consistent with the plans of relevant jurisdictions. The proposed Project would comply with all relevant federal, state, and local policies and regulations as they relate to agricultural and forestry resources.

# 3.3.3 Methods for Evaluating Environmental Impacts

This section defines the RSA for agriculture and forestry resources and describes the methods used to analyze impacts on agriculture and forestry resources within the RSA.

## 3.3.3.1 Resource Study Area

As defined in Section 3.1, Introduction, RSAs are the geographic boundaries in which the environmental investigations specific to each resource topic were conducted.

The RSA for agriculture and forestry resources encompasses the areas affected by the construction and operation of the proposed Project, which is defined as the Project footprint plus a 1,000-foot buffer to account for potential temporary construction impacts on agricultural and forestry resources. Figure 3.3-1 through Figure 3.3-11 depict the agriculture and forestry resources RSA.

**Figure 3.3-1. Agriculture RSA: Extent 1**

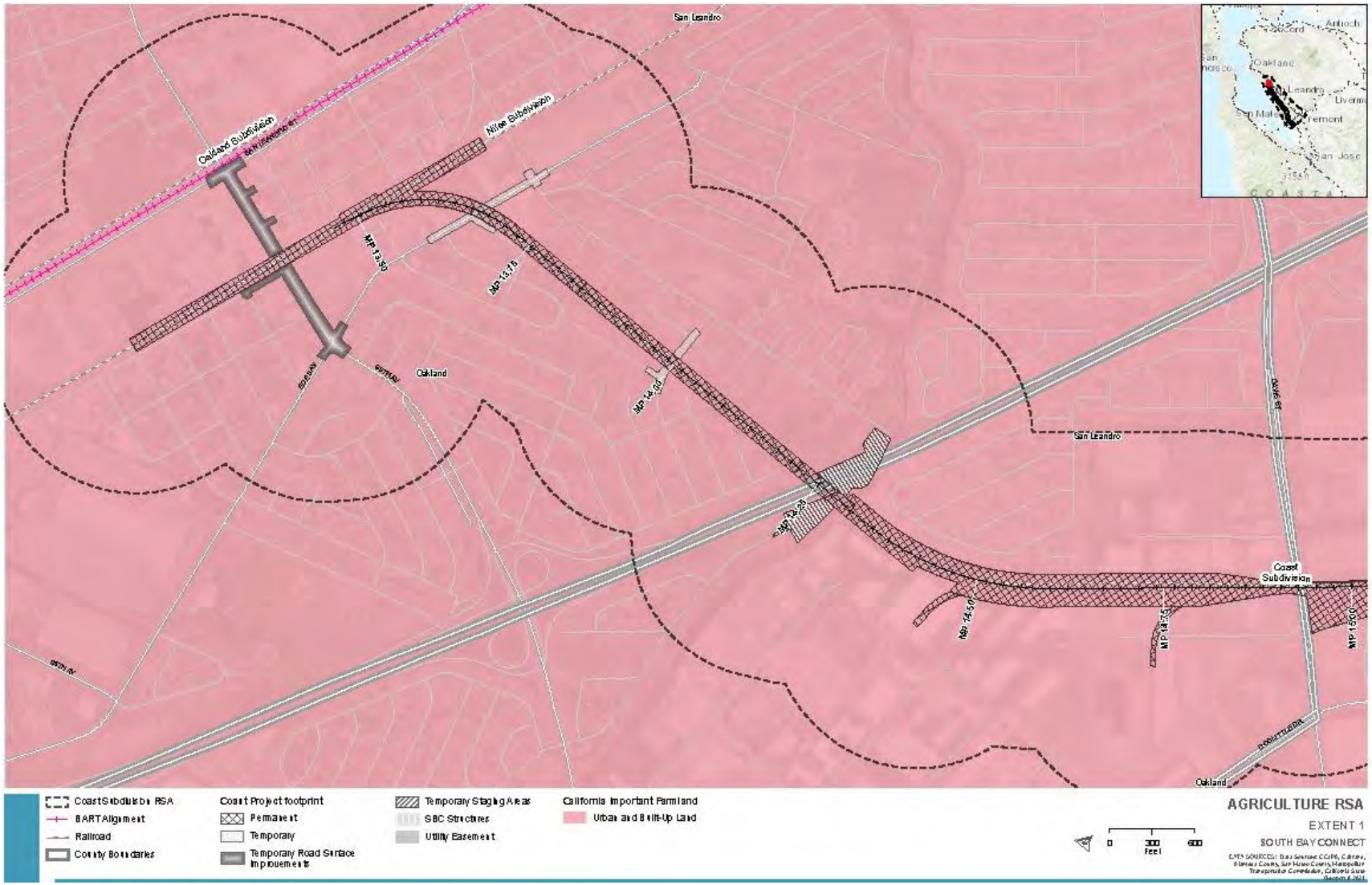


**Figure 3.3-2. Agriculture RSA: Extent 2**

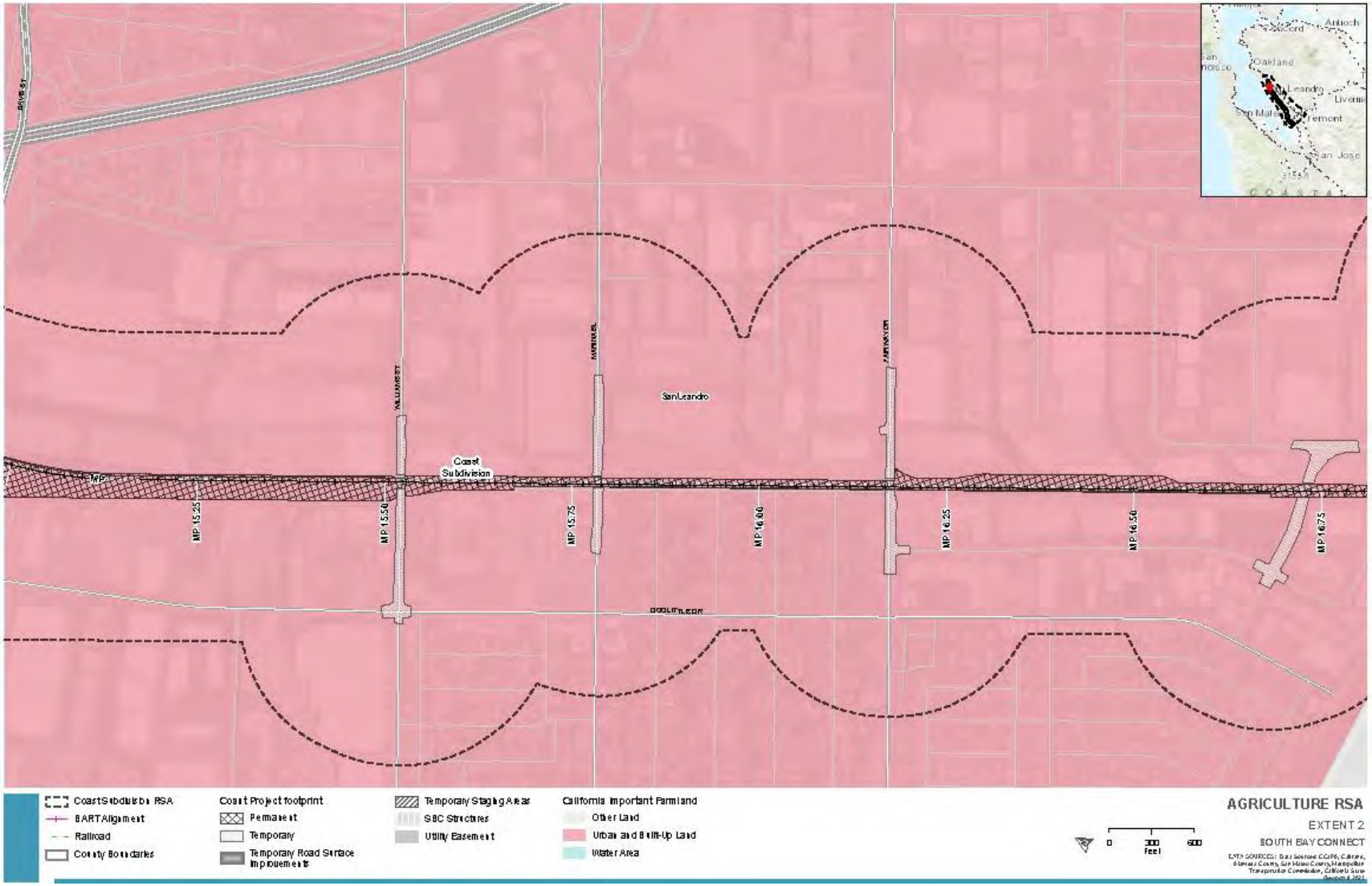


**Figure 3.3-3. Agriculture RSA: Extent 3**

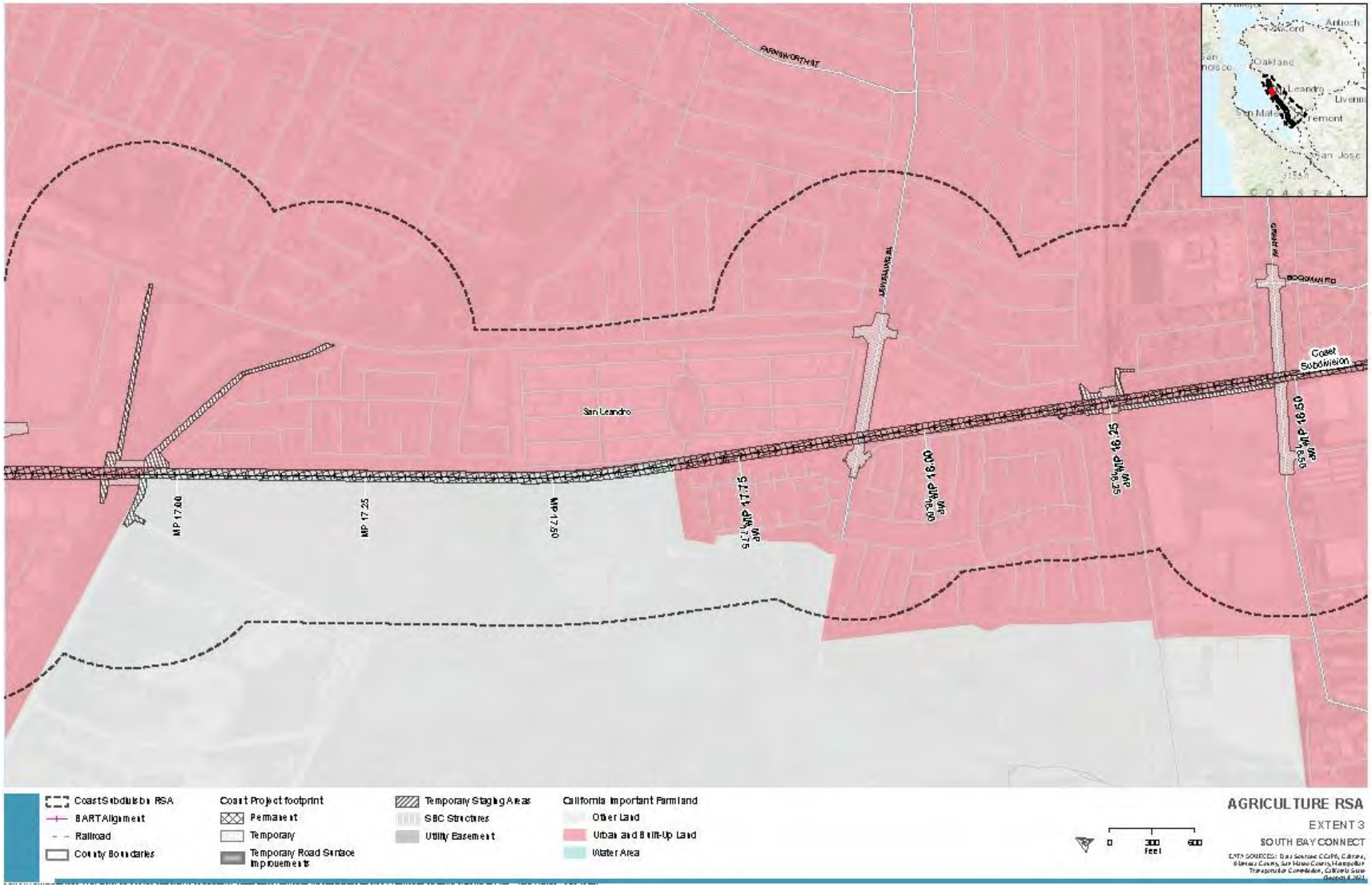


**Figure 3.3-4: Agriculture RSA: Extent 4**

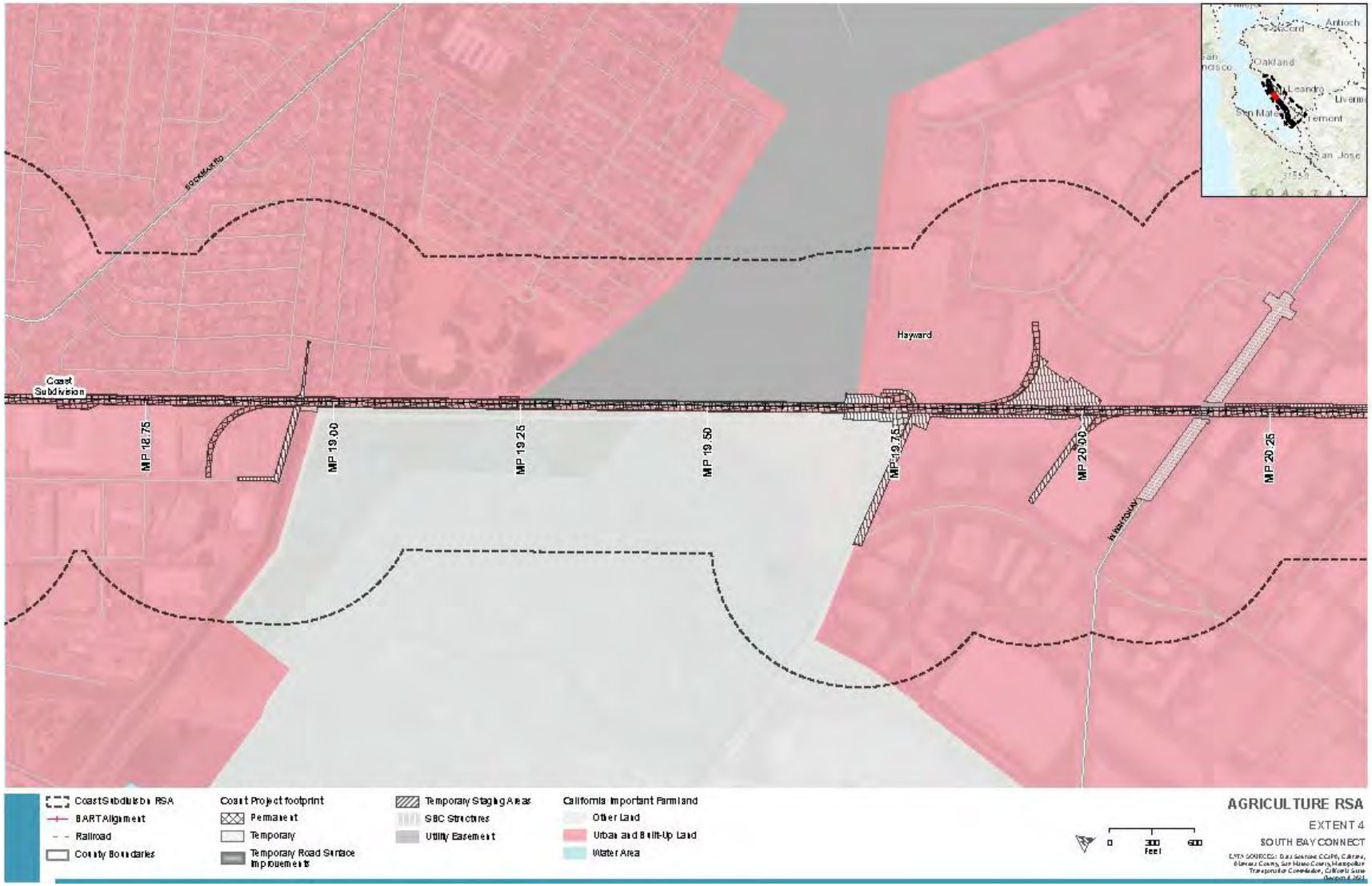


**Figure 3.3-5: Agriculture RSA: Extent 5**

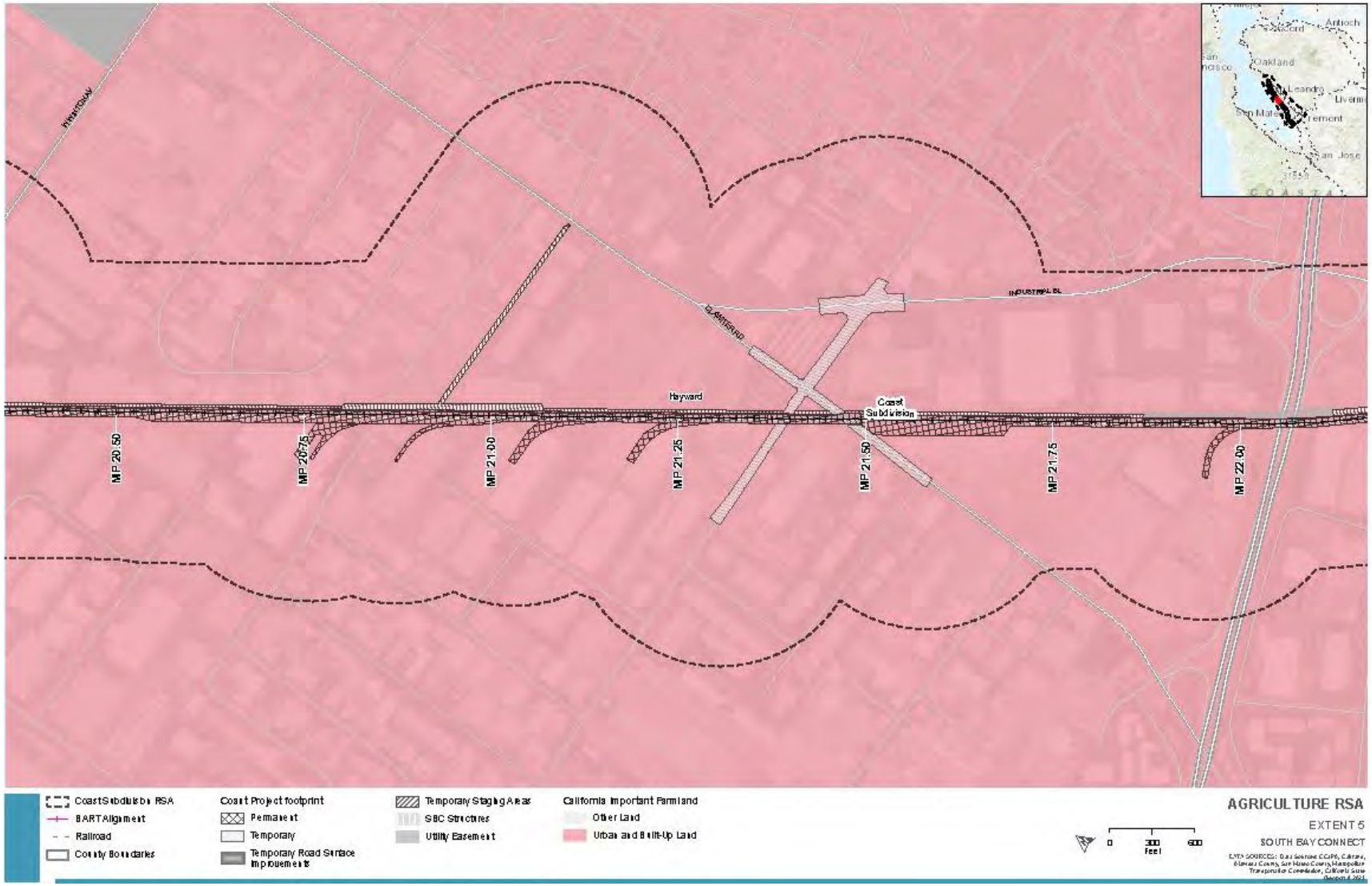


**Figure 3.3-6: Agriculture RSA: Extent 6**

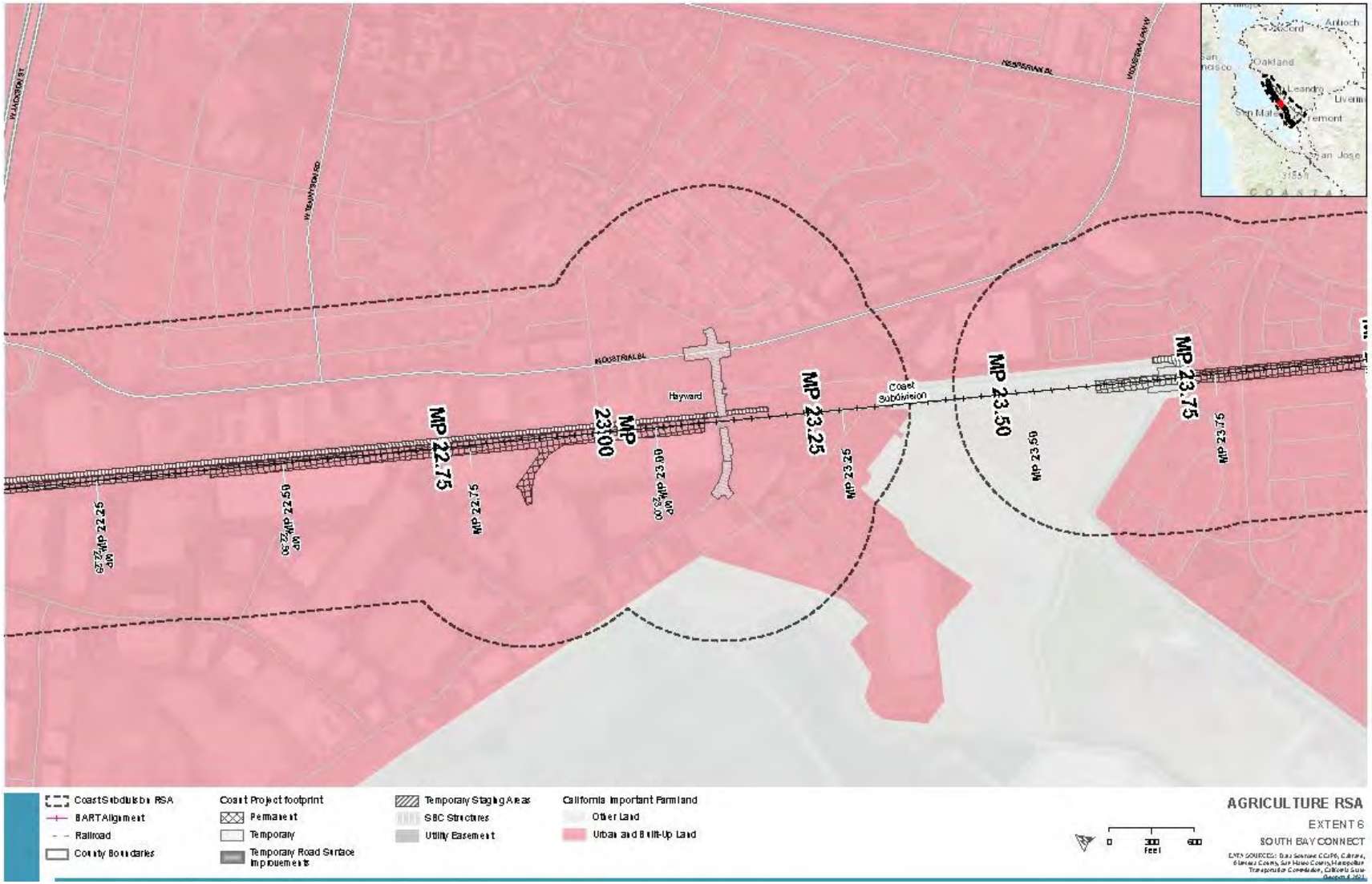


**Figure 3.3-7: Agriculture RSA: Extent 7**

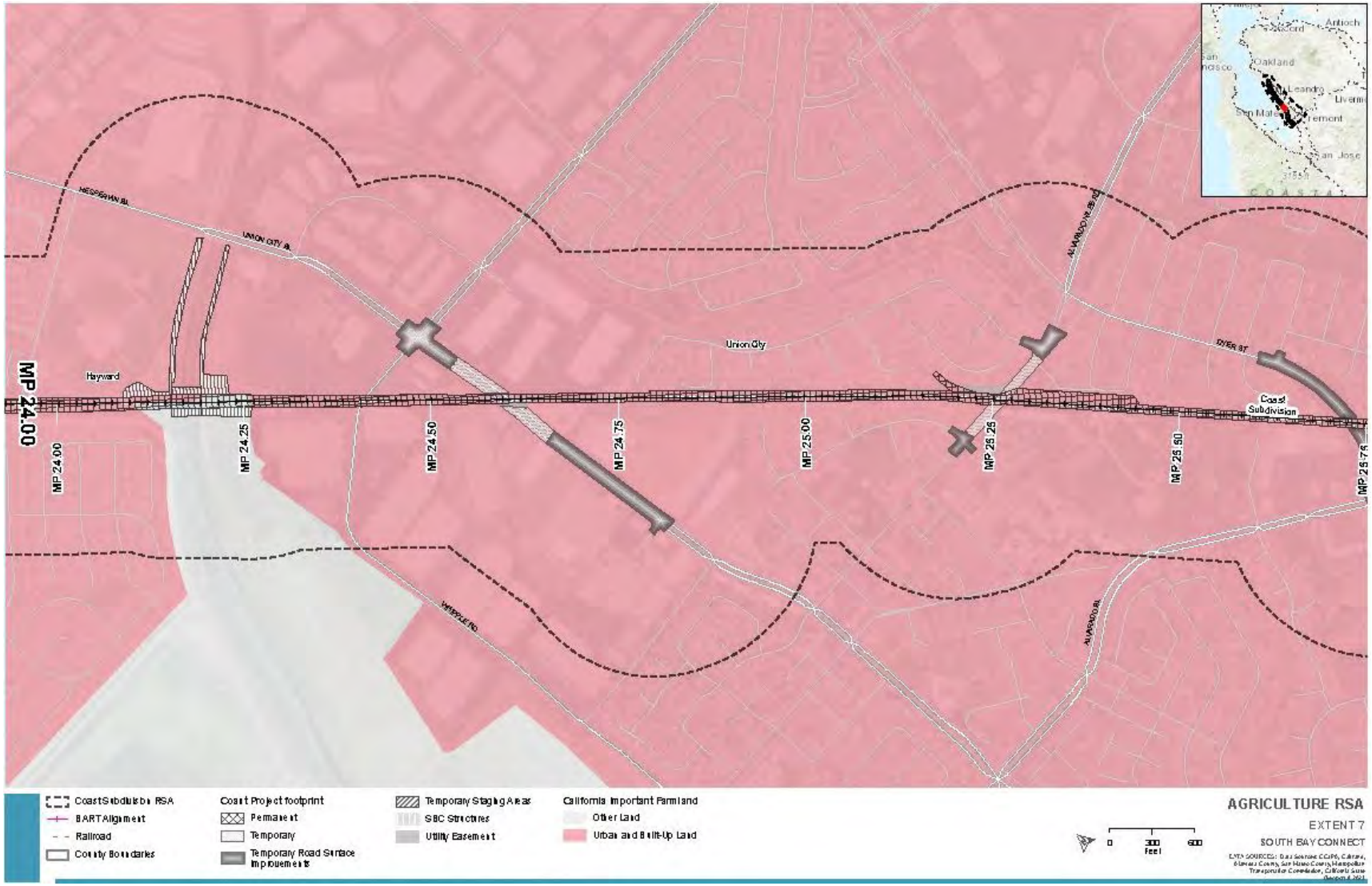


**Figure 3.3-8: Agriculture RSA: Extent 8**

**Figure 3.3-9: Agriculture RSA: Extent 9**

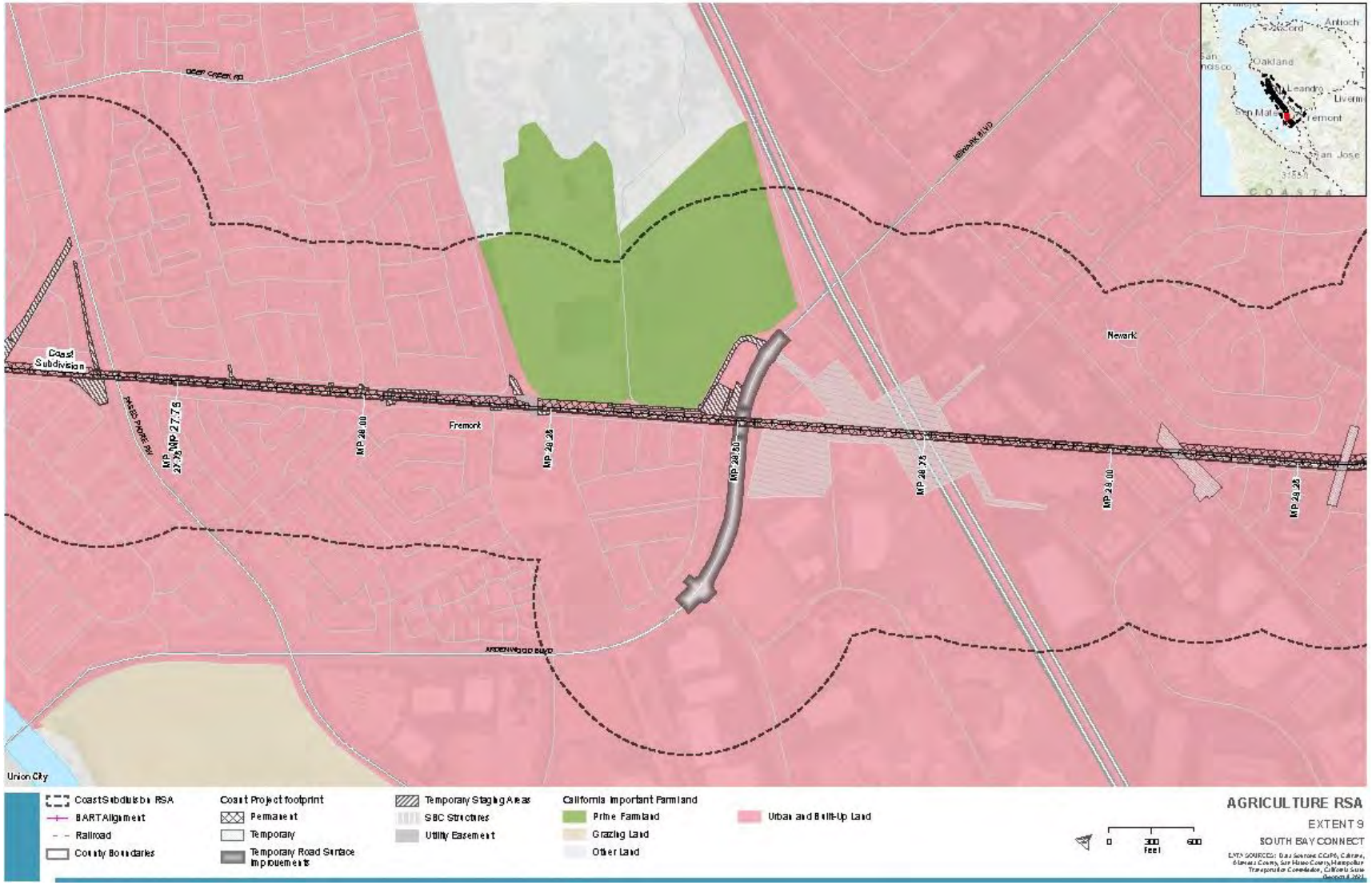


**Figure 3.3-10: Agriculture RSA: Extent 10**

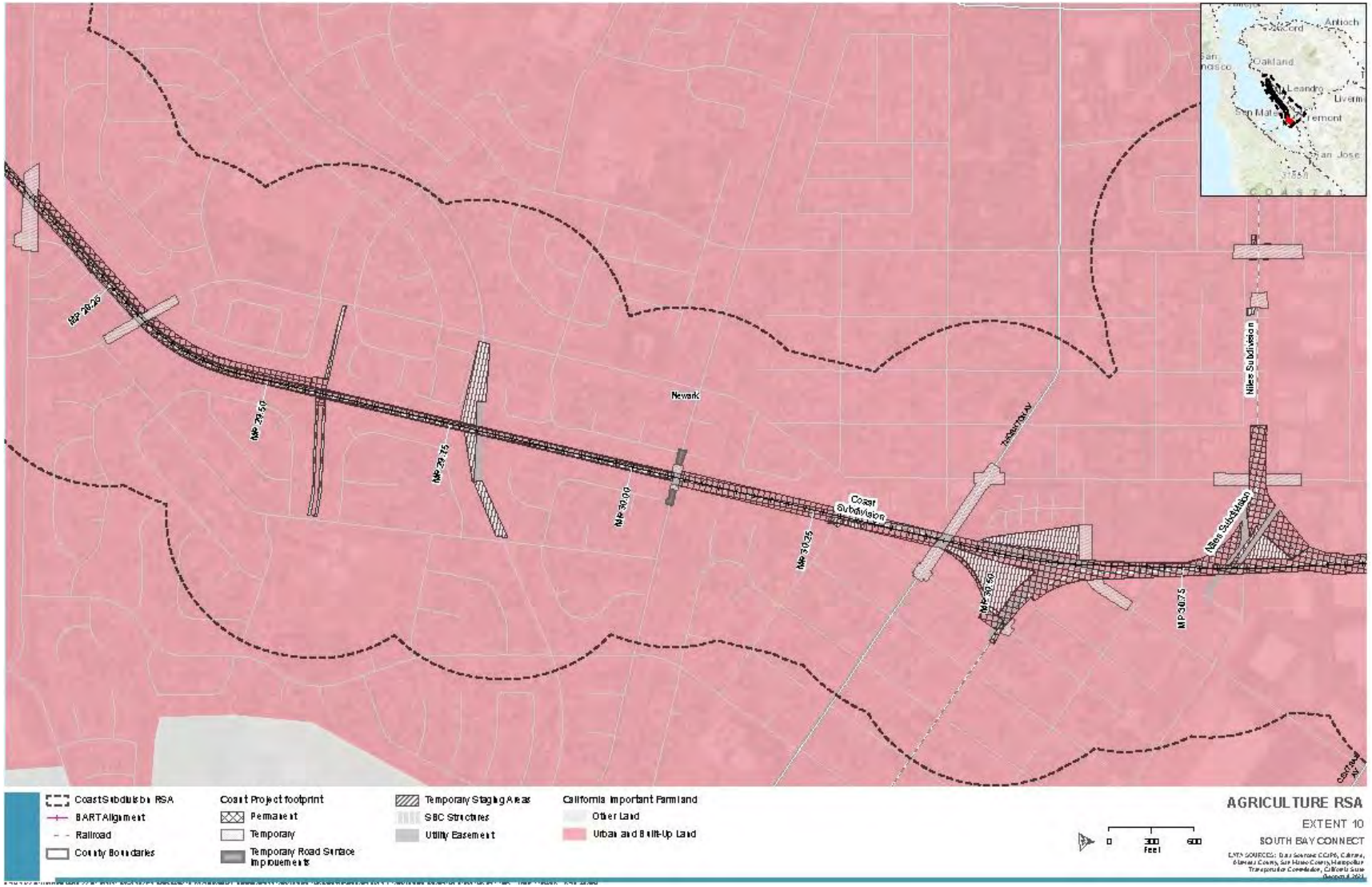
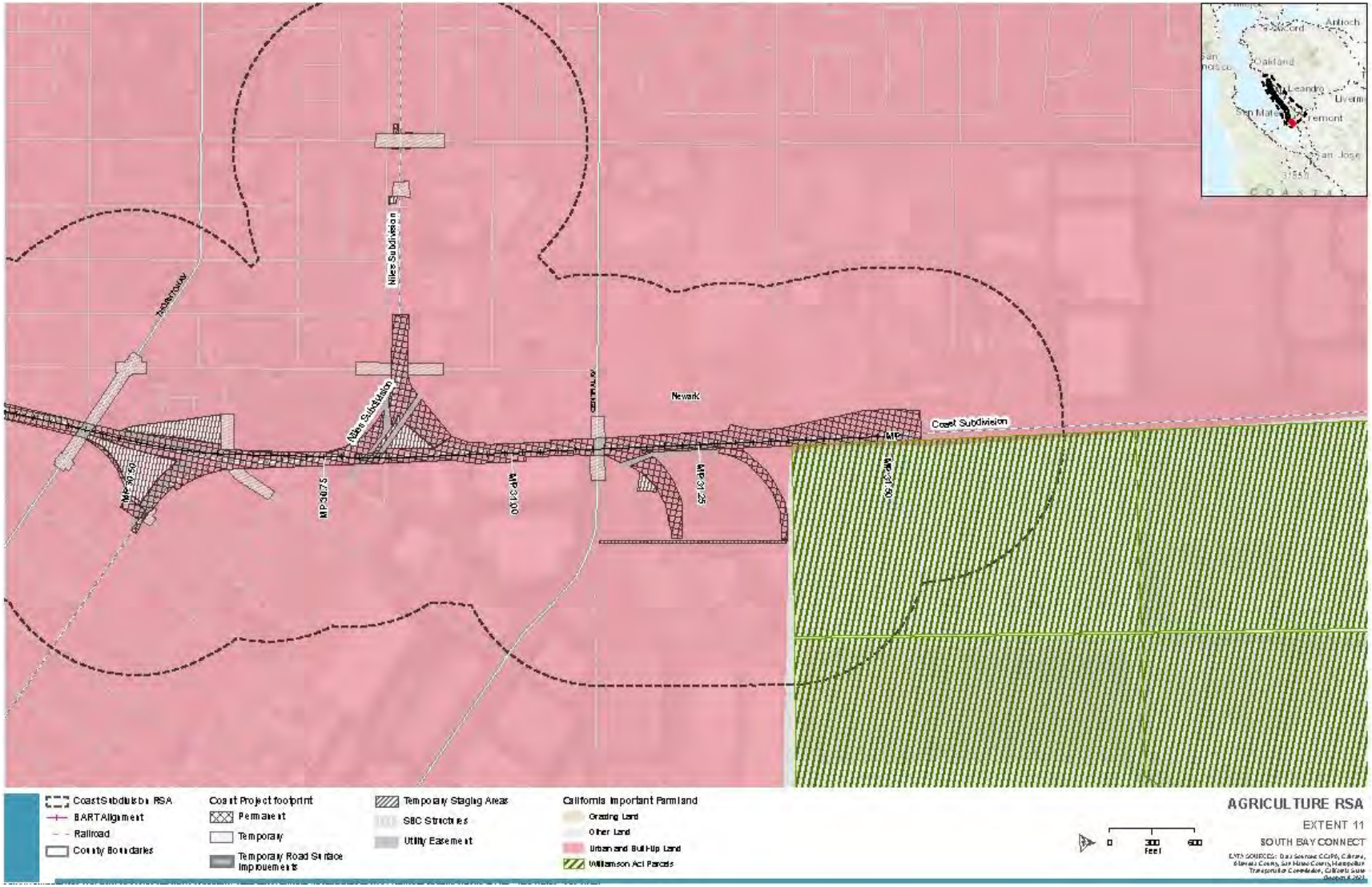


**Figure 3.3-11: Agriculture RSA: Extent 11**



### 3.3.3.2 Data Sources

This analysis of agriculture and forestry resources was based on a review of current land use types in Alameda County (Alameda County 2023b) and farmland classifications per the NRCS and the FMMP. Analysis also included reviewing farmland/agriculture data for Alameda County from the DOC Division of Land Resource Protection (DOC 2023a).

This information was used to determine the proposed Project's specific agriculture-related impacts, with particular attention to the potential conversion of farmland and/or forestland. The impact analysis below focuses on whether those impacts would be significant and if so, whether consistency with existing federal, state, and local regulations would avoid or minimize impacts.

### 3.3.3.3 CEQA Thresholds

To satisfy CEQA requirements, agriculture and forestry resource impacts were analyzed in accordance with Appendix G of the CEQA Guidelines. According to the CEQA Guidelines, CCR, Title 14, Section 15002(g), "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in CEQA Guidelines Section 15064(b)(1), the significance of an activity may vary with the setting. The impact analysis identifies and analyzes construction (short-term) and operation (long-term) impacts, as well as direct and indirect impacts (see PRC Section 21065). The proposed Project would have significant agriculture and forestry resource impacts under CEQA if it would:

a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the FMMP of the California Resources Agency, to non-agricultural use.

b. Conflict with existing zoning for agricultural use, or a Williamson Act contract.

c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g)).

d. Result in the loss of forest land or conversion of forest land to non-forest use; or

e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use.

## 3.3.4 Affected Environment

### 3.3.4.1 Environmental Setting

#### Regional

The proposed Project is located in Alameda County, which encompasses 738 square miles with more than 200,000 acres designated for agricultural purposes (Alameda County 2023a). According to the Alameda County Development Agency, the county has a rich agricultural heritage and continues to contribute to California's $30 billion agricultural industry.

Alameda County's agricultural production is dominated by five main commodities: fruit and nut crops (primarily grapes for wine production), livestock, field crops, nursery products, and vegetable crops (Alameda County Development Agency 2022). Despite continuing growth and development in urban portions of Alameda County in recent decades, much of the county's agricultural production is secure and growing, particularly in the nursery and viticultural (or wine-growing) industries, and in the production of certain fruit and vegetable crops, organic products, and products for farmers' markets (Alameda County Development Agency 2023). However, Alameda County has experienced farmland conversion in recent years with a net loss of 444 acres of agricultural areas reported between 2016 and 2018 (Table 3.3-1; DOC 2023b).

**Table 3.3-1. Alameda County Agricultural Land – Important Farmland and Grazing**

| Land Use Category | Total Acreage 2016 | Total Acreage 2018 | 2016-18 Acres Lost (-) | 2016-18 Acres Gained (+) | 2016-18 Total Acreage Changed | 2016-18 Net Acreage Changed |
|---|---|---|---|---|---|---|
| *Important Farmland* | | | | | | |
| Prime Farmland | 3,392 | 3,277 | 165 | 50 | 215 | -115 |
| Farmland of Statewide Importance | 1,128 | 1,125 | 9 | 6 | 15 | -3 |
| Unique Farmland | 2,155 | 2,097 | 76 | 18 | 94 | -58 |
| Farmland of Local Importance | 0 | 0 | 0 | 0 | 0 | 0 |
| *Subtotal* | *6,675* | *6,499* | *250* | *74* | *324* | *-176* |
| ***Non-Important Land*** | | | | | | |
| Grazing Land | 240,987 | 240,719 | 573 | 305 | 878 | -268 |
| *Subtotal* | *240,987* | *240,719* | *573* | *305* | *878* | *-268* |
| **Agricultural Land Total** | 247,662 | 247,218 | 823 | 379 | 1,202 | -444 |

Source: DOC 2023b

### Agricultural Productivity

The top five agricultural products in 2021 in terms of value were wine grapes, cattle and calves, miscellaneous fruit and nut products, and ornamental trees and shrubs (Alameda County Community Development Agency 2022). The 2021 total gross value of Alameda County's

agricultural production was approximately $55.2 million, which is a 25 percent increase compared to 2020 production (Alameda County Development Agency 2022). This observed overall increase was attributed to changes in cropping patterns, favorable growing conditions for wine grape production, and maturation of other new permanent crops planted in previous years.

#### Agricultural Preservation

As discussed in Section 3.3.2, Regulatory Setting, the Williamson Act provides a mechanism for keeping agricultural land in productive agricultural use by providing tax incentives. In 2022, there were approximately 127,632 acres of Alameda County land enrolled in the Williamson Act Program. This is greater than the 127,447 acres enrolled in 2020 (DOC 2023c).

#### Forestry Resources

Alameda County does not identify any current or planned future land use for forestry resources (Alameda County 2023b). Additionally, there are no lands within Alameda County zoned for or currently featuring timberland or timber production (CALFIRE 2023).

### Local Setting

The agriculture and forestry resources RSA includes the Ardenwood Historic Farm. The EBRPD has operated the Ardenwood Historic Farm as a fully functioning, turn-of-the-last century farm since 1985 (EBRPD 2024). The Ardenwood Historic Farm is identified as Prime Farmland and Other Land in the FMMP (DOC 2024). The Ardenwood Historic Farm has a City of Fremont zoning of OS – Open Space (City of Fremont 2024).

## 3.3.5 Best Management Practices

As noted in Chapter 2, Project Alternatives, CCJPA would incorporate a range of BMPs to avoid and minimize adverse effects on the environment that could result from implementation of the proposed Project. BMPs are included in the proposed Project description, and the impact analyses were conducted assuming application of these practices.

No BMPs for agriculture and forestry resources are included in the proposed Project.

## 3.3.6 Environmental Impacts

This section describes the potential environmental impacts on agriculture and forestry resources as a result of implementation of the proposed Project. Lettering shown within title for each environmental factor below correlates with CEQA Statute and Guidelines, Appendix G table lettering and numbering.

### 3.3.6.1 (a) Would the Project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

#### No Project Alternative

**No Impact.** Under the No Project Alternative, the Capitol Corridor passenger rail service between Oakland and San Jose would not be relocated from the Niles Subdivision to the Coast Subdivision. Improvements proposed for the Coast Subdivision would not occur. Capitol Corridor passenger trains would continue to operate based on current routes with no changes to rail connectivity or operational efficiency. Therefore, the No Project Alternative would not result in impacts or changes to existing agriculture or forestry resources.

#### Proposed Project

##### Construction and Operation

**No Impact.** The majority of the proposed Project improvements would occur within or adjacent to the existing UPRR ROW. The proposed Project would implement track improvements, grade crossing improvements, bridge crossings, and new or extended sidings. In addition, the proposed Project would have at-grade crossing work that would include safety improvements for pedestrians, bicyclists, and motorists as well as ADA compliance improvements. Outside of UPRR ROW, the proposed Project would construct a new passenger rail station adjacent to the existing Ardenwood park-and-ride facility, along the Coast Subdivision. To support the anticipated increase in rail service as a result of the new station, a parking facility would be constructed that would accommodate overflow parking at the existing Ardenwood Park-and-Ride facility. The proposed parking facility would be constructed within an industrial area and adjacent to industrial and commercial land uses.

To implement the proposed Project, additional ROW acquisitions (both full and partial), as well as temporary construction easements would be needed. However, as shown in Figure 3.3-1 through Figure 3.3-11, none of the proposed Project improvements would occur within land identified as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. Therefore, the proposed Project would have no impacts associated with the direct conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance.

### 3.3.6.2 (b) Would the Project conflict with existing zoning for agricultural use, or a Williamson Act contract?

#### No Project Alternative

**No Impact.** Under the No Project Alternative, Capitol Corridor passenger trains would continue to operate based on current routes with no changes to rail connectivity or operational efficiency. Therefore, the No Project Alternative would not result in impacts or changes to existing zoning for agriculture use or a Williamson Act contract.

### Proposed Project

#### Construction and Operation

**No Impact.** As shown in Figure 3.3-1 through Figure 3.3-11, none of the proposed Project improvements would occur within agricultural lands identified as Zone A under Alameda County Code, Title 17, or lands under the Williamson Act contract. Land use mapping (Alameda County 2023b) shows that the Coast Subdivision is located within lands zoned as industrial and primarily parallel areas identified as residential, commercial, parks/open space, industrial, and mixed use. The nearest farmland to Project activities is the Ardenwood Historic Farm, which is located immediately adjacent to the Coast Subdivision (Figure 3.3-9). With a zoning of open space, the Ardenwood Historic Farm is not zoned for agriculture use despite being designated as Prime Farmland.

As shown in Figure 3.3-11, lands under Williamson Act contracts also parallel the Coast Subdivision near Central Avenue in Newark; however, these parcels will not be directly or indirectly impacted by the proposed Project. Therefore, the proposed Project would have no impact on a Williamson Act contract property or conflict with existing zoning for agricultural use.

## 3.3.6.3 (c) Would the Project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?

### No Project Alternative

**No Impact.** Under the No Project Alternative, Capitol Corridor passenger trains would continue to operate based on current routes with no changes to rail connectivity or operational efficiency. Therefore, the No Project Alternative would not result in impacts or changes to existing zoning for forest land or land zoned as timberland.

### Proposed Project

#### Construction and Operation

**No Impact.** The RSA does not currently include areas designated or zoned for timberland production or other forestry-related uses and is not in a designated Timberland Production Zone. Therefore, the proposed Project would have no impacts on forestry.

## 3.3.6.4 (d) Would the Project result in the loss of forest land or conversion of forest land to non-forest use?

### No Project Alternative

**No Impact.** Under the No Project Alternative, Capitol Corridor passenger trains would continue to operate based on current routes with no changes to rail connectivity or operational efficiency. Therefore, the No Project Alternative would not result in the loss of forest land or conversion of forest land to non-forest uses.

### Proposed Project

#### Construction and Operation

**No Impact.** As described in Section 3.3.6.3, the RSA does not include areas currently designated or zoned for timberland production or other forestry related uses and is not in a designated Timberland Production Zone. Implementation of the proposed Project would not result in the loss of forest land or conversion of forest land to non-forest use. Therefore, the proposed Project would have no impacts associated with the loss or conversion of forest land.

## 3.3.6.5 (e) Would the Project involve other changes in the existing environment which, due to their location or nature, could result in conversion of farmland to non-agricultural use or conversion of forest land to non-forest use?

### No Project Alternative

**No Impact.** Under the No Project Alternative, Capitol Corridor passenger trains would continue to operate based on current routes with no changes to rail connectivity or operational efficiency. Therefore, no impacts associated with conversion of farmland and forest land to non-agriculture or non-forest use would occur.

### Proposed Project

#### Construction and Operation

**No Impact.** As discussed earlier, implementation of the proposed Project would not result in the conversion of forest land to non-forest use, as there is no forest land located within the RSA. The RSA contains areas identified as Prime Farmland, Grazing Land, and Williamson Act lands. Prime Farmland is adjacent to the Coast Subdivision(Figure 3.3-9) in Fremont. Grazing Land and Williamson Act land are adjacent to the Coast Subdivision near Central Avenue in Newark (Figure 3.3-11). However, none of the proposed Project improvements would occur within agricultural lands.

The majority of the land surrounding the Coast subdivision is urbanized and built out, and the majority of the rail improvements proposed are located within the existing UPRR ROW. For improvements outside of the existing UPRR ROW, such as the new passenger rail station adjacent to the existing Ardenwood Park & Ride facility, such improvements would occur on non-agricultural lands. None of the proposed Project improvements would result in impacts to farmland at the Ardenwood Historic Farm. Although there are lands identified for agricultural use within the RSA, implementation of the proposed Project is not anticipated to result in changes in the existing environment which, due to their location or nature, could result in the conversion of farmland to nonagricultural use.

# 3.3.7 Mitigation Measures

No mitigation measures for agriculture and forestry resources are required for this project.

## 3.3.8 Cumulative Impact Analysis

The proposed Project would not impact agriculture and forestry resources. Because no impacts are anticipated, a cumulative impact analysis is not warranted for agriculture and forestry resources.

## 3.3.9 CEQA Significance Findings Table

Table 3.3-2 summarizes the agriculture and forestry resources impacts of the proposed Project.

**Table 3.3-2. Agriculture and Forestry Resources Impacts Summary**

| Impact | Level of Significance Before Mitigation | Incremental Project Contribution to Cumulative Impacts | Mitigation | Level of Significance with Mitigation Incorporated | Incremental Project Cumulative Impact after Mitigation |
|---|---|---|---|---|---|
| **(a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use** | NI | NCC | N/A | NI | NCC |
| **(b) Conflict with existing zoning for agricultural use, or a Williamson Act contract** | NI | NCC | N/A | NI | NCC |
| **(c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))** | NI | NCC | N/A | NI | NCC |
| **(e) Result in the loss of forest land or conversion of forest land to non-forest use** | NI | NCC | N/A | NI | NCC |

**Table 3.3-2. Agriculture and Forestry Resources Impacts Summary**

| Impact | Level of Significance Before Mitigation | Incremental Project Contribution to Cumulative Impacts | Mitigation | Level of Significance with Mitigation Incorporated | Incremental Project Cumulative Impact after Mitigation |
|---|---|---|---|---|---|
| **(f) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use** | NI | NCC | N/A | NI | NCC |

Notes: LTS = Less than Significant Impact, NI = No Impact, N/A = Not Applicable, SI = Significant Impact, S/M = Significant Impact but Mitigable to a Less than Significant Level, CC = Cumulatively Considerable, NCC = Not Cumulatively Considerable.

## 3.3.10 References

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# 3.4 Air Quality

## 3.4.1 Introduction

This section describes the regulatory setting and affected environment for air quality. Further, the section addresses air quality within the air quality RSA and describes the potential impacts on air quality during construction and operation of the proposed Project. The potential for cumulative impacts of the proposed Project on air quality is also assessed.

## 3.4.2 Regulatory Setting

This section identifies the federal, state, regional, and local laws, regulations, and orders that are relevant to the analysis of air quality and addresses the proposed Project's consistency with the regulations described herein.

### 3.4.2.1 Federal

#### Clean Air Act and National Ambient Air Quality Standards

The Clean Air Act (CAA) was first enacted in 1963 and has been amended numerous times in subsequent years (1965, 1967, 1970, 1977, and 1990). The CAA establishes federal air quality standards, known as NAAQS, for six criteria pollutants and specifies future dates for achieving compliance. The CAA also mandates that the states submit and implement a State Implementation Plan (SIP) for local areas that do not meet those standards. The plans must include pollution control measures that demonstrate how the standards will be met.

The 1990 amendments to the CAA identify specific emission-reduction goals for areas not meeting the NAAQS. These amendments require both a demonstration of reasonable further progress toward attainment and incorporation of additional sanctions for failure to attain or meet interim milestones. Table 3.4-1 shows the NAAQS currently in effect for each criteria pollutant, as well as the CAAQS (discussed further below).

**Table 3.4-1: Federal And State Ambient Air Quality Standards**

| Criteria Pollutant | Average Time | California Standards | National Standards[a] Primary | National Standards[a] Secondary |
|---|---|---|---|---|
| **Ozone** | 1-hour | 0.09 ppm | None | None[b] |
| | 8-hour | 0.070 ppm | 0.070 ppm | 0.070 ppm |
| **Particulate Matter ($PM_{10}$)** | 24-hour | 50 $mg/m^3$ | 150 $mg/m^3$ | 150 $mg/m^3$ |
| | Annual Mean | 20 $mg/m^3$ | None | None |

| Criteria Pollutant | Average Time | California Standards | National Standards[a] Primary | National Standards[a] Secondary |
|---|---|---|---|---|
| **Fine Particulate Matter ($PM_{2.5}$)** | 24-hour | None | 35 mg/m$^3$ | 35 mg/m$^3$ |
| | Annual Mean | 12 mg/m$^3$ | 12.0 mg/m$^3$ | 15 mg/m$^3$ |
| **Carbon Monoxide** | 8-hour | 9.0 ppm | 9 ppm | None |
| | 1-hour | 20 ppm | 35 ppm | None |
| **Nitrogen Dioxide** | Annual Mean | 0.030 ppm | 0.053 ppm | 0.053 ppm |
| | 1-hour | 0.18 ppm | 0.100 ppm | None |
| **Sulfur Dioxide ($SO_2$)[c]** | Annual mean | None | 0.030 ppm | None |
| | 24-hour | 0.04 ppm | 0.014 ppm | None |
| | 3-hour | None | None | 0.5 ppm |
| | 1-hour | 0.25 ppm | 0.075 ppm | None |
| **Lead** | 30-day average | 1.5 mg/m$^3$ | None | None |
| | Calendar quarter | None | 1.5 mg/m$^3$ | 1.5 mg/m$^3$ |
| | 3-month average | None | 0.15 mg/m$^3$ | 0.15 mg/m$^3$ |
| **Sulfates** | 24-hour | 25 mg/m$^3$ | None | None |
| **Visibility-reducing Particles** | 8-hour | [d] | None | None |
| **Hydrogen Sulfide** | 1-hour | 0.03 ppm | None | None |
| **Vinyl Chloride** | 24-hour | 0.01 ppm | None | None |

Source: California Air Resources Board (CARB) 2016.

Notes: ppm= parts per million; mg/m$^3$ = micrograms per cubic meter; NAAQS = National Ambient Air Quality Standard; CAAQS = California Ambient Air Quality Standard

a. National standards are divided into primary and secondary standards. Primary standards are intended to protect public health, whereas secondary standards are intended to protect public welfare and the environment.

b. The federal 1-hour standard of 12 parts per hundred million was in effect from 1979 through June 15, 2005. The revoked standard is referenced because it was employed for such a long period and is a benchmark for State Implementation Plans.

c. The annual and 24-hour NAAQS for $SO_2$ only apply for 1 year after designation of the new 1-hour standard to those areas that were previously in nonattainment for 24-hour and annual NAAQS.

d. CAAQS for visibility-reducing particles is defined by an extinction coefficient of 0.23 per kilometer –visibility of 10 miles or more due to particles when relative humidity is less than 70 percent.

## Corporate Average Fuel Economy Standards

The National Highway Traffic Safety Administration (NHTSA) Corporate Average Fuel Economy (CAFE) standards require substantial improvements in fuel economy and reductions in emissions of criteria air pollutants and precursors, as well as greenhouse gases (GHGs), from all light-duty vehicles sold in the United States. On August 2, 2018, NHTSA and the United States Environmental Protection Agency (EPA) proposed an amendment to the fuel efficiency standards for passenger cars and light trucks and established new standards for model years 2021 through 2026 that would maintain the then-current 2020 standards through 2026. This was known as the Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule.

On September 19, 2019, EPA and NHTSA issued a final action on the One National Program Rule, which is considered Part One of the SAFE Vehicles Rule and a precursor to the proposed fuel efficiency standards, withdrawing the State of California's (State's) CAA preemption waiver to set state-specific standards. The EPA reinstated California's authority under the CAA to implement its own GHG emission standards and zero-emission vehicles (ZEV) sales mandate on March 9, 2022. On December 19, 2021, NHTSA finalized its vehicle efficiency standards rule to reach a projected industry-wide target of 40 miles per gallon by 2026, an approximately 25 percent increase over the prior SAFE rule.

## Non-road Diesel Rule

EPA has established a series of increasingly strict emission standards for new off-road diesel equipment, on-road diesel trucks, and locomotives. New equipment used within the Project area, including heavy-duty trucks and off-road construction, are required to comply with these emission standards.

## Locomotive Emission Standards

In March 2008, the EPA adopted a three-part emissions standard program that will reduce emissions from diesel locomotives. The regulation tightens emission standards for existing, remanufactured locomotives, and sets exhaust emission standards for newly built locomotives of model years 2011-2014 (Tier 3) and 2015 and beyond (Tier 4). The regulation is expected to reduce PM emissions from locomotive engines by as much as 90 percent and nitrogen oxide ($NO_X$) emissions by as much as 80 percent when fully implemented.

In April 2023, the California Air Resources Board (CARB) approved the In-Use Locomotive Regulation to further reduce emissions from diesel-powered locomotives and increase use of zero-emission technology. This regulation requires operators to maintain a spending account and pay into the account with an amount of funds corresponding to the emissions generated by the operator's locomotive. The account funds will then be used to purchase or rent Tier 4 or cleaner locomotives. Additionally, new locomotives operated in the state will need to be zero-emissions beginning in 2030 or 2035, depending on whether the locomotive is a switcher or passenger locomotive (2030), or a line-haul locomotive (2035). In 2030, the regulation also prohibits locomotives 23 years or older from operating in the state (CARB 2023a).

As an alternative to the spending account, the In-Use Locomotive Regulation will allow locomotive operators to reduce emissions through other strategies provided that the operator adheres to an alternative fleet milestone option. It is noteworthy to mention that this is the main plan that most passenger rail operators in the State of California will follow. The pathway below is only available as

an alternative compliance plan otherwise banned in the main regulatory pathway (spending account):

1. Beginning January 1, 2030, 50 percent of annual fleet usage in California must be from Tier 4 or cleaner locomotives.
2. Beginning January 1, 2035, 100 percent of annual fleet usage in California must be from Tier 4 or cleaner locomotives.
3. Beginning January 1, 2042, 50 percent of annual fleet usage in California must be from zero emissions (ZE) locomotives, ZE capable locomotives, or ZE rail equipment.
4. Beginning January 1, 2047, 100 percent of annual fleet usage in California must be from ZE locomotives, ZE capable locomotives, or ZE rail equipment.

### National Emission Standards for Hazardous Air Pollutants

National Emission Standards for Hazardous Air Pollutants are stationary source standards for hazardous air pollutants. Hazardous air pollutants are those pollutants that are known or suspected to cause cancer or other serious health effects, such as reproductive effects or birth defects, or adverse environmental effects.

## 3.4.2.2 State

### California Clean Air Act and California Ambient Air Quality Standards

In 1988, the state legislature adopted the California Clean Air Act (CCAA), which established a statewide air pollution control program. The CCAA requires all air districts in the state to endeavor to meet the CAAQS by the earliest practical date. Unlike the CAA, the CCAA does not set precise attainment deadlines. Instead, the CCAA establishes increasingly stringent requirements for areas that will require more time to achieve the standards. CAAQS are generally more stringent than NAAQS and incorporate additional standards for sulfates, hydrogen sulfide, visibility-reducing particles, and vinyl chloride. The CAAQS and NAAQS are shown in Table 3.4-1 above.

The CARB and local air districts bear responsibility for meeting the CAAQS, which are to be achieved through district-level air quality management plans incorporated into the SIP. In California, EPA has delegated authority to prepare SIPs to CARB, which, in turn, has delegated that authority to individual air districts. CARB traditionally has established state air quality standards, maintaining oversight authority in air quality planning, developing programs for reducing emissions from motor vehicles, developing air emission inventories, collecting air quality and meteorological data, and approving SIPs.

The CCAA substantially adds to the authority and responsibilities of air districts. The CCAA designates air districts as lead air quality planning agencies, requires air districts to prepare air quality plans, and grants air districts authority to implement transportation control measures. The CCAA also emphasizes the control of “indirect and area-wide sources” of air pollutant emissions. The CCAA gives local air pollution control districts explicit authority to regulate indirect sources of air pollution and to establish traffic control measures.

## Statewide Truck and Bus Regulation

Originally adopted in 2005, the on-road truck and bus regulation requires heavy trucks to be retrofitted with particulate matter filters. The regulation applies to privately and federally owned diesel-fueled trucks with a gross vehicle weight rating greater than 14,000 pounds. Compliance with the regulation can be reached through one of two paths: (1) vehicle retrofits according to engine year or (2) phase-in schedule. Compliance paths ensure that by January 2023, nearly all trucks and buses will have 2010 model year engines or newer.

Additionally, CARB adopted the Advanced Clean Truck Regulation to accelerate a large-scale transition of zero-emission medium-and-heavy-duty vehicles. The regulation requires the sale of zero-emission medium-and-heavy-duty vehicles as an increasing percentage of total annual California sales from 2024 to 2035. By 2035, zero-emission truck/chassis sales would need to be 55 percent of Class 2b – 3 truck sales, 75 percent of Class 4 – 8 straight truck sales, and 40 percent of truck tractor sales. By 2045, every new medium-and-heavy-duty truck sold in California will be zero-emission. Large employers including retailers, manufacturers, brokers, and others are required to report information about shipments and shuttle services to better ensure that fleets purchase available zero-emission trucks.

## State Tailpipe Emission Standards

CARB established a series of increasingly strict emission standards for new off-road diesel equipment, on-road diesel trucks, and harbor craft. Construction equipment used for the proposed Project, including heavy-duty trucks and off-road construction equipment, will be required to comply with the standards applicable to the model year of manufacture.

CARB has established emissions standards for on-road vehicles as well and is responsible for the certification and production audit of new passenger vehicles and heavy-duty vehicles. Vehicles are not legal for sale in California until CARB-certified. Violation of the requirement for certification can subject the vehicle manufacturers and/or selling dealers to enforcement actions including a fine of up to $37,500 per vehicle.

## Carl Moyer Program

The Carl Moyer Memorial Air Quality Standards Attainment Program (Carl Moyer Program) is a voluntary program that offers grants to owners of heavy-duty vehicles and equipment. The program is a partnership between CARB and the local air districts throughout the state to reduce air pollution emissions from heavy-duty engines. Locally, the air districts administer the Carl Moyer Program.

## Toxic Air Contaminant Regulations

California regulates toxic air contaminants (TACs) primarily through the Toxic Air Contaminant Identification and Control Act (Tanner Act) and the Air Toxics “Hot Spots” Information and Assessment Act of 1987 (“Hot Spots” Act). In the early 1980s, CARB established a statewide comprehensive air toxics program to reduce exposure to air toxics. The Tanner Act created California’s program to reduce exposure to air toxics. The “Hot Spots” Act supplements the Tanner Act by requiring a statewide air toxics inventory, notification of people exposed to a significant health risk, and facility plans to reduce these risks.

CARB has identified diesel particulate matter (DPM) as a TAC and has approved a comprehensive Diesel Risk Reduction Plan to reduce emissions from both new and existing diesel-fueled engines and vehicles. The goal of the plan is to reduce DPM emissions and the associated health risk by 75 percent by 2010 and by 85 percent by 2020. The plan identifies 14 measures that CARB will implement over the next several years. The Proposed Plan would be required to comply with any applicable diesel control measures from the Diesel Risk Reduction Plan.

### 3.4.2.3 Regional

#### Bay Area Air Quality Management District

Responsibilities of air quality districts include overseeing stationary-source emissions, approving permits, maintaining emissions inventories, maintaining air quality stations, overseeing agricultural burning permits, and reviewing air quality–related sections of environmental documents required by CEQA. The air quality districts are also responsible for establishing and enforcing local air quality rules and regulations that address the requirements of federal and state air quality laws and for ensuring that NAAQS and CAAQS are met.

The Project falls under the jurisdiction of the Bay Area Air Quality Management District (BAAQMD). The BAAQMD has local air quality jurisdiction over projects in the San Francisco Bay Area Air Basin (SFBAAB), including Alameda County. BAAQMD has adopted advisory emission thresholds to assist CEQA lead agencies in determining the level of significance of a project's emissions, which are outlined in its California Environmental Quality Act Air Quality Guidelines (CEQA Guidelines) (BAAQMD 2023). BAAQMD has also adopted air quality plans to improve air quality, protect public health, and protect the climate, including the 2017 Clean Air Plan: Spare the Air, Cool the Climate (BAAQMD 2017b).

The 2017 Clean Air Plan was adopted by the BAAQMD on April 19, 2017. The 2017 Clean Air Plan updates the prior 2010 Bay Area ozone plan and outlines feasible measures to reduce ozone; provides a control strategy to reduce particulate matter, air toxics, and GHGs in a single, integrated plan; and establishes emission control measures to be adopted or implemented. One of the control measures in the 2017 Clean Air Plan is directly relevant to the proposed Project, TR 4: Local and Regional Rail Service. This measure calls for funding local and regional rail service projects, and the proposed Project's consistency with this measure is evaluated in Section 3.4.6 Environmental Impacts below. The 2017 Clean Air Plan contains the following primary goal as it relates to air quality.

- **Protect Air Quality and Health at the Regional and Local Scale**: Attain all state and national air quality standards, and eliminate disparities among Bay Area communities in cancer health risk from TACs.

In addition to air quality plans, BAAQMD also adopts rules and regulations to improve existing and future air quality. The Project may be subject to the following BAAQMD rules.

- **Regulation 2, Rule 2 (New Source Review)** — This regulation contains requirements for Best Available Control Technology and emission offsets.
- **Regulation 2, Rule 5 (New Source Review of Toxic Air Contaminates)** — This regulation outlines guidance for evaluating TAC emissions and their potential health risks.

- **Regulation 6, Rule 1 (Particulate Matter)** — This regulation restricts emissions of particulate matter (PM) darker than No. 1 on the Ringlemann Chart to less than 3 minutes in any 1 hour.
- **Regulation 7 (Odorous Substances)** — This regulation establishes general odor limitations on odorous substances and specific emission limitations on certain odorous compounds.
- **Regulation 8, Rule 3 (Architectural Coatings)** — This regulation limits the quantity of reactive organic gases (ROG) in architectural coatings.
- **Regulation 9, Rule 6 (Nitrogen Oxides Emission from Natural Gas–Fired Boilers and Water Heaters)** — This regulation limits emissions of nitrogen oxides ($NO_X$) generated by natural gas–fired boilers.
- **Regulation 9, Rule 8 (Stationary Internal Combustion Engines)** — This regulation limits emissions of $NO_X$ and carbon monoxide (CO) from stationary internal combustion engines of more than 50 horsepower.

## Metropolitan Transportation Commission

The Metropolitan Transportation Commission (MTC) serves as both the state-designated regional transportation agency and as the federally designated MPO for the San Francisco Bay Area region. Thus, it is responsible for regularly updating the Regional Transportation Plan (RTP), a comprehensive blueprint for the development of mass transit, highway, airport, seaport, railroad, bicycle and pedestrian elements. The MTC also screens requests from local agencies for state and federal grants for transportation projects to determine their compatibility with the plan.

## Association of Bay Area Governments

The Association of Bay Area Governments (ABAG) serves as a regional planning body for the San Francisco Bay Area region. ABAG, MTC, and BAAQMD work closely to develop long-range plans that improve the environment and standard of living through a series of measures that link land use, transportation, and air quality. ABAG is responsible for maintaining the state-mandated Sustainable Communities Strategies, which links land use, transportation planning, and state funding. ABAG also develops demographic, economic, and project analyses for the region.

## County of Alameda Eden Area General Plan

Chapter 3, Land Use Element, of the County of Alameda Eden Area General Plan (County of Alameda 2010) includes the following policies that are relevant to the proposed Project:

- **Goal LU-**17 Preserve and improve air quality in the Eden Area.
    - **Policy P1.** New development projects shall be analyzed in accordance with the BAAQMD CEQA Guidelines. Appropriate mitigation measures to reduce vehicle trips and vehicle miles traveled should be applied to projects.
    - **Policy P2.** New development that would emit air toxic contaminants or odors shall provide adequate buffers and screening to protect sensitive land uses from unhealthy levels of air pollution or objectionable odors.

### 3.4.2.4 Consistency with Plans, Policies, and Regulations

#### Federal Plans, Policies, and Regulations

The proposed Project would be consistent with federal plans, policies, and regulations. Emissions from the proposed Project would conform to the NAAQS set out in the CAA. Light duty trucks would conform to emissions standards set by CAFÉ, Heavy duty trucks and locomotives would conform to the Non-road Diesel rule, and locomotive emissions would conform to the Locomotive Emission Standards.

#### State Plans, Policies, and Regulations

The proposed Project would be consistent with state plans, policies, and regulations. Emissions from the proposed Project would conform to CAAQs under CCAA. All equipment used during the project would conform to standards set down in the Statewide Truck and Bus Regulation and State Tailpipe Emission Standards. The proposed Project would be consistent with the Tanner Act and "Hot Spots" Act adjudicated by CARB for TAC regulation.

#### Regional Plans, Policies, and Regulations

The proposed Project would be consistent with regional plans, policies, and regulations. Emissions would conform to the advisory standards put forth by the BAAQMD. The proposed Project also supports the RTP set forth by the MTC.

## 3.4.3 Methods for Evaluating Environmental Impacts

This section defines the RSA for air quality and describes the methods used to analyze the impacts on air quality within the RSA.

### 3.4.3.1 Resource Study Area

As defined in Section 3.1, Introduction, RSAs are the geographic boundaries within which the environmental investigations specific to each resource topic were conducted.

The RSA for air quality is comprised of the areas directly and indirectly affected by proposed Project construction and operations. The RSA for air quality is distinct because of the mixing of criteria pollutants in the atmosphere. Two geographic scales define air quality RSAs:

- **Local RSA —**The footprint during construction for the proposed Project, plus areas within 1,000 feet of the Project footprint. This RSA is applicable to localized health risk impacts during construction and operation of the proposed Project.
- **Regional RSA —**The SFBAAB air basin is the RSA for regional impacts during proposed Project construction and operations.

### 3.4.3.2 Data Sources

Impacts of the proposed Project on air quality and criteria pollutant emissions from construction and operations were assessed and quantified using standard and accepted software tools, techniques, and emission factors. This section summarizes the methods used to quantify

construction and operational emissions. The detailed assumptions and methodology, model inputs and calculation files are included in Appendix B.

## Construction

### Criteria Pollutant Emissions

Construction of the proposed Project would generate criteria pollutant emissions from off-road equipment exhaust, employee and haul truck vehicle exhaust (on-road vehicles), locomotive exhaust, site grading and earth movement, and paving. Emissions estimates for construction of the proposed Project were based on engineering inputs. Total emissions from construction of the proposed Project are presented at the average daily time scale and compared with BAAQMD construction thresholds. The assumptions and methodology used to calculate each source of emissions are presented in Appendix B.

### Toxic Air Contaminants

A construction health risk assessment (HRA) was prepared at the Ardenwood Station area to quantify the levels of exposure from emissions of toxic air contaminants (TACs) from proposed Project construction at the nearby sensitive receptors that are located downwind of the proposed Project. The HRA methodology is described in Appendix B. Additionally, emission inventory used for the HRA, modeling parameters, figures, and results are shown in Appendix B.

## Operation

### Criteria Pollutant Emissions

#### *Displaced Vehicle Miles Traveled*

Operation of the proposed Project would improve passenger rail service between Oakland and San Jose, which would result in a reduction in automobile vehicle usage and is quantified by year and scenario as part of this analysis. Refer to Appendices B and H for details regarding the assumptions and methodology used for quantifying criteria pollutant reductions achieved by displaced vehicle miles traveled (VMT).

#### *Ardenwood Station Operational Emissions*

The new Ardenwood Station would generate off-gassing and combustion emissions from the use of consumer products, architectural coatings, and landscaping equipment (i.e., area sources), and combustion emissions from the occasional use of a diesel-powered emergency generator (i.e. stationary sources). Refer to Appendix B for details regarding the assumptions and methodology for estimating operational criteria pollutant emissions from the proposed Ardenwood Station.

#### *Changes to Locomotive Emissions*

*Capitol Corridor Locomotives*

The proposed Project seeks to reduce rail travel time between Oakland and San Jose, and this would be accomplished by shortening the route that Capitol Corridor trains would travel between the two cities. Although the proposed Project would not increase the number of passenger trains on the route, the exhaust emissions from locomotives may be affected by the change in route, but there are

limitations to quantifying any resulting changes in emissions. In North America, most locomotives have eight engine notch settings, which correspond to power output. In lower notch settings, which are used for acceleration, the engines run less efficiently and produce more emissions per output unit. Since the Coast subdivision would only have one station stop instead of two under the existing route, the proposed Project would result in less locomotive acceleration time, and thus less emissions would be produced.

Additionally, the Coast Subdivision is a comparatively straighter route with fewer turns than the Niles Subdivision and would result in higher speeds and higher fuel consumption, which could partially offset the benefit from the reduced acceleration. However, trains on the Coast Subdivision would also travel a shorter distance than on the Niles Subdivision, which would lower fuel consumption. Overall, it is anticipated that emissions levels from use of the Coast Subdivision would be similar or slightly less compared to use of the Niles Subdivision; however, the effect is not quantified at this time given the uncertainties described above. Exhaust emissions from the locomotives are complexly affected by a series of variables, including the engine notch settings and acceleration time, range of travel speeds, and distance. Thus, although the proposed Project may result in an emissions benefit from passenger trains for regional air quality, it is conservatively assumed that there would be no appreciable change in Capitol Corridor locomotive emissions, and the potential benefit is not quantitatively included in this analysis.

*Freight Locomotives*

The CCJPA does not have any jurisdictional control over the operation of freight trains, because a private company, UPRR, owns the railroad tracks and controls freight movement in the area. Consequently, emissions from freight trains have not been quantified, because those emissions are not within CCJPA's control. Thus, it is assumed that there would be no appreciable change in freight locomotive emissions as a result of the proposed Project, and emissions are not quantitatively included in this analysis. Nevertheless, freight locomotives would continue to use the subdivisions within the proposed Project area, and it is expected that such train traffic would grow each year. The 2018 California State Rail Plan anticipates rail intermodal traffic in California will increase at a compound annual growth rate of 2.9 percent through 2040, and rail carload traffic will increase at a compound annual growth rate of 1.7 percent through 2040 (California Department of Transportation 2018).

### Carbon Monoxide Hot-Spots

BAAQMD's screening methodology for carbon monoxide impacts was used to determine whether traffic-related impacts due to implementation of the proposed Project are significant (see the Supplemental Thresholds discussion under Section 3.4.3.3).

### Toxic Air Contaminants

An operational HRA was conducted at the Ardenwood Station area to evaluate impacts of TAC emissions generated by operations of the proposed Project for the nearby sensitive receptors that are located downwind from the proposed Project. The methodology, modeling inputs, and results for the operational HRA are described in greater detail in Appendix B.

### 3.4.3.3 CEQA Thresholds

To satisfy CEQA requirements, air quality impacts were analyzed in accordance with Appendix G of the CEQA Guidelines. According to the CEQA Guidelines, CCR, Title 14, Section 15002(g), "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in CEQA Guidelines Section 15064(b)(1), the significance of an activity may vary with the setting. The impact analysis identifies and analyzes construction (short-term) and operation (long-term) impacts, as well as direct and indirect impacts (see PRC Section 21065). The proposed Project would have significant air quality impacts under CEQA if it would:

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 proposed Project region is non- attainment under an applicable federal or state ambient air quality standard;

c. Expose sensitive receptors to substantial pollutant concentrations; or

d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people; for this analysis, construction of an odor-producing facility, would result in an "objectionable odor" capable of affecting a substantial number of people.

#### Baseline Conditions for Air Quality Impacts

The CEQA Guidelines Section 15125 indicates that existing conditions at the time a notice of preparation is released or when environmental review begins "normally" constitutes the baseline for environmental analysis. In 2010, the California Supreme Court issued an opinion that while lead agencies have some flexibility in determining what constitutes the baseline, relying on "hypothetical allowable conditions" when those conditions are not a realistic description of the conditions without the Proposed Project, would be an illusory basis for a finding of no significant impact from the proposed Project and, therefore, a violation of CEQA (Communities for a Better Environment v. South Coast Air Quality Management District (2010) 48 Cal. 4th 310).

On August 5, 2013, the California Supreme Court decided Neighbors for Smart Rail v. Exposition Metro Line Construction Authority (57 Cal. 4th 439). This latest decision has clarified that, under certain circumstances, a baseline may reflect future, rather than existing, conditions. The rule specifies that factual circumstances can justify an agency using a future baseline in the following circumstances when such reasons are supported by substantial evidence:

- When necessary to prevent misinforming or misleading the public and decision makers.
- When the use of future conditions in place of existing conditions is justified by unusual aspects of the project or surrounding conditions.

With respect to the proposed Project, using existing conditions to evaluate criteria pollutant impacts would misrepresent and mislead the public and decision makers with respect to potential air quality impacts, for the following reasons: (1) expected changes in on-road emission factors, and (2) net proposed Project VMT reductions.

1. On-road vehicle emissions rates are anticipated to lessen in the future due to continuing engine advancements and more stringent air quality regulations. Evaluating the VMT displacement for existing conditions (2019) and quantifying emissions utilizing 2019 vehicle emissions rates

would not only represent a fictitious scenario but would also overestimate emissions reductions and potential air quality benefits achieved by the proposed Project.

2. Using the relatively higher "existing conditions" emissions factors to quantify emissions reduction benefits associated with proposed Project-related VMT reductions in 2025 and 2040 would overstate the proposed Project's emissions reduction benefits.

These circumstances present substantial evidence in support of using a future conditions analysis, rather than existing conditions, to evaluate air quality impacts. Accordingly, for this analysis, the CEQA assessment evaluates the proposed Project emissions in the opening year (2025) and horizon year (2040) conditions, compared to the No Project Alternative in these same years. This approach reflects appropriate vehicle fleet characteristics and emission factors. Using anticipated future year conditions as the basis for the CEQA analysis provides the most accurate reasonably foreseeable assessment and avoids misinforming and misleading the public and decision makers with respect to air quality impacts, consistent with current CEQA case law.

## Supplemental Thresholds

The following section summarizes relevant thresholds and presents substantial evidence regarding the basis upon which they were developed. This section also describes how the thresholds are used to determine whether construction and operation of the proposed Project would result in a significant impact within the context of (1) interfering with or impeding attainment of CAAQS or NAAQS, or (2) causing or contributing to increased risk to human health.

### Regional Thresholds for Air Basin Attainment of State and Federal Ambient Air Quality Standards

BAAQMD established different thresholds for criteria pollutants. The criteria pollutant thresholds identified in Table 3.4-2 were adopted by BAAQMD to assist lead agencies in determining the significance of environmental effects with regard to local attainment of state and federal ambient air quality standards.

BAAQMD's ROG, NOX, and PM thresholds are based on emissions levels identified under the New Source Review (NSR) program. The NSR program is a permitting program that was established by Congress as part of the CAA Amendments to ensure that air quality is not significantly degraded by new sources of emissions. The NSR program requires stationary sources to receive permits before starting construction or use of the equipment. By permitting large stationary sources, the NSR program ensures that new emissions would not slow regional progress toward attaining NAAQS. BAAQMD has concluded that pollutants generated by land use and other projects not subject to the NSR (like this Project) are equally significant to the stationary pollutants described under the NSR program. BAAQMD's thresholds identified in Table 3.4-2 were set as the total emission thresholds associated within the NSR program to help attain NAAQS (BAAQMD 2017a).

Accordingly, emissions in excess of BAAQMD thresholds (Table 3.4-2) would be expected to have a significant impact on air quality because an exceedance of the thresholds is anticipated to contribute to CAAQS and NAAQS violations. Further, by its very nature, regional air pollution has a cumulative impact. Emissions from past, present, and future projects contribute to unfavorable air quality on a cumulative basis. No single project by itself would be sufficient in size to result in regional nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulative negative air quality impacts. BAAQMD identified project-level

mass emission thresholds to evaluate impacts on air quality. The thresholds have been adopted to prevent further deterioration of ambient air quality, which is influenced by emissions generated by projects within a specific air basin. The project-level thresholds, therefore, consider relevant past, present, and reasonably foreseeable future projects within SFBAAB. The mass emissions thresholds in Table 3.4-2, therefore, represent the maximum emissions a project may generate before contributing to a cumulative impact on regional air quality.

**Table 3.4-2: Bay Area Air Quality Management District Mass Emission Thresholds**

| Analysis | BAAQMD |
|---|---|
| **Construction** | ROG: 54 lbs/day<br>$NO_x$: 54 lbs/day<br>$PM_{10}$: 82 lbs/day<br>$PM_{2.5}$: 54 lbs/day |
| **Operations** | ROG: 54 lbs/day or 10 tons/year<br>$NO_x$: 54 lbs/day or 10 tons/year<br>$PM_{10}$: 82 lbs/day or 15 tons/year<br>$PM_{2.5}$: 54 lbs/day or 10 tons/year |

Source: BAAQMD 2023

| | | |
|---|---|---|
| ROG | = | reactive organic gases |
| Lbs | = | pounds |
| $NO_X$ | = | nitrogen oxide |
| $PM_{10}$ | = | Particulate matter that is 10 microns in diameter and smaller. |
| $PM_{2.5}$ | = | Particulate matter that is 2.5 microns in diameter and smaller. |

### Health-Based Thresholds for Project-Generated Pollutants of Human Health Concern

In December 2018, the California Supreme Court issued its decision in Sierra Club v. County of Fresno (226 Cal.App.4th 704) (hereafter referred to as the "Friant Ranch" decision). The case reviewed the long-term, regional air quality analysis contained in the EIR for the proposed Friant Ranch development. The Friant Ranch project is a 942-acre master-plan development in unincorporated Fresno County within the San Joaquin Valley Air Basin, an air basin currently in nonattainment for the ozone and $PM_{2.5}$ NAAQS and CAAQS. The Court found that the air quality analysis was inadequate because it failed to provide enough detail "for the public to translate the bare [criteria pollutant emissions] numbers provided into adverse health impacts or to understand why such a translation is not possible at this time." The Court's decision clarifies that environmental documents must connect a project's air quality impacts to specific health effects or explain why it is not technically feasible to perform such an analysis.

As discussed in Section 3.4.4, Affected Environment, all criteria pollutants that would be generated by the proposed Project are associated with some form of health risk (e.g., asthma). Criteria pollutants can be classified as either regional or localized pollutants. Regional pollutants can be transported over long distances and affect ambient air quality far from the emissions source. Localized pollutants affect ambient air quality near the emissions source. Ozone is considered a

regional criteria pollutant, whereas CO, $NO_2$, $SO_2$, and Pb are localized pollutants. PM can be both a local and a regional pollutant, depending on its composition. As discussed above, the primary criteria pollutants of concern generated by the proposed Project are ozone precursors (ROG and $NO_X$), CO, and PM (including DPM).

Because localized pollutants generated by a project can directly affect adjacent sensitive receptors, the analysis of project-related impacts on human health focuses on those localized pollutants with the greatest potential to result in a significant, material impact on human health. Potential health effects associated with project-generated ozone precursors are only discussed within the regional and cumulative context. This approach is consistent with the current state of practice and published guidance by BAAQMD, California Air Pollution Control Officers Association, OEHHA, and CARB (BAAQMD 2023; California Air Pollution Control Officers Association 2009; OEHHA 2015; CARB 2000). The local pollutants of concern are (1) localized CO, (2) DPM, (3) localized PM, and (4) asbestos. Adopted thresholds of significance for each local pollutant are identified in the following subsections.

### Localized Carbon Monoxide Concentrations

BAAQMD consider localized CO emissions to result in significant impacts if concentrations exceed the CAAQS, as shown above in Table 3.4-1.

### Diesel Particulate Matter and Localized Particulate Matter

BAAQMD adopted separate thresholds to evaluate receptor exposure to DPM emissions. The substantial DPM threshold defined by BAAQMD is the probability of contracting cancer for the maximum exposed individual (MEI) exceeding 10 in 1 million, or the ground-level concentrations of non-carcinogenic TACs resulting in an HI greater than 1 for the MEI.

BAAQMD has adopted an incremental concentration-based significance threshold to evaluate receptor exposure to localized $PM_{2.5}$, where a substantial contribution is defined as $PM_{2.5}$ exhaust (diesel and gasoline) and dust concentrations exceeding 0.3 μg/m$^3$. BAAQMDs cumulative cancer risk threshold is 100 cases per million and its non-cancer thresholds are an HI greater than 10.0 and a $PM_{2.5}$ concentration greater than 0.8 μ g/m$^3$. Table 3.4-3 summarizes the cancer and non-cancer health risk thresholds used in the analysis.

**Table 3.4-3: BAAQMD Cancer and Non-Cancer Health Risk Thresholds**

| Cancer Risk | Hazard Index | $PM_{2.5}$ Concentration (μg/m$^3$) |
|---|---|---|
| **10 in a million (project level)** | 1.0 (Project level) | 0.3 (project-level) |
| **100 in a million (cumulative)** | 10 (cumulative) | 0.8 (cumulative) |

Source: BAAQMD 2023
Notes: DPM = diesel particulate matter; PM2.5 – particulate matter that is 2.5 microns in diameter and smaller; μg/m3 = micrograms per cubic meter.

**Asbestos**

There are no quantitative thresholds related to receptor exposure to asbestos. However, BAAQMD requires projects that have the potential to disturb asbestos (from soil or building material) must comply with all the requirements of CARB's ATCM for Construction, Grading, Quarrying, and Surface Mining Operations.

# 3.4.4 Affected Environment

## 3.4.4.1 Regional Setting

### Climate and Meteorology in the San Francisco Bay Area Air Basin

The locations of air pollutant sources and the amount of pollutants emitted from those sources are the primary factors that determine air quality; however, meteorological conditions and topography are also important factors. Atmospheric conditions, such as wind speed, wind direction, and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants. Unique geographic features throughout the state define fifteen air basins with distinctive regional climates. The primary subregion that the proposed Project is located in is Southwestern Alameda County in the SFBAAB. The northern section of the proposed Project area, from the City of San Leandro and northward, is located in the Northern Alameda and Western Contra Costa Counties subregion. As the vast majority of the proposed Project area is located in the Southwestern Alameda County subregion, this discussion focuses on that subregion.

The Southwestern Alameda County subregion encompasses the southeast side of San Francisco Bay, from Dublin Canyon to north of Milpitas. The subregion is bordered on the east by the East Bay hills and on the west by the bay. Most of the area is flat. This subregion is indirectly affected by marine air flow. Marine air entering through the Golden Gate is blocked by the East Bay hills, forcing the air to diverge into northerly and southerly paths. The southern flow is directed down the bay, parallel to the hills, where it eventually passes over southwestern Alameda County. These sea breezes are strongest in the afternoon. The further from the ocean the marine air travels, the more the ocean's effect is diminished. Although the climate in this region is affected by sea breezes, it is affected less so than the regions closer to the Golden Gate.

The climate of southwestern Alameda County is also affected by its proximity to San Francisco Bay. The Bay cools the air with which it comes in contact during warm weather, while during cold weather the Bay warms the air. The normal northwest wind pattern carries this air onshore. Bay breezes push cool air onshore during the daytime and draw air from the land offshore at night.

Winds are predominantly out of the northwest during the summer months. In the winter, winds are equally likely to be from the east. Easterly-southeasterly surface flow into southern Alameda County passes through three major gaps: Hayward/Dublin Canyon, Niles Canyon and Mission Pass. Areas north of the gaps experience winds from the southeast, while areas south of the gaps experience winds from the northeast. Wind speeds are moderate in this subregion, with annual average wind speeds close to the Bay at about 7 miles per hour, while further inland they average 6 miles per hour.

Air temperatures are moderated by the subregion's proximity to the Bay and to the sea breeze. Temperatures are slightly cooler in the winter and slightly warmer in the summer than East Bay

cities to the north. During the summer months, average maximum temperatures are in the mid-70s. Average maximum winter temperatures are in the high 50s to low 60s. Average minimum temperatures are in the low 40s in winter and mid-50s in the summer.

The average annual maximum and minimum temperatures at the Western Regional Climate Center station in Newark are 68.2 degrees and 49.5, respectively (Western Regional Climate Center 2019).

Pollution potential is relatively high in this subregion during the summer and fall. When high pressure dominates, low mixing depths and Bay and ocean wind patterns can concentrate and carry pollutants from other cities to this area, adding to the locally emitted pollutant mix. The polluted air is then pushed up against the East Bay hills. In the wintertime, the air pollution potential in southwestern Alameda County is moderate. Air pollution sources include light and heavy industry, and motor vehicles. Increasing motor vehicle traffic and congestion in the subregion may increase Southwest Alameda County pollution as well as that of its neighboring subregions (BAAQMD 2017a).

## Pollutants of Concern

### Criteria Pollutants

Concentrations of ozone, carbon monoxide (CO), nitrogen dioxide ($NO_2$), sulfur dioxide ($SO_2$), lead (Pb), and particulate matter ($PM_{10}$ and $PM_{2.5}$) are commonly used as indicators of ambient air quality conditions. These pollutants are known as "criteria pollutants" and are regulated by the EPA and CARB through the NAAQS and CAAQS, respectively, which are discussed above in Section 3.4.2, Regulatory Setting.

Ozone and $NO_2$ are considered regional pollutants because they (or their precursors) affect air quality on a regional scale. Pollutants such as CO, $SO_2$, and Pb are considered local pollutants that tend to accumulate in the air locally. Particulate matter is both a regional and local pollutant. The primary criteria pollutants that will be generated by the Project are ozone precursors (nitrogen oxides [$NO_X$] and reactive organic gases [ROG]), CO, $PM_{10}$, and $PM_{2.5}$.

All criteria pollutants can have human health effects at certain concentrations. The ambient air quality standards for these pollutants are set to public health and the environment with an adequate margin of safety (CAA Section 109). Epidemiological, controlled human exposure, and toxicology studies evaluate potential health and environmental effects of criteria pollutants, and form the scientific basis for new and revised ambient air quality standards.

Principal characteristics and possible health and environmental effects from exposure to the primary criteria pollutants that will be generated by the Project are discussed below.

#### *Ozone*

Ozone, or smog, is a photochemical oxidant that is formed when ROG and $NO_X$ (both byproducts of the internal combustion engine) react with sunlight. ROG are compounds made up primarily of hydrogen and carbon atoms. Internal combustion associated with motor vehicle usage is the major source of hydrocarbons. Other sources of ROG are emissions associated with the use of paints and solvents, the application of asphalt paving, and the use of household consumer products such as aerosols. The two major forms of $NO_X$ are nitric oxide (NO) and $NO_2$. NO is a colorless, odorless gas formed from atmospheric nitrogen and oxygen when combustion takes place under high temperature and/or high pressure. $NO_2$ is a reddish-brown irritating gas formed by the combination

of NO and oxygen. In addition to serving as an integral participant in ozone formation, $NO_X$ also directly acts as an acute respiratory irritant and increases susceptibility to respiratory pathogens.

Ozone poses a higher risk to those who already suffer from respiratory diseases (e.g., asthma), children, older adults, and people who are active outdoors. Exposure to ozone at certain concentrations can make breathing more difficult, cause shortness of breath and coughing, inflame and damage the airways, aggregate lung diseases, increase the frequency of asthma attacks, and cause chronic obstructive pulmonary diesel. Studies show associations between short-term ozone exposure and non-accidental mortality, including deaths from respiratory issues. Studies also suggest long-term exposure to ozone may increase the risk of respiratory-related deaths (EPA 2022a). The concentration of ozone at which health effects are observed depends on an individual's sensitivity, level of exertion (i.e., breathing rate), and duration of exposure. Studies show large individual differences in the intensity of symptomatic responses, with one study finding no symptoms to the least responsive individual after a 2-hour exposure to 400 parts per billion of ozone and a 50% decrement in forced airway volume in the most responsive individual. Although the results vary, evidence suggest that sensitive populations (e.g., asthmatics) may be affected on days when the 8-hour maximum ozone concentration reaches 80 parts per billion (EPA 2021a). For reference, the average background level of ozone in the Bay Area is approximately 45 parts per billion (BAAQMD 2017b).

In addition to human health effects, ozone has been tied to crop damage, typically in the form of stunted growth and premature death. Ozone can also act as a corrosive, resulting in property damage such as the degradation of rubber products.

***Carbon Monoxide***

Carbon Monoxide, CO, is a colorless, odorless, toxic gas produced by incomplete combustion of carbon substances, such as gasoline or diesel fuel. The primary adverse health effect associated with CO is interference with normal oxygen transfer to the blood, which may result in tissue oxygen deprivation. Exposure to CO at high concentrations can also cause fatigue, headaches, confusion, dizziness, and chest pain. There are no ecological or environmental effects to ambient CO (CARB No date).

***Particulate Matter***

Particulate Matter consists of finely divided solids or liquids such as soot, dust, aerosols, fumes, and mists. Two forms of fine particulates are now recognized—inhalable coarse particles, or $PM_{10}$, and inhalable fine particles, or $PM_{2.5}$. Particulate discharge into the atmosphere results primarily from industrial, agricultural, construction, and transportation activities. However, wind on arid landscapes also contributes substantially to local particulate loading.

Particulate pollution can be transported over long distances and may adversely affect human health, especially for people who are naturally sensitive or susceptible to breathing problems. Numerous studies have linked PM exposure to premature death in people with preexisting heart or lung disease, nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, and increased respiratory symptoms. Studies show that every 1 microgram per cubic meter reduction in $PM_{2.5}$ results in a one percent reduction in mortality rate for individuals over 30 years old (BAAQMD 2017b). Depending on its composition, both $PM_{10}$ and $PM_{2.5}$ can also affect water quality and acidity, deplete soil nutrients, damage sensitive forests and crops, affect ecosystem diversity, and contribute to acid rain (EPA 2021b).

### Toxic Air Contaminants

Although NAAQS and CAAQS have been established for criteria pollutants, no ambient standards exist for TACs. A TAC is defined by California law as an air pollutant that "may cause or contribute to an increase in mortality or an increase in serious illness, or which may pose a present or potential hazard to human health." The primary TACs of concern associated with the proposed Project are asbestos and diesel particulate matter (DPM).

#### *Asbestos*

Asbestos is the name given to several naturally occurring fibrous silicate minerals. Before the adverse health effects of asbestos were identified, asbestos was widely used as insulation and fireproofing in buildings, and it can still be found in some older buildings. It is also found in its natural state in rock or soil. The inhalation of asbestos fibers into the lungs can result in a variety of adverse health effects, including inflammation of the lungs, respiratory ailments (e.g., asbestosis, which is scarring of lung tissue that results in constricted breathing), and cancer (e.g., lung cancer and mesothelioma, which is cancer of the linings of the lungs and abdomen).

#### *Diesel Particulate Matter*

DPM is generated by diesel-fueled equipment and vehicles. CARB estimates that DPM emissions are responsible for about 70 percent of the total ambient air toxics risk in California (CARB No date). Within the Bay Area, the BAAQMD has found that of all controlled TACs, emissions of DPM are responsible for about 82 percent of the total ambient cancer risk (BAAQMD 2017b). Short-term exposure to DPM can cause acute irritation (e.g., eye, throat, and bronchial), neurophysiological symptoms (e.g., lightheadedness and nausea), and respiratory symptoms (e.g., cough and phlegm). The EPA has determined that diesel exhaust is "likely to be carcinogenic to humans by inhalation" (EPA 2002).

### Odors

Offensive odors can be unpleasant and lead to citizen complaints to local governments and air districts. According to CARB's Air Quality and Land Use Handbook (CARB 2005), land uses associated with odor complaints typically include sewage treatment plants, landfills, recycling facilities, manufacturing, and agricultural activities. CARB provides recommended screening distances for siting new receptors near existing odor sources.

## Existing Air Quality Conditions

### Regional Attainment Status

Local monitoring data are used to designate areas as nonattainment, maintenance, attainment, or unclassified for the ambient air quality standards. The four designations are further defined as shown below.

- Nonattainment – assigned to areas where monitored pollutant concentrations consistently violate the standard in question.
- Maintenance – assigned to areas where monitored pollutant concentrations exceeded the standard in question in the past but are no longer in violation of that standard.

- Attainment – assigned to areas where pollutant concentrations meet the standard in question over a designated period of time.
- Unclassified – assigned to areas where data are insufficient to determine whether a pollutant is violating the standard in question.

Table 3.4-4 summarizes the attainment statuses of the proposed Project area in Alameda County.

**Table 3.4-4: Federal and State Air Quality Attainment status for Alameda County**

| Criteria Pollutant | Federal Designation | State Designation |
|---|---|---|
| **$O_3$ (8-hour)** | Marginal Nonattainment | Nonattainment |
| **CO** | Attainment | Attainment |
| **$PM_{10}$** | Attainment | Nonattainment |
| **$PM_{2.5}$** | Moderate Nonattainment | Nonattainment |
| **$NO_2$** | Attainment | Attainment |
| **$SO_2$** | Attainment | Attainment |
| **Lead** | Attainment | Attainment |
| **Sulfates** | (No Federal Standard) | Attainment |
| **Hydrogen Sulfide** | (No Federal Standard) | Unclassified |
| **Visibility Reducing Particles** | (No Federal Standard) | Unclassified |

Sources: EPA 2022b, CARB 2022.

Notes: $O_3$ = ozone, CO = carbon monoxide, $PM_{10}$ = particulate matter less than or equal to 10 microns, $PM_{2.5}$ = particulate matter less than or equal to 2.5 microns, $NO_2$ = nitrogen dioxide, $SO_2$ = sulfur dioxide

## 3.4.4.2 Local Setting

### Ambient Criteria Pollutant Concentrations

A number of ambient air quality monitoring stations are located in SFBAAB to monitor progress toward air quality standards attainment of NAAQS and CAAQS. The nearest monitoring station to the proposed Project includes the Oakland monitoring station[1], which is located approximately 0.7 miles

[1] The address of the Oakland station is 9925 International Boulevard, Oakland, CA 94603.

east from the junction where the existing Capitol Corridor service line and the proposed Capitol Corridor service line split in the northern portion of the RSA. In the central portion of the RSA, the Hayward air quality monitoring station[2] is located 4.6 miles east of the proposed Capitol Corridor service line and 2.2 miles east of the existing Capitol Corridor service line. The Oakland monitoring station records ozone, CO, $NO_2$, and $PM_{2.5}$ data, while the Hayward monitoring station only records ozone data. $PM_{10}$ is not monitored in Alameda County.

Table 3.4-5 summarizes data for criteria air pollutant levels from the Oakland and Hayward monitoring stations for the last 3 years (2020–2022). Table 3.4-5 shows that the monitoring stations experienced violations of the federal and state ozone and $PM_{2.5}$ standards in the 2020 to 2022 timeframe. Federal and state standards for the other pollutants (with the exception of $PM_{10}$, which is not monitored) were not exceeded. As discussed above, the CAAQS and NAAQS define clean air and represent the maximum amount of pollution that can be present in outdoor air without any harmful effects on people and the environment. Existing violations of the ozone and $PM_{2.5}$ ambient air quality standards indicate that certain individuals exposed to this pollutant may experience certain health effects, including increased incidence of cardiovascular and respiratory ailments.

**Table 3.4-5: Ambient Air Quality Data at the Oakland and Hayward Monitoring Stations (2020-2022)**

| Pollutant Standards | Oakland | | | Hayward | | |
|---|---|---|---|---|---|---|
| | 2020 | 2021 | 2022 | 2020 | 2021 | 2022 |
| **Ozone ($O_3$)** | | | | | | |
| **Maximum 1-hour concentration (ppm)** | 0.090 | 0.083 | 0.069 | 0.116 | 0.097 | 0.098 |
| **Maximum 8-hour concentration (ppm)** | 0.066 | 0.061 | 0.055 | 0.092 | 0.082 | 0.073 |
| **Number of days standard exceeded[a]** | | | | | | |
| **CAAQS 1-hour (>0.09 ppm)** | 0 | 0 | 0 | 3 | 1 | 2 |
| **CAAQS 8-hour (>0.070 ppm)** | 0 | 0 | 0 | 5 | 3 | 2 |
| **NAAQS 8-hour (>0.070 ppm)** | 0 | 0 | 0 | 4 | 3 | 2 |
| **Carbon Monoxide (CO)** | | | | | | |
| **Maximum 8-hour concentration (ppm)** | 2.4 | 1.1 | 1.3 | * | * | * |
| **Maximum 1-hour concentration (ppm)** | 3.3 | 1.6 | 1.6 | * | * | * |
| **Number of days exceeded[a]** | | | | | | |
| **NAAQS 8-hour (>9 ppm)** | 0 | 0 | 0 | * | * | * |
| **CAAQS 8-hour (>9.0 ppm)** | 0 | 0 | 0 | * | * | * |

[2] The address of the Hayward station is 3466 La Mesa Drive, Hayward, CA 94542.

| Pollutant Standards | Oakland | | | Hayward | | |
|---|---|---|---|---|---|---|
| | 2020 | 2021 | 2022 | 2020 | 2021 | 2022 |
| **NAAQS 1-hour (>35 ppm)** | 0 | 0 | 0 | * | * | * |
| **CAAQS 1-hour (>20 ppm)** | 0 | 0 | 0 | * | * | * |
| **Nitrogen Dioxide ($NO_2$)** | | | | | | |
| **State maximum 1-hour concentration (ppb)** | 59 | 48 | 50 | * | * | * |
| **State second-highest 1-hour concentration (ppb)** | 53 | 42 | 44 | * | * | * |
| **Annual average concentration (ppb)** | 9 | 8 | 9 | * | * | * |
| **Number of days standard exceeded[a]** | | | | | | |
| **CAAQS 1-hour (180 ppb)** | 0 | 0 | 0 | * | * | * |
| **Particulate Matter ($PM_{10}$)** | | | | | | |
| No $PM_{10}$ data available in Alameda County | | | | | | |
| **Particulate Matter ($PM_{2.5}$)** | | | | | | |
| **National[f] maximum 24-hour concentration ($\mu g/m^3$)** | 167.7 | 33.0 | 25.7 | * | * | * |
| **National[f] second-highest 24-hour concentration ($\mu g/m^3$)** | 117.3 | 23.4 | 25.3 | * | * | * |
| **State[g] maximum 24-hour concentration ($\mu g/m^3$)** | 167.7 | 33.0 | 25.7 | * | * | * |
| **State[g] second-highest 24-hour concentration ($\mu g/m^3$)** | 117.3 | 23.4 | 25.3 | * | * | * |
| **National annual average concentration ($\mu g/m^3$)** | 11.4 | 7.9 | 8.2 | * | * | * |
| **State annual average concentration $\mu g/m^3$)** | 11.4 | 8.0 | 8.3 | * | * | * |
| **Measured number of days standard exceeded[a]** | | | | | | |
| **NAAQS 24-hour (>35 $\mu g/m^3$)** | 11 | 0 | 0 | * | * | * |

Sources: EPA 2023, CARB 2023b.

Notes: ppm = parts per million; NAAQS = National Ambient Air Quality Standards; CAAQS = California Ambient Air Quality Standards; $\mu g/m^3$= micrograms per cubic meter; * = insufficient data available to determine the value

a. An exceedance is not necessarily related to a violation of the standard

b. National statistics are based on standard conditions data. In addition, national statistics are based on samplers using federal reference or equivalent methods

c. State statistics are based on approved local samplers and local conditions data.

d. State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.

e. Measurements usually are collected every 6 days.
f. National statistics are based on samplers using federal reference or equivalent methods.
g. State statistics are based on local approved samplers.

### Sensitive Receptors

Sensitive land uses are defined as locations where human populations, especially children, seniors, and sick persons, are located and where there is reasonable expectation of continuous human exposure according to the averaging period for the air quality standards (i.e., 24-hour, 8-hour). Sensitive receptor locations are typically defined as schools, hospitals, resident care facilities, places of employment, daycare centers, or other facilities that may house individuals with health conditions, including private residences.

BAAQMD recommends that any proposed Project that includes the siting of a new source or receptors assess associated impacts within 1,000 feet. Throughout the entire Project corridor, there are sensitive receptors located within 1,000 feet of the existing and proposed service areas, and the new station and existing stations. The greatest number of sensitive receptors in the RSA are residential receptors, which are represented by single and multi-family housing units. Other land uses where sensitive receptors are located include parks and recreational areas, such as community and neighborhood parks, playgrounds, and nature preserves. Other facilities where sensitive individuals are located in the RSA include places of employment (e.g. retail and office space), schools, childcare facilities, eldercare facilities, and hospitals. There are many of these types of land uses in the RSA. Sensitive receptors, not including residential homes, within 1,000 feet of existing or proposed service areas are shown in Appendix B.

## 3.4.5 Best Management Practices

As noted in Chapter 2, Project Alternatives, CCJPA would incorporate a range of BMPs to avoid and minimize adverse effects on the environment that could result from implementation of the proposed Project. BMPs are included in the proposed Project description, and the impact analyses were conducted assuming application of these practices. The BMPs relevant to air quality are summarized below. Full descriptions of the BMPs are provided in Chapter 2, Project Alternatives.

**BMP AQ-1. Implement BAAQMD Basic Construction Mitigation Measures**.

## 3.4.6 Environmental Impacts

This section describes the potential environmental impacts on air quality as a result of implementation of the proposed Project.

### 3.4.6.1 Conflict with or obstruct implementation of the applicable air quality plan?

#### No Project Alternative

**No Impact.** Under the No Project Alternative, the Capitol Corridor passenger rail service between Oakland and San Jose would not be relocated from the Niles Subdivision to the Coast Subdivision. Capitol Corridor passenger trains and UPRR freight trains would continue to operate based on current routes with no changes to connectivity or rail efficiency. The 2018 California State Rail Plan projects that rail intermodal traffic in California will increase at a

compound annual growth rate of 2.9 percent through 2040 while rail carload traffic will increase at a compound annual growth rate of 1.7 percent through 2040. The projected annual growth rate for rail traffic would result in the generation of additional criteria pollutant emissions, causing the level of emissions associated with the existing conditions to increase annually. However, the forecasted projected growth along the rail corridor would still occur with or without project implementation. Therefore, the No Project Alternative would not result in additional criteria pollutant emissions beyond the existing conditions and would thus not conflict with the applicable air quality plan. Additionally, as noted above, the In-Use Locomotive Regulation will result in lower-emitting locomotives in future years. There would be no impact.

## Proposed Project

*Construction and Operations*

**Less Than Significant Impact.** BAAQMD adopted their 2017 Clean Air Plan on April 19, 2017. The 2017 Clean Air Plan updates the prior 2010 Bay Area ozone plan and outlines feasible measures to reduce ozone; provides a control strategy to reduce particulate matter, air toxics, and GHGs in a single, integrated plan; and establishes emission control measures to be adopted or implemented. The 2017 Clean Air Plan is the most current applicable air quality plan for the air basin. Consistency with this plan is the basis for determining whether the proposed Project would conflict with or obstruct implementation of an air quality plan.

BAAQMD recommends that the agency approving a project where an air quality plan consistency determination is required analyze the project with respect to the following questions. If all the questions are concluded in the affirmative, and those conclusions are supported by substantial evidence, BAAQMD considers the project consistent with air quality plans prepared for the Bay Area.

1. **Does the project support the primary goals of the AQP?** The primary goals of the 2017 Clean Air Plan are 1) Protect Air Quality and Health at the Regional and Local Scale: Attain all state and national air quality standards and eliminate disparities among Bay Area communities in cancer health risk from TACs; and 2) Protect the Climate: Reduce Bay Area GHG emissions to 40 percent below 1990 levels by 2030 and 80 percent below 1990 levels by 2050.

   The proposed Project proposes to reroute Capitol Corridor passenger rail service to the UPRR Coast Subdivision from the UPRR Niles Subdivision between Oakland Coliseum and Newark Junction and to construct a new train station, Ardenwood Station, along the Coast Subdivision at the existing Ardenwood Park-n-Ride facility. The purpose and need of the proposed Project support the primary goals of the 2017 Clean Air Plan by reducing passenger rail travel time between Oakland and San Jose and throughout the larger area to increase ridership on transit, ease congestion on the Bay Area's roadways, and reduce automobile commutes. Increasing transit ridership, easing congestion, and reducing commute time will improve air quality and reduce greenhouse gases in the BAAQMD region, thus helping BAAQMD meet state and national air quality standards. The proposed Project will also improve service between Northern California markets by enhancing connections between high demand destinations, overcoming existing geographic service gaps between job centers and affordable housing on the San Francisco Peninsula and the Capitol Corridor route. Access to affordable housing is one of the multi-layered issues that affect air quality,

and the proposed Project will help bridge the gap, improve air quality, and help BAAQMD reach their GHG emissions reduction goals.

2. **Does the project include applicable control measures from the AQP?** To meet the primary goals, the 2017 Clean Air Plan recommends specific control measures and actions. These control measures are grouped into various categories and include stationary source measures, mobile-source measures, and transportation control measures.

   The proposed Project will create a more direct passenger rail route and reduce rail travel time between Oakland and San Jose, facilitating more auto-competitive travel times for intercity passenger rail trips. The proposed Project will also create new connections to Transbay transit services and destinations on the San Francisco Peninsula and facilitate the separation of passenger rail service and freight rail operations in southern Alameda County, improving operations for both and supporting the economic vitality of the region. As such, the proposed Project directly supports and advances measure TR4: Local and Regional Rail Service, which carries forward a measure from the 2010 Clean Air Plan (TCM-A2: Improve Local and Regional Rail Service). The other control measures from the 2017 Clean Air Plan apply to other, unrelated types of projects, such as those involving stationary sources or land use projects and are thus not applicable to the proposed Project.
3. **Does the project disrupt or hinder implementation of any AQP control measures?** The proposed Project does not hinder the implementation of any control measures in the 2017 Clean Air Plan. As stated above, the Project supports measure TR4: Local and Regional Rail Service, and this is the only control measure applicable to the proposed Project. The other measures pertain to other types of projects such as those involving stationary sources or land use development projects.

Based on the discussion above, the proposed Project will support the primary goals of the 2017 Clean Air Plan, supports all applicable control measures, and does not disrupt or hinder the implementation of any control measures. Thus, the proposed Project will not conflict with or obstruct implementation of the 2017 Clean Air Plan, and this impact is less than significant.

### 3.4.6.2 Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

#### No Project Alternative

**No Impact.** Under the No Project Alternative, the Capitol Corridor passenger rail service between Oakland and San Jose would not be relocated from the Niles Subdivision to the Coast Subdivision. Capitol Corridor passenger trains and UPRR freight trains would continue to operate based on current routes with no changes to connectivity or rail efficiency. As discussed above, annual growth for rail traffic would occur in future years. No construction-related criteria pollutants would be generated under the No Project Alternative because no passenger rail service would be relocated. In the existing conditions, criteria pollutants resulting from diesel locomotive operation are currently present in the project area from freight and passenger rail operation. The criteria pollutant emissions would continue in the future; however, as noted above, the In-Use Locomotive Regulation will result in lower-emitting locomotives in future years. Therefore, there would be no impact.

## Proposed Project

### Construction

**Less than Significant Impact with Mitigation Incorporated.** As noted in Section 3.4.4, Affected Environment, Alameda County is currently designated as a nonattainment area for federal ozone and $PM_{2.5}$ standards, and nonattainment for state ozone, $PM_{10}$, and $PM_{2.5}$ standards. Construction of the Proposed Project has the potential to create air quality impacts through the use of heavy-duty construction equipment, worker vehicle trips, truck hauling trips, and locomotive trips. Additionally, fugitive emissions would result from site grading and asphalt paving. Criteria pollutant emissions generated by these sources were quantified using emission factors from CalEEMod, EMFAC2021, AP-42, and other sources, as described in Section 3.5.4, Methods for Evaluating Impacts.

The total amount, duration, and intensity of construction activity could have a substantial effect on the amount of construction emissions, their concentrations, and the resulting impacts occurring at any one time. Consequently, the emission forecasts in this analysis are a conservative estimate, because it is based on a relatively large amount of construction occurring in a relatively intensive and overlapped schedule. If construction is delayed or occurs over a longer period, emissions could be reduced because of (1) a more modern and cleaner-burning construction equipment fleet mix, and/or (2) a less intensive and overlapping buildout schedule (i.e., fewer daily emissions occurring over a longer period).

Table 3.4-6 summarizes estimated unmitigated construction-related emissions in the BAAQMD in pounds per day. As discussed above in *Supplemental Thresholds under Section 3.4.3.4*, BAAQMD has identified project-level mass emission thresholds to evaluate impacts on air quality that are inclusive of past, present, and future projects. The mass emissions thresholds, therefore, represent the maximum emissions the proposed Project may generate before contributing to a cumulative impact on regional air quality. The emissions shown in Table 3.4-6 assume implementation of BMP AQ-1, which is application of BAAQMD's Basic Construction Mitigation Measures to reduce fugitive dust.

As shown in Table 3.4-6, unmitigated construction emissions would exceed BAAQMD's daily $NO_X$ threshold during all three years of construction. No other pollutant would exceed the BAAQMD thresholds. Due to the exceedances of $NO_X$ shown in Table 3.4-6, emissions from proposed Project construction may contribute to a cumulatively considerable net increase of a criteria pollutant within the SFBAAB for which the region is designated a nonattainment area. This is a potentially significant impact.

Mitigation is required to reduce $NO_X$ emissions. Mitigation Measure AQ-1 reduces emissions from off-road equipment and requires engines greater than 25 horsepower to meet Tier 4 emission standards. With construction equipment meeting Tier 4 standards, the rate of exhaust emissions will be substantially reduced relative to the average equipment fleet. Similarly, Mitigation Measure AQ-2 would reduce emissions from locomotives that would be used during construction to deliver materials, because it requires advanced emissions controls for locomotives used to deliver materials to the proposed Project site. In accordance with Mitigation Measure AQ-2, locomotives will be equipped with engines that meet or exceed Tier 4 emissions standards. Additionally, compliance with BAAQMD's best management practices for dust control (BMP AQ-1) would also be required to mitigate fugitive dust emissions. Refer to Section 3.4.5, Best Management Practices, for more information on BMP AQ-1.

Table 3.4-6 also shows the mitigated emissions in the BAAQMD with the implementation of Mitigation Measures AQ-1 Implement advanced emissions controls for off-road equipment, AQ-2 Implement advanced emissions controls for locomotives used for construction, and BMP AQ-1 Implement BAAQMD Basic Construction Mitigation Measures. With these mitigation measures and best management practices, the emissions to construct the proposed Project would be less than the pollutant thresholds for all years of construction. As shown in Table 3.4-6, the NOx emissions for the proposed Project would be reduced to below the threshold.

As discussed below with respect to the proposed Project's operational phase, there would be a net reduction in most pollutants once operations begin, because the increased passenger ridership will result in reduced VMT. The net reduction in NOx emissions would be between 1 to 2 lbs per day for the entire operational phase, relative to the No Project Alternative. Thus, with Mitigation Measures AQ-1 and AQ-2, the proposed Project would not result in any exceedances of the pollutant thresholds during the construction period, and there would be a net reduction in daily NOx emissions during the operational period, which would occur for a much longer duration than construction.

The use of tier 4 engines in the construction equipment and locomotives would reduce the amount of $NO_X$ that is emitted from the equipment exhaust, and the BAAQMD best management practices to control dust would minimize fugitive dust emissions during construction. Additionally, during proposed Project operations, there would be a net reduction in NOx emissions. Because NOx emissions during construction would be below the threshold for all alternatives, this impact is less than significant with mitigation.

**Table 3.4-6: Estimated Unmitigated and Mitigated Construction Criteria Pollutant Emissions from Proposed Project Construction**

| Pollutant Standards | Unmitigated Daily Emissions (Pounds per Day)[a] | | | | | | | | Mitigated Daily Emissions (Pounds per Day)[a] | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ROG | NOx | CO | $PM_{10}$ | $PM_{10}$ | $PM_{2.5}$ | $PM_{2.5}$ | SO2 | ROG | NOx | CO | $PM_{10}$ | $PM_{10}$ | $PM_{2.5}$ | $PM_{2.5}$ | $SO_2$ |
| **Year 1** | 14.8 | **204.7** | 110.1 | 5.0 | 20.9 | 4.5 | 6.4 | 0.4 | 4.7 | 51.0 | 131.7 | 0.9 | 20.9 | 0.7 | 6.4 | 0.4 |
| **Year 2** | 13.9 | **192.6** | 99.8 | 4.5 | 17.7 | 4.2 | 5.1 | 0.3 | 4.5 | 47.5 | 113.9 | 0.8 | 17.7 | 0.7 | 5.1 | 0.3 |
| **Year 3** | 12.6 | **185.1** | 87.4 | 4.2 | 7.8 | 3.9 | 2.3 | 0.3 | 3.8 | 42.7 | 95.8 | 0.7 | 7.8 | 0.6 | 2.3 | 0.3 |
| **Threshold[b,c]** | **54** | **54** | **N/A** | **82** | **BMP** | **82** | **BMP** | **N/A** | **54** | **54** | **N/A** | **82** | **BMP** | **82** | **BMP** | **N/A** |

Notes:
a Unmitigated emissions include implementation of BMP AQ-1. Mitigated emissions include implementation of BMP AQ-1 and Mitigation Measures AQ-1 and AQ-2.
b Exceedances of air district thresholds are shown in bold underline.
c BMP = best management practice

### Operations

**Less Than Significant Impact.** Operation of proposed Project has the potential to create air quality impacts through operation of the new Ardenwood Station. However, proposed Project operations would also improve existing passenger rail, which would reduce single-occupancy VMT in the region. Criteria pollutant emissions and reductions generated by these sources were quantified for 2025 and 2040 conditions to evaluate the changes in regional emission as a result of the proposed Project. As noted above in Section 3.4.3 *Methods for Evaluating Impacts*, emissions from the station operations include combustion emissions from landscaping equipment and an emergency generator and off-gassing emissions from the use of consumer products and architectural coatings. Additionally, the analysis is conservative, because it does not account for any emissions reductions that may occur from the removal of Capitol Corridor service at the two existing stations.

Table 3.4-7 summarizes the difference in operational emissions for two years between the No Project alternative and the Proposed Project Alternative. As shown, the proposed Project would result in a net reduction in vehicle-related emissions and a minor increase in emissions from station operations. It should also be noted that emissions have been quantified for two years, but emissions would occur in each year between 2025 and 2040.

Relocating operation of CCJPA passenger locomotives from the Niles to the Coast Subdivision under the proposed Project is expected to reduce net operational emissions from current rates. As addressed in Data Sources: Capitol Corridor Locomotives, the proposed relocation of passenger rail to the Coast Subdivision has fewer turns and station stops, which would reduce the need for locomotives to travel at less efficient engine notches. The combination of this more efficient engine use and the shorter trip duration under the proposed Project would reduce fuel consumption and lessen emissions from existing conditions. Due to variables previously mentioned these improvements have not been quantified.

The overall net effect in 2025 would be an emissions decrease, or benefit, for all pollutants. In 2040, however, the effect from reducing VMT becomes less beneficial per mile reduced, because vehicles will become lower emitting in future years from improved technology, more stringent standards and regulations, and turnover of the existing vehicle fleet. As such, there is a lesser beneficial effect in 2040 for most pollutants, except for $PM_{10}$ and $PM_{2.5}$.[3] Overall, the net effect in 2040 would be a reduction in all pollutants except for ROG, which would be a minor increase. In both years and for all pollutants, the net operational emissions do not exceed the BAAQMD thresholds, because emissions would be net negative except for one pollutant (ROG) in 2040.

[3] Dust-related emissions are not affected by improvements in vehicle exhaust. Dust-related emissions are correlated with VMT; thus, 2040 has higher VMT than 2025, and the proposed Project results in a greater reduction in dust-related emissions in 2040 compared to 2025.

**Table 3.4-7: Estimated Criteria Pollutant Emissions from Proposed Project Operations**

| Operational Year, Scenario, and Emissions Source | Daily Emissions (Pounds per Day) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | ROG | $NO_x$ | CO | $PM_{10}$ | | | $PM_{2.5}$ | | | $SO_2$ |
| | | | | Exhaust | Dust | Total | Exhaust | Dust | Total | |
| **2025** | | | | | | | | | | |
| **No Project Alternative Total** | **4,396** | **21,947** | **323,688** | **626** | **147,456** | **148,082** | **576** | **36,562** | **37,138** | **1,308** |
| On-Road Vehicle Emissions | 4,396 | 21,947 | 323,688 | 626 | 147,456 | 148,082 | 576 | 36,562 | 37,138 | 1,308 |
| **Proposed Project Total** | **4,396** | **21,945** | **323,656** | **626** | **147,441** | **148,067** | **576** | **36,558** | **37,134** | **1,308** |
| On-Road Vehicle Emissions | 4,396 | 21,944 | 323,654 | 626 | 147,441 | 148,067 | 576 | 36,558 | 37,134 | 1,308 |
| Station Emissions | <1 | <1 | 2 | <1 | - | <1 | <1 | - | <1 | <1 |
| **Net Change – 2025[a]** | **-0.4** | **-2** | **-33** | **-0.03** | **-16** | **-16** | **-0.02** | **-4** | **-4** | **-0.1** |
| **2040** | | | | | | | | | | |
| **No Project Alternative Total** | **1,866** | **10,895** | **242,722** | **299** | **166,658** | **166,957** | **275** | **41,345** | **41,620** | **1,169** |
| **On-Road Vehicle Emissions** | 1,866 | 10,895 | 242,722 | 299 | 166,658 | 166,957 | 275 | 41,345 | 41,620 | 1,169 |
| **Proposed Project Total** | **1,866** | **10,895** | **242,692** | **299** | **166,637** | **166,935** | **275** | **41,340** | **41,615** | **1,169** |
| **On-Road Vehicle Emissions** | 1,865 | 10,894 | 242,691 | 299 | 166,637 | 166,935 | 275 | 41,340 | 41,615 | 1,169 |
| **Station Operations** | < 1 | < 1 | 2 | < 1 | - | < 1 | < 1 | - | < 1 | < 1 |
| **Net Change – 2040 [a]** | **0.2** | **-1** | **-30** | **< 0.1** | **-21** | **-21** | **< 0.1** | **-5** | **-5** | **-0.1** |
| **Threshold** | **54** | **54** | **N/A** | **N/A** | **N/A** | **82** | **N/A** | **N/A** | **82** | **N/A** |

Notes:
a Negative values represent a net reduction in emissions.

### 3.4.6.3 Expose sensitive receptors to substantial pollutant concentrations?

## No Project Alternative

**No Impact.** Under the No Project Alternative, the Capitol Corridor passenger rail service between Oakland and San Jose would not be relocated from the Niles Subdivision to the Coast Subdivision. Capitol Corridor passenger trains and UP freight trains would continue to operate based on current routes with no changes to connectivity or rail efficiency. As discussed above, annual growth for rail traffic would occur in future years. No construction-related pollutant concentrations would be generated under the No Project Alternative, because no passenger rail service would be relocated. In the existing conditions, pollutant concentrations resulting from diesel locomotive operation are currently present in the project area as trains pass by. These pollutant concentrations would continue in the future; however, as noted above, the In-Use Locomotive Regulation will result in lower-emitting locomotives in future years. Therefore, there would be no impact.

## Proposed Project

#### Toxic Air Contaminants and Particulate Matter

As discussed above, the Project proposes to reroute the Capitol Corridor passenger rail service to the UPRR Coast Subdivision from the UPRR Niles Subdivision between Oakland Coliseum and Newark Junction and to construct a new train station, Ardenwood Station, along the Coast Subdivision. The construction of the new Ardenwood Station as well as the improvements to the Coast Subdivision would exceed the adopted BAAQMD regional thresholds, even with implementation of the mitigation measures and best management practices noted above. In addition, the proposed Project would have a regional benefit during operations by reducing criteria pollutant emissions. However, the rerouting of the Capitol Corridor passenger rail service, as well as the construction of the new Ardenwood Station, may potentially result in a localized TAC impact from DPM emissions during construction and operations. Thus, the Ardenwood Station on the Coast Subdivision was selected for the construction HRA and operational HRA to analyze the worst-case localized TAC impacts at sensitive receptors. The Ardenwood Station area was chosen because construction and operational activities would occur directly upwind from nearby sensitive receptor groups and an increase in Capitol Corridor passenger rail would affect receptors near the Coast Subdivision.

The Ardenwood Station would be a new commuter train station and platform with an emergency generator, on-road vehicle trips to and from the station, and Capitol Corridor passenger train trips and idling activity. The construction of the Ardenwood Station would be the primary driver of TAC emissions at the Coast Subdivision

The results from the construction and operational HRA that was conducted are discussed below. Modeling inputs, figures, and results can be found in Appendix B.

*Construction*

**Less than Significant with Mitigation Incorporated.** Construction of the proposed Project would have the potential to create inhalation health risks, which may exceed local significance thresholds for increased cancer and non-cancer health risk at receptor locations adjacent to the tracks. As

noted in *Section 3.4.4 Affected Environment*, the cancer risk from exposure to diesel exhaust is much higher than the risk associated with any other air toxic from construction of the proposed Project. Accordingly, the analysis of health risks from construction focuses on DPM emissions and $PM_{2.5}$ emissions, as recommended by BAAQMD, OEHHA, and CARB.

The local topography and meteorology can have a substantial effect on DPM and $PM_{2.5}$ air concentrations and the resulting exposure. Consequently, DPM and $PM_{2.5}$ concentrations were estimated using conservative air quality modeling options and representative local meteorological conditions.[4] Modeling results are reported based on the annual average concentration collected from 5 years of modeling. Because of these conservative assumptions, actual health risks could be less than the projected exposures.

Table 3.4-8 summarizes estimated mitigated maximum individual cancer risk and chronic health hazard from construction of the proposed Project. Refer to Appendix B for modeling inputs, calculations, and results.

**Table 3.4-8: Estimated Maximum Inhalation Cancer Risk, Chronic Hazard Index, and $PM_{2.5}$ Concentration from Mitigated Project Construction**

| Modeled Area | Receptor Group | Exposure Duration (years) | Cancer Risk (per million) | Chronic Hazard Index | $PM_{2.5}$ Concentration ($\mu g/m^3$) |
|---|---|---|---|---|---|
| **Ardenwood Station/Coast Subdivision Area** | Resident | 1.42 | 3.10 | 0.005 | 0.08 |
| | School | 1.42 | 0.6 | 0.005 | 0.06 |
| | Worker | 1.42 | 0.6 | 0.007 | 0.08 |
| | Recreational | 1.42 | <0.01 | <0.001 | <0.01 |
| **BAAQMD Threshold** | | | 10.0 | 1.0 | 0.3 |
| **Exceeds Threshold** | | | No | No | No |

Notes: Refer to Appendix B for more details.
Modeling assumes implementation of BMP AQ-1 and MM AQ-1 and AQ-2.
µg/m3 = micrograms per cubic meter.
< = less than.

As shown in Table 3.4-8, the construction of the proposed Project would not exceed the 10 per million cancer risk threshold, the chronic HI hazard threshold or the $PM_{2.5}$ concentration thresholds for all sensitive receptors types with implementation of BMP AQ-1 and MM AQ-1 through AQ-2, at the Ardenwood Station or Coast Subdivision. Thus, construction of the proposed Project would not result in health risks or $PM_{2.5}$ concentrations that exceed the applicable thresholds. Thus, impacts would be less than significant with incorporation of BMP AQ-1 and MM AQ-1 through AQ-2.

[4] The HRA modeling area selected is located upwind from nearby and adjacent sensitive receptors.

*Operations*

**Less than significant.** During operations, the proposed Project would generate DPM and $PM_{2.5}$ emissions from the introduction of Capitol Corridor passenger trains on the Coast Subdivision and an emergency generator at Ardenwood station. $PM_{2.5}$ exhaust and fugitive dust emissions would be generated from on-road travel of passenger commuters to the Ardenwood station as well as the emergency generator. These activities could expose off-site receptors to incremental increases in health risks. Table 3.4-9 highlights the annual emission from the operational sources that would be located at Ardenwood Station and the Coast Subdivision.

**Table 3.4-9: Operational HRA Sources Emission Inventories**

| Project Segment | Scenario | AERMOD Source Name | DPM ($PM_{10}$) emissions (lbs./year)[1] | $PM_{2.5}$ emissions (lbs./year)[2] |
|---|---|---|---|---|
| **Ardenwood Station/Coast Subdivision Area** | | | | |
| **Coast Subdivision** | Project | C_PASS_D | 7.33 | 7.11 |
| **Ardenwood Station** | Project | Idle_East | 6.95 | 6.95 |
| | Project | Idle_West | 6.95 | 6.95 |
| | Project | EMGEN | 1.04 | 1.04 |
| | Project | ONROAD | 0.06 | 79.11 |

Notes:
1. Only diesel $PM_{10}$ exhaust emissions were modeled as DPM, consistent with BAAQMD Guidance.
2. $PM_{2.5}$ emissions include all exhaust emissions from all fuel types and dust emissions from vehicle travel.

The AERMOD source annual emissions shown in Table 3.4-9 were imported into the CARB HARP2 ADMRT tool, along with the AERMOD plot files, to calculate Ground Level Concentrations (GLC) at the nearby sensitive receptors. With the GLC calculated, OEHHA factors were selected to model the following HRA scenarios for operations: 1) 30-year residential exposure, 2) 12-year school exposure, 3) 25-year worker exposure, and 4) 30-year recreational exposure; refer to Appendix B for more details. Table 3.4-10 presents the operational health risk impacts for the Ardenwood Station/Coast Subdivision area.

**Table 3.4-10: Estimated Maximum Inhalation Cancer Risk, Chronic Hazard Index, and $PM_{2.5}$ Concentration from Project Operations**

| Modeled Area | Receptor Group | Exposure Duration (years) | Cancer Risk (per million) | Chronic Hazard Index | $PM_{2.5}$ Concentration ($\mu g/m^3$) |
|---|---|---|---|---|---|
| **Ardenwood Station/Coast Subdivision Area** | Resident | 30 | 1.3 | <0.001 | 0.016 |
| | School | 12 | 1.5 | 0.002 | 0.024 |
| | Worker | 25 | 0.9 | 0.001 | 0.023 |
| | Recreational | 30 | 0.03 | <0.001 | 0.002 |
| **BAAQMD Threshold** | | | 10.0 | 1.0 | 0.3 |
| **Exceeds Threshold** | | | No | No | No |

Notes: Refer to Appendix B for more details.
$\mu g/m^3$ = micrograms per cubic meter.
< = less than.

As shown in Table 3.4-10, the operations of the Ardenwood Station and Coast Subdivision would not exceed the adopted BAAQMD thresholds for cancer risk, chronic HI, and $PM_{2.5}$ concentrations. Thus, the proposed Project would result in a less than significant operational TAC risk at the Ardenwood station.

*Construction and Operations*

**Less than Significant with Mitigation Incorporated.** Table 3.4-11 highlights the construction and operation health risks for the Ardenwood Station and Coast Subdivision as part of the proposed Project. As shown in Table 3.4-11, the combination of the Project's construction cancer risk and operational cancer risk at the proposed Coast Subdivision and Ardenwood Station would not exceed the adopted BAAQMD thresholds for cancer risk, chronic hazard index or $PM_{2.5}$ concentration. Thus, the combination of the Proposed Project's construction and operations would not result in a significant and unavoidable TAC impact.

**Table 3.4-11: Estimated Maximum Inhalation Cancer Risk, Chronic Hazard Index, and $PM_{2.5}$ Concentration from Mitigated Project Construction and Operations**

| Modeled Area | Receptor Group | Exposure Duration (years) | Cancer Risk (per million) | Chronic Hazard Index | $PM_{2.5}$ Concentration ($\mu g/m^3$) |
|---|---|---|---|---|---|
| **Ardenwood Station/Coast Subdivision Area** | Resident | see note 1 | 3.6 | 0.005 | 0.08 |
| | School | see note 1 | 1.7 | 0.005 | 0.06 |
| | Worker | see note 1 | 0.8 | 0.007 | 0.08 |
| | Recreational | see note 1 | 0.03 | <0.001 | <0.01 |
| **BAAQMD Threshold** | | | 10.0 | 1.0 | 0.3 |
| **Exceeds Threshold** | | | No | No | No |

Notes: Refer to Appendix B for more details.
Modeling assumes implementation of BMP AQ-1 and MM AQ-1 and AQ-2.
$\mu g/m^3$ = micrograms per cubic meter.
< = less than.
[1]*The Proposed Project included 1.42 years of construction and the remainder as operations. For operations, this would be 28.58 years for residential and recreational receptors, 23.58 years of exposure for worker receptors, and 10.58 years for school receptors.*

***Localized Carbon Monoxide Impacts***

*Operations (not applicable to Construction)*

**Less Than Significant Impact.** During operations, continuous engine exhaust may elevate localized CO concentrations, resulting in "hot spots." Receptors exposed to these CO hot spots may have a greater likelihood of developing adverse health effects. CO hot spots are typically observed at heavily congested intersections where a substantial number of gasoline-powered vehicles idle for prolonged durations throughout the day. The BAAQMD's screening criteria for CO hot spots is 44,000 vehicles per hour at affected intersections and 24,000 vehicles per hour at affected intersections where vertical or horizontal mixing is limited (i.e., a tunnel).

In order to use the BAAQMD's quantitative screening criteria to evaluate CO hot spots, a project must be consistent with an applicable Congestion Management Program (CMP). In the proposed Project area, none of the affected intersections have been identified as CMP intersections. Consequently, the proposed Project would not conflict with an applicable CMP, and BAAQMD quantitative screening values are used to evaluate the potential to create CO hot spots.

Peak hour traffic volume data at the intersections in the proposed Project area, provided by the traffic engineers, indicate that volumes at all intersections would be below both the 44,000 and 24,000 vehicle per hour levels. The maximum intersection volume with the proposed Project would occur in the PM peak hour in 2040 at the intersection of Ardenwood Boulevard and Paseo Padre Parkway and would be 7,119 vehicles per hour, which is substantially below the screening levels

(Fehr and Peers 2021). As a result, the additional vehicle trips associated with the proposed Project would not result in a localized violation of the CAAQS for CO.

***Asbestos-Containing Materials***

*Construction (not applicable to Operations)*

**Less Than Significant Impact.** Demolition of existing structures results in fugitive dust and other particulates that may disperse to adjacent sensitive receptor locations. Asbestos-containing materials (ACM) were commonly used as fireproofing and insulating agents prior to the 1970s. The U.S. Consumer Product Safety Commission banned use of most ACM in 1977 due to their link to mesothelioma. However, buildings constructed prior to 1977 that would be demolished by the Proposed Project may have used ACM and could expose receptors to asbestos, which may become airborne with other particulates during demolition.

Construction contractors would also be required to comply with the BAAQMD's Asbestos Airborne Toxic Control Measure for Construction and Grading Operations, which requires implementation of dust control measures to limit the potential for airborne asbestos. The demolition of asbestos-containing materials is subject to the limitations of the National Emissions Standards for Hazardous Air Pollutants (40 C.F.R. Parts 61 and 63) regulations and would require an asbestos inspection. Compliance with the asbestos National Emissions Standards for Hazardous Air Pollutants regulations would be mandatory in the event ACM is found in any of the existing structures. Additionally, the BAAQMD would be consulted before demolition begins. Therefore, the impact of exposure of sensitive receptors to increased asbestos during construction would be less than significant.

### 3.4.6.4 Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

#### No Project Alternative

**No Impact.** Under the No Project Alternative, the Capitol Corridor passenger rail service between Oakland and San Jose would not be relocated from the Niles Subdivision to the Coast Subdivision. Capitol Corridor passenger trains and UPRR freight trains would continue to operate based on current routes with no changes to connectivity or rail efficiency. As discussed above, annual growth for rail traffic would occur in future years. No construction odors would occur under the No Project Alternative, because no passenger rail service would be relocated. In the existing conditions, odors resulting from diesel fuel combustion currently occur in the project area as trains pass by. These odors would continue in the future but would remain short-term. Therefore, there would be no impact.

#### Proposed Project

*Construction and Operations*

**Less Than Significant Impact.** Land uses associated with odor complaints typically include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting facilities, refineries, landfills, dairies, and fiberglass molding facilities (CARB 2005).

Sources of odor during construction include diesel exhaust from construction equipment and asphalt paving. Odors from equipment exhaust would be localized and generally confined to the immediate area surrounding the proposed Project site. The proposed Project would utilize typical construction techniques, and the equipment odors would be typical of most construction sites and temporary in nature.

The Project operations do not include any uses identified by the CARB as being associated with odors and therefore would not produce objectionable odors. Any odors resulting from diesel fuel combustion along either route would be short-term, occurring as trains pass by, and are not considered significant during operations. In addition, implementation of the proposed Project would not introduce a new type of odor source in the proposed Project area and would not site sensitive receptors near sources of odor. Short-term odors from locomotives are already an existing part of the ambient environment. Accordingly, proposed Project operation is not expected to result in odor impacts that would adversely affect a substantial number of people. This impact would be less than significant.

## 3.4.7 Mitigation Measures

The following mitigation measures associated with air quality will be implemented.

**MM AQ-1: Implement Advanced Emissions Controls for Off-Road Equipment.**

CCJPA will require all off-road equipment greater than 25 horsepower have engines that meet or exceed either EPA or CARB Tier 4 final off-road emission standards.

**MM AQ-2: Implement Advanced Emissions Controls for Locomotives Used for Construction.**

CCJPA will require all diesel-powered locomotives used for construction to have engines that meet or exceed either EPA or CARB Tier 4 locomotive emission standards.

## 3.4.8 Cumulative Impact Analysis

The cumulative RSA for air quality is comprised of the same components as described above – the local RSA (proposed Project footprint plus areas within 1,000 feet) and the regional RSA (the SFBAAB air basin). The cumulative RSA includes current and reasonably foreseeable transportation improvements and infill development projects. The cumulative RSA would capture construction and operational impacts on criteria pollutants emissions generated from the combined effects of planned projects and the proposed Project.

Construction and operation of other planned projects would result in criteria pollutant emissions. In general, projects involving public transit would provide alternatives to vehicular travel and usually result in a net reduction in emissions relative to vehicular travel. Other regional transportation projects would increase vehicular emissions if such projects result in induced traffic. If cumulative transportation projects result in a net decrease in VMT, they would reduce criteria pollutant emissions. Operation of land development projects would increase criteria pollutant emissions from increased vehicular travel and other sources. Additionally, projects that emit TACs could result in significant health impacts on people living and working in close proximity to those projects.

**Cumulative impact related to conflicting with or obstructing implementation of the applicable air quality plan.**

**Less than Significant Impact**. The analysis of consistency with the 2017 Clean Air Plan is inherently cumulative. As discussed above in Section 3.4.6.1, the proposed Project would not conflict with the 2017 Clean Air Plan. Thus, because the proposed Project would not conflict with the 2017 Clean Air Plan, cumulative impacts would be less than significant.

**Cumulatively considerable net increase in any criteria pollutants.**

**Less than Significant Impact with Mitigation Incorporated**. During construction, all planned projects in the proposed Project area and within the SFBAAB would emit criteria pollutants from either construction and/or during operational activities. Although there may be planned projects occurring near the proposed Project, the air quality analysis above is inherently cumulative. In the discussion of Supplemental Thresholds under Section 3.4.3.4 above, it is noted that the BAAQMD considered the emission levels for which a project's individual emissions would be cumulatively considerable while developing the thresholds of significance for air pollutants. As such, discussing individual planned projects in the RSA is not necessary for the analysis of regional air quality impacts. As discussed above in 3.4.6.2, after implementation of MM AQ-1: Implement advanced emissions controls for off-road equipment, and MM AQ-2: Implement advanced emissions controls for locomotives used for construction, the proposed Project would not exceed the established BAAQMD regional construction threshold for any pollutant. The proposed Project would also not exceed the operational thresholds and would result in a net reduction of most pollutants during the operational period. The BAAQMD thresholds are inherently cumulative; thus, the proposed Project would not slow the regional process toward attaining the NAAQS and would result in a less than significant impact. Cumulative criteria pollutant emissions would be less than significant with mitigation during construction and less than significant during operations.

**Cumulatively considerable contribution to an impact related to Toxic Air Contaminant emissions.**

**Less than Significant Impact with Mitigation Incorporated.** According to BAAQMD's CEQA Guidelines, combined risk levels should be determined for all TAC sources within 1,000 feet of a Project site and compared to BAAQMD's cumulative health risk thresholds (BAAQMD 2023).

Nearby TAC sources as well as the proposed Project's construction and operational emissions could contribute to a cumulative health risk for sensitive receptors near the proposed Project site. BAAQMD's inventory of stationary health risks were used to estimate the combined levels of health risk from existing stationary sources in combination with the proposed Project. Geographic information system (GIS) raster files provided by BAAQMD were used to estimate roadway and railway emissions (BAAQMD 2022b). The methods used to estimate proposed Project-related TAC emissions are described above and in Appendix B. The results of the cumulative impact assessment for the proposed Project are summarized in Tables 3.4-11 through 3.4-15 for residential, school, worker, and recreational receptors, respectively. The tables show the health risk values for the maximally affected receptors and the health risk contributions from existing sources. The sum of the highest proposed Project's risk and existing background health risk values are compared to BAAQMD cumulative thresholds. Additional data on individual background contributions from existing sources are included in Appendix B.

As show in Table 3.4-12 through Table 3.4-15, the proposed Project would not exceed the BAAQMD cumulative cancer risk, chronic HI risk or $PM_{2.5}$ concentration thresholds. Thus, cumulative impacts for all sensitive receptor types would not be cumulatively significant.

**Table 3.4-12: Maximum Mitigated Cumulative Health Risks - Residential**

| Source | Maximum Affected Residential Receptor | | |
|---|---|---|---|
| | Cancer Risk (per million) | Non-Cancer Chronic Hazard Index | Annual $PM_{2.5}$ Concentration ($\mu g/m^3$) |
| **Contribution from Existing Sources** | | | |
| **Stationary[1]** | - | - | - |
| **Roadway** | 9.2 | 0.029 | 0.191 |
| **Rail** | 5.3 | 0.001 | 0.007 |
| **Existing Total** | 14.5 | 0.03 | 0.20 |
| **Contribution from Project** | | | |
| **Project Construction** | 3.1 | 0.005 | 0.08 |
| **Project Construction + Operations** | 3.6 | 0.005 | 0.08 |
| **Existing + Construction + Operations (cancer only)** | 18.1 | - | - |
| **Existing + Project Chronic HI/annual $PM_{2.5}$** | - | 0.035 | 0.28 |
| **BAAQMD Cumulative Thresholds** | 100 | 10 | 0.8 |
| **Exceeds Thresholds?** | No | No | No |

Notes:
$\mu g/m^3$ = micrograms per meter cube;
$PM_{2.5}$ = fine particulate matter.

1. There are no stationary sources within 1,000 feet of the most impacted residential receptor

**Table 3.4-13: Maximum Mitigated Cumulative Health Risks - School**

| Source | Maximum Affected Residential Receptor | | |
|---|---|---|---|
| | Cancer Risk (per million) | Non-Cancer Chronic Hazard Index | Annual $PM_{2.5}$ Concentration ($\mu g/m^3$) |
| **Contribution from Existing Sources** | | | |
| **Stationary** | 27.4 | 0.12 | 0.04 |
| **Roadway** | 12.1 | 0.034 | 0.21 |
| **Rail** | 7.2 | 0.002 | 0.01 |
| **Existing Total** | 46.7 | 0.15 | 0.26 |
| **Contribution from Project** | | | |
| **Project Construction** | 0.6 | 0.005 | 0.08 |
| **Project Construction + Operations** | 1.7 | 0.005 | 0.06 |
| **Existing + Construction + Operations (cancer only)** | 48.4 | - | - |
| **Existing + Project Chronic HI/annual $PM_{2.5}$** | - | 0.155 | 0.32 |
| **BAAQMD Cumulative Thresholds** | 100 | 10 | 0.8 |
| **Exceeds Thresholds?** | No | No | No |

Notes:
$\mu g/m^3$ = micrograms per meter cube;
$PM_{2.5}$ = fine particulate matter.

**Table 3.4-14: Maximum Mitigated Cumulative Health Risks - Worker**

| Source | Maximum Affected Residential Receptor | | |
|---|---|---|---|
| | Cancer Risk (per million) | Non-Cancer Chronic Hazard Index | Annual $PM_{2.5}$ Concentration ($\mu g/m^3$) |
| **Contribution from Existing Sources** | | | |
| **Stationary** | 27.4 | 0.12 | 0.041 |
| **Roadway** | 13.7 | 0.03 | 0.23 |
| **Rail** | 7.4 | 0.00.2 | 0.01 |
| **Existing Total** | 48.6 | 0.15 | 0.277 |
| **Contribution from Project** | | | |
| **Project Construction** | 0.6 | 0.007 | 0.08 |
| **Project Construction + Operations** | 0.8 | 0.007 | 0.08 |
| **Existing + Construction + Operations (cancer only)** | 49.4 | - | - |
| **Existing + Project Chronic HI/annual $PM_{2.5}$** | - | 0.157 | 0.36 |
| **BAAQMD Cumulative Thresholds** | 100 | 10 | 0.8 |
| **Exceeds Thresholds?** | No | No | No |

Notes:
$\mu g/m^3$ = micrograms per meter cube;
$PM_{2.5}$ = fine particulate matter.

**Table 3.4-15: Maximum Mitigated Cumulative Health Risks - Recreational**

| Source | Maximum Affected Residential Receptor | | |
|---|---|---|---|
| | Cancer Risk (per million) | Non-Cancer Chronic Hazard Index | Annual $PM_{2.5}$ Concentration ($\mu g/m^3$) |
| **Contribution from Existing Sources** | | | |
| **Stationary[1]** | - | - | - |
| **Roadway** | 8.1 | 0.25 | 0.177 |
| **Rail** | 1.4 | <0.01 | 0.002 |
| **Existing Total** | 9.5 | 0.03 | 0.18 |
| **Contribution from Project** | | | |
| **Project Construction** | <0.01 | <0.001 | <0.01 |
| **Project Construction + Operations** | 0.03 | <0.001 | <0.01 |
| **Existing + Construction + Operations (cancer only)** | 9.5 | - | - |
| **Existing + Project Chronic HI/annual $PM_{2.5}$** | - | 0.03 | 0.18 |
| **BAAQMD Cumulative Thresholds** | 100 | 10 | 0.8 |
| **Exceeds Thresholds?** | No | No | No |

Notes:
$\mu g/m^3$ = micrograms per meter cube;
$PM_{2.5}$ = fine particulate matter.

1. There are no stationary sources within 1,000 feet of the most impacted recreational receptor.

**Emission of odors adversely affecting a substantial number of people.**

**Less than Significant.** Construction of cumulative projects, including the proposed Project, could result in emissions of odors in the form of diesel exhaust from construction equipment and vehicles. However, odors during construction would be short term, limited in extent at any given time, and distributed throuhout the area; therefore, they would not affect a substantial number of individuals.

The proposed Project operations do not include any uses identified by the CARB as being associated with odors and therefore would not produce objectionable odors. Any odors resulting from diesel fuel combustion along the route would be short-term, occurring as trains pass by, and are not considered significant during operations. As noted above, implementation of the proposed Project would not introduce a new type of odor source in the proposed Project area and would not site

sensitive receptors near sources of odor. Short-term odors from locomotives are already an existing part of the ambient environment. Accordingly, proposed Project operation is not expected to result in odor impacts that would adversely affect a substantial number of people. This impact would not be cumulatively considerable.

## 3.4.9 CEQA Significance Findings Summary Table

Table 3.4-16 provides a summary of the CEQA significance findings for air quality for the proposed Project.

**Table 3.4-16: CEQA Significance Findings**

| Question | Level of Significance Before Mitigation | Incremental Project Contribution to Cumulative Impacts | Mitigation | Level of Significance with Mitigation Incorporated | Incremental Project Cumulative Impact after Mitigation |
|---|---|---|---|---|---|
| **Would the project conflict with or obstruct implementation of the applicable air quality plan?** | LTS | NCC | N/A | LTS | NCC |
| **Would the project 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?** | S/M | CC | MM AQ-1<br>MM AQ-2 | LTS | CC |
| **Would the project expose sensitive receptors to substantial pollutant concentrations?** | S/M | CC | MM AQ-1<br>MM AQ-2 | LTS | CC |

| Question | Level of Significance Before Mitigation | Incremental Project Contribution to Cumulative Impacts | Mitigation | Level of Significance with Mitigation Incorporated | Incremental Project Cumulative Impact after Mitigation |
|---|---|---|---|---|---|
| **Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?** | LTS | NCC | N/A | LTS | NCC |

Notes: LTS = Less than Significant Impact, NI = No Impact, N/A = Not Applicable, SI = Significant Impact, S/M = Significant Impact but Mitigable to a Less than Significant Level, CC = Cumulatively Considerable, NCC = Not Cumulatively Considerable.

## 3.4.10 References

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# 3.5 Biological Resources

## 3.5.1 Introduction

This section describes the regulatory and environmental setting for biological resources, and it identifies potential temporary, permanent, and cumulative effects of the proposed Project during construction and operation. This section describes biological resources that are known to occur or have the potential to occur in the proposed biological resource study area (RSA).

## 3.5.2 Regulatory Setting

This section identifies federal, state, regional, and local laws, regulations, and orders relevant to the analysis of biological resources. This section also addresses the proposed Project's consistency with the regulations described herein.

### 3.5.2.1 Federal

#### Federal Endangered Species Act of 1973

The Federal Endangered Species Act (FESA) provides protective measures for federally listed threatened and endangered species, including their habitats, from unlawful take (16 U.S. Code [USC] Sections 1531–1544). The FESA defines take to mean "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Title 50, Part 222.102, of the Code of Federal Regulations (CFR) Section 222 further defines "harm" to include an act that actually kills or injures fish or wildlife, including through habitat modification and/or degradation or by significantly impairing essential behavioral patterns (i.e., feeding, spawning, rearing, migrating, feeding, or sheltering).

The FESA Section 7(a)(1) requires federal agencies to use their authority to further the conservation of listed species. Section 7(a)(2) requires consultation with the United States Fish and Wildlife Service (USFWS) or the National Marine Fisheries Service (NMFS) if a federal agency undertakes, funds, permits, or authorizes (termed the federal nexus) any action that may affect endangered or threatened species or designated critical habitat. For projects that may result in the incidental take of threatened or endangered species, or critical habitat, and that lack a federal nexus, a Section 10(a)(1)(b) incidental take permit (ITP) can be obtained from USFWS and/or NMFS.

#### Magnuson-Stevens Fishery Conservation and Management Act of 1976

The Magnuson-Stevens Act of 1976 (revised in 1996 and reauthorized in 2007) is the primary law governing marine fisheries management in U.S. federal waters. The primary objectives of the Act are to prevent overfishing, to rebuild overfished stocks, increase long-term economic and social benefits, and ensure a safe and sustainable supply of seafood.

Among other items, the Sustainable Fisheries Act revision in 1996 specifically outlined the responsibility of the U.S. to conserve and facilitate long-term protection of essential fish habitat (EFH), defined as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (16 USC 1801)."

Under the Sustainable Fisheries Act, federal agencies that fund, permit, or carry out activities that may adversely impact EFH are required to consult with NMFS regarding the potential adverse effects of project activities, as well as respond in writing to NMFS project-specific recommendations. EFH is described by Fishery Management Councils in amendments to Fishery Management Plans and is approved by the Secretary of Commerce acting through the NMFS (50 CFR 600.10) (NMFS 2004).

## Migratory Bird Treaty Act of 1918

Migratory birds are protected under the Migratory Bird Treaty Act (MBTA) of 1918 (16 USC Sections 703–711). The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 CFR Section 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR Section 21). In California, the species that are typically not covered by the MBTA include house sparrow (*Passer domesticus*), European starling (*Sturnus vulgaris*), and rock pigeon (*Columba livia*). Other introduced species are also not protected by the MBTA.

All raptors and their nests are protected from take or disturbance under the MBTA (16 U.S. Code, Section 703 et seq.).

## Bald and Golden Eagle Protection Act

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 USC Section 668). The act prohibits anyone without a permit issued by the Department of the Interior from "taking" bald eagles, including their parts, nests, or eggs.

## Executive Order 11990 Wetlands

Executive Order 11990 (May 24, 1977) directs all federal agencies to provide leadership and action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands in carrying out the agency's responsibilities for (1) acquiring, managing, and disposing of federal lands and facilities; and (2) providing federally undertaken, financed, or assisted construction and improvements; and (3) conducting federal activities and programs affecting land use, including but not limited to water and related land resources planning, regulating, and licensing activities.

## Executive Order 13112 Invasive Species

Executive Order 13112 (February 3, 1999) directs all federal agencies to prevent and control the introduction and spread of invasive non-native species in a cost-effective and environmentally sound manner and minimize their effects on economic, ecological, and human health.

## Executive Order 13186 Migratory Birds

Executive Order 13186 (January 10, 2001) directs all federal agencies to take certain actions to further implement the MBTA. It requires that each federal agency taking actions that have, or are likely to have, a measurable negative effect on migratory bird populations is directed to develop and implement, within two years, a Memorandum of Understanding with the USFWS that shall promote the conservation of migratory bird populations.

## River and Harbors Act of 1899

Section 10 (33 USC 403) of the River and Harbors Act prohibits the unauthorized obstruction or alteration of any navigable water of the U.S. Under Section 10, a permit is required for work on structures in, over, or under navigable Waters of the United States (WOUS).

## General Bridge Act of 1946

Any individual, partnership, corporation, or local, state, or federal legislative body, agency, or authority planning to construct or modify a bridge or causeway across a navigable waterway of the United States must apply for a United States Coast Guard (USCG) bridge permit. This includes all temporary bridges used for construction access or a traffic detour.

## Clean Water Act of 1972

The Federal Clean Water Act (CWA) was enacted as an amendment to the federal Water Pollution Control Act of 1972, which outlined the basic structure for regulating discharges of pollutants to WOUS. The CWA serves as the primary federal law protecting the quality of the nation's surface waters, including lakes, rivers, and coastal wetlands.

The CWA empowers the Environmental Protection Agency (EPA) to set national water quality standards and effluent limitations and includes programs addressing both point-source and non-point-source pollution. The CWA operates on the principle that all discharges into the nation's waters are unlawful unless specifically authorized by a permit; permit review is the CWA's primary regulatory tool. The following sections provide additional details on specific sections of the CWA.

WOUS are protected under Section 404 of the CWA and may include both wetlands and non-wetland waters. Any activity that involves a discharge of dredged or fill material into WOUS, including wetlands, is subject to regulation by the U.S. Army Corps of Engineers (USACE). WOUS are defined to include navigable waters of the U.S.; interstate waters; all other waters that, through their use, degradation, or destruction, could affect interstate or foreign commerce; tributaries to any of these waters; and wetlands that meet any of the criteria or are adjacent to any of these waters or their tributaries. Wetlands are defined under Section 404 as those areas that are inundated or saturated by surface water or groundwater at a frequency and duration that may support, and, under normal circumstances, do support, a prevalence of vegetation that is typically adapted for life in saturated soil conditions. Jurisdictional wetlands must meet three wetland delineation criteria:

- They support hydrophytic vegetation (i.e., plants that grow in saturated soil);
- They have hydric soil types (i.e., soils that are wet or moist enough to develop anaerobic conditions); and,
- They have wetland hydrology (i.e., flooding, inundation, or saturation conditions that support wetland communities).

The extent of the USACE jurisdiction in inland situations extends to the ordinary high-water mark (OHWM)[1].

Activities requiring a Section 404 permit must also obtain certification from the state where the discharge would originate or, if appropriate, the interstate water pollution control agency with jurisdiction over the affected waters at the point where the discharge would originate, pursuant to CWA Section 401. Either the State Water Resources Control Board (SWRCB) or the San Francisco Bay Regional Water Quality Control Board (RWQCB) would have to issue such certification prior to alteration of or discharge to WOUS and waters of the state (WOS, e.g., work involving bridge crossings of jurisdictional waters). WOS are defined under Porter-Cologne Water Quality Control Act in the state regulations section below.

Section 408 of the CWA provides that the USACE may grant permission for another party to alter a Civil Works project[2] upon a determination that the alteration proposed will not be injurious to the public interest and will not impair the usefulness of the Civil Works project.

CWA Section 402 regulates construction-related stormwater discharges to surface waters through the National Pollutant Discharge Elimination System (NPDES) program, as administered by the U.S. EPA.

### 3.5.2.2 State

#### California Endangered Species Act of 1970

The California Endangered Species Act (CESA) (Fish and Game Code [FGC] Sections 2000 through 2089.25) outlines the protection provided to California's rare, endangered, and threatened species. Section 2080 of the FGC prohibits the taking of plants and animals listed under CESA. Section 2081 established an incidental take permit program for state listed species. In addition, the Native Plant Protection Act of 1977 (Fish and Game Code Section 1900 et seq.) gives CDFW authority to designate state endangered, threatened, and rare plants and provides specific protection measures for designated populations.

#### California Fish and Game Code 4150

California FGC 4150 protects all mammals in California that occur naturally, are game mammals, are fully protected mammals, or are fur-bearing mammals, are nongame mammals. This measure also states that nongame mammals, or parts of nongame mammals, can be taken or possessed, unless it's in accordance with this code or with regulations adopted by the commission. FGC 4150 also provides protection to listed and non-listed bat roosts.

#### California Code of Regulations 251.1

California Code of Regulations 251.1 offers extra protection for wildlife species within California by preventing anyone from harassing, herding, or driving game or nongame birds, and providing

[1] OHWM is the line on the shore established by fluctuations in water levels, as indicated by a clear, natural line impressed on the bank; shelving; changes in soil character; the destruction of terrestrial vegetation; and/or the presence of litter and debris. In coastal situations, the USACE jurisdiction extends to the mean high-water line, which is based on elevation.

[2] USACE Civil Works projects include flood risk management, navigation, recreation, infrastructure, and environmental stewardship.

mammals and furbearing mammals the same coverage. This regulation also provides protection to listed and non-listed bat roosts.

## California Native Plant Protection Act of 1977

The California Native Plant Protection Act (FGC Sections 1900 through 1913) prohibits the taking, possessing, or sale within the state of any plants with a state designation of rare, threatened, or endangered (as defined by the California Department of Fish and Wildlife [CDFW]). An exception in the Act allows landowners, under specified circumstances, to take listed plant species, if the owners first notify CDFW and give the agency at least 10 days to retrieve the plants before they are plowed under or otherwise destroyed (FGC Section 1913). Project impacts on these species are not considered significant unless the species are known to occur (or have a high potential to occur) within the area of disturbance associated with construction of the proposed Project.

## California Fish and Game Code Section – Lake and Streambed Alteration Agreement

CDFW regulates water resources under Sections 1600 et seq. of the California FGC. The CDFW has the authority to grant Streambed Alteration Agreements under Section 1602, which states:

> An entity may not substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake.

CDFW jurisdiction includes ephemeral, intermittent, and perennial watercourses and extends to the top of the bank of a stream or lake if unvegetated or to the limit of the adjacent riparian habitat located contiguous to the watercourse if the stream or lake is vegetated. Projects that require a Streambed Alteration Agreement may also require a permit from the USACE under Section 404 of the CWA. In these instances, the conditions of the Section 404 permit and the Streambed Alteration Agreement may overlap.

## California Fish and Game Code Section 2081 – Incidental Take Permit

Under Section 2081, an ITP from CDFW is required for projects that could result in take of a species that is state listed as threatened or endangered or identified as a candidate for threatened or endangered listing under the CESA. The state definition of "take" is defined as an activity that would directly or indirectly kill an individual of a species, which differs from the FESA definition by not covering activities that harm or harass state protected species. CDFW administers the CESA and authorizes take through Section 2081 ITPs, except for species that have been designated as fully protected. Section 2081 also requires measures to avoid or minimize take of CESA-regulated species and fully mitigate the impact of take.

## California Fish and Game Code Sections 3503 and 3503.3 – Bird Nesting Protections

Sections 3503 and 3503.5 of the FGC provide regulatory protection to resident and migratory birds and all birds of prey within the state of California, including the prohibition of the taking of nests and eggs, unless otherwise provided for by the FGC. Specifically, these sections of the FGC make it unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code.

## California Fish and Game Code Sections 3511, 4700, 5050, and 5515 – Fully Protected Species

Sections 3511, 5050, and 5515 of the FGC list 37 fully protected species and prohibits the take or possession of the listed species at any time, except when collecting these species for scientific research or relocating bird species for the protection of livestock.

## Assembly Bill 147 – Fully Protected Species: California Endangered Species Act Authorized Take

Assembly Bill 147 specifies projects or categories of projects eligible for a take authorization permit are limited to all of the following: Transportation projects, including any associated habitat connectivity and wildlife crossing projects, undertaken by a state, regional, or local agency, which do not increase highway or street capacity for automobile or truck travel. Eleven fully protected birds, nine mammals, five reptiles and amphibians, and nine fish species could have authorized take under CESA for a qualifying project.

## Porter-Cologne Water Quality Control Act of 1966

The Porter-Cologne Water Quality Control Act requires that each of the nine RWQCBs prepare and periodically update basin plans for water quality control. Each basin plan sets forth water quality standards for surface water and groundwater and actions to control nonpoint and point sources of pollution to achieve and maintain these standards. Basin plans offer an opportunity to protect wetlands through the establishment of water quality objectives. RWQCB's jurisdiction includes federally protected waters and areas that meet the definition of WOS. WOS are defined as any surface water or groundwater, including saline waters, within the boundaries of the state. Under Porter-Cologne, the RWQCB has the discretion to take jurisdiction over areas not federally protected under Section 401, provided they meet the definition of WOS, which would require issuance of waste discharge requirements. Mitigation requiring no net loss of wetland functions and values of WOS is typically required by RWQCB.

### State Water Resources Control Board's 2019 State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State

SWRCB adopted a statewide definition of rules to protect wetlands and other environmentally sensitive waterways throughout the state on April 2, 2019. These rules define what SWRCB considers a wetland and include a framework for determining if a feature that meets the SWRCB wetland definition is a WOS, subject to regulation. Second, the rules clarify requirements for permit applications to discharge dredged or fill material to any water of the state. The SWRCB defines an area as wetland as follows:

> An area is wetland if, under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area's vegetation is dominated by hydrophytes or the area lacks vegetation (SWRCB 2019).

SWRCB considers the following wetlands (as determined using methodology in the *USACE Wetland Delineation Manual* [USACE Environmental Laboratory 1987]) as WOS:

1. Natural wetlands.
2. Wetlands created by modification of a surface water of the state.

3. Artificial wetlands that meet any of the following criteria:

    a. Approved by an agency as compensatory mitigation for impacts to other WOS, except where the approving agency explicitly identifies the mitigation as being of limited duration.

    b. Specifically identified in a water quality control plan as a wetland or other WOS.

    c. Resulted from historic human activity, is not subject to ongoing operation and maintenance, and has become a relatively permanent part of the natural landscape.

    d. Greater than or equal to 1 acre in size, unless the artificial wetland was constructed, and is currently used and maintained, primarily for one or more of the following purposes (i.e., the following artificial wetlands are not WOS unless they also satisfy the criteria set forth in 2, 3a, or 3b):

        i. Industrial or municipal wastewater treatment or disposal.

        ii. Settling of sediment.

        iii. Detention, retention, infiltration, or treatment of stormwater runoff and other pollutants or runoff subject to regulation under a municipal, construction, or industrial stormwater permitting program.

        iv. Treatment of surface waters.

        v. Agricultural crop irrigation or stock watering.

        vi. Fire suppression.

        vii. Industrial processing or cooling.

        viii. Active surface mining, even if the site is managed for interim wetlands functions and values.

        ix. Log storage.

        x. Treatment, storage, or distribution of recycled water.

        xi. Maximizing groundwater recharge (this does not include wetlands that have incidental groundwater recharge benefits).

        xii. Fields flooded for rice growing.

All artificial wetlands that are less than an acre in size and do not satisfy the criteria set forth in numbers 2, 3.a, 3.b, or 3.c are not WOS. If an aquatic feature meets the wetland definition, the burden is on the applicant to demonstrate that the wetland is not a WOS.

## Other Relevant California Wildlife Protections

### California Wetlands and Other Policies

The California Natural Resources Agency and its various departments, which includes CDFW and the California Department of Water Resources (DWR), do not authorize or approve projects that fill or

otherwise harm or destroy coastal, estuarine, or inland wetlands. Exceptions may be granted if all the following conditions are met:

- The project is water dependent.
- No other feasible alternative is available.
- The public trust is not adversely affected.
- Adequate compensation is proposed as part of the project.

#### Species of Special Concern

CDFW has also identified many species of special concern (SSC). Species with this status have limited distribution, or the extent of their habitats has been reduced substantially such that their populations may be threatened. Thus, their populations are monitored, and they may receive special attention during the environmental review process. While they do not have statutory protection, they may be considered rare under CEQA and are thereby warranted specific protection measures.

#### Fully Protected Species

CDFW has jurisdiction over fully protected species of birds, mammals, amphibians, reptiles, and fish, pursuant to Fish and Game Code Sections 3511, 4700, 5050, and 5515. Take of any fully protected species is prohibited, and CDFW cannot authorize their take in association with a general project except under the provisions of a Natural Communities Conservation Plan, California Fish and Game Code Section 2081.7, or if certain requirements are met pursuant to FGC 2081.15. [3]

## 3.5.2.3 Regional

### McAteer-Petris Act of 1965

The McAteer-Petris Act established the Bay Conservation and Development Commission (BCDC) to prepare an enforceable plan to guide protection of the San Francisco Bay and its shoreline. BCDC requires that any person or governmental agency wishing to place fill in, or to extract materials exceeding $20 in value from, or make any substantial change in use of any land, water, or structure within BCDC's area of jurisdiction secure a permit from the BCDC (as well as any permit required from any city or county within which any part of the work is to be performed). BCDC regulates nearly all work, including grading, on land within 100 feet of San Francisco Bay shoreline ("shoreline band"), all areas subject to tidal action, such as sloughs and marshes, and certain designated waterways. BCDC carries out its "federal consistency" responsibilities by reviewing federal projects much as it reviews permit applications. The BCDC issues four types of permits: major permits, administrative permits, emergency permits, and region-wide permits.

The agency's decision to grant or deny a permit for the project is guided by the McAteer-Petris Act's provisions and the standards set out in the San Francisco Bay Plan (Bay Plan) (BCDC 2021). BCDC is authorized to regulate fill or dredge in the San Francisco Bay and development of the shoreline band. The McAteer-Petris Act created broad circumstances under which a permit is required by providing that any person wishing to place fill, extract materials, or make any substantial change in

[3] 1B – Plant is rare, threatened, or endangered in, and outside of, California.
2B – Plant is rare, threatened, or endangered in California but more common outside of California.

the use of water, land, or structures within areas subject to BCDC's jurisdiction must obtain a permit. The term fill is defined broadly to include not only earth and other materials, but pilings, structures placed on pilings, and floating structures. BCDC is authorized to issue a permit for fill in the Bay if it determines that the issuance of the permit would be consistent with the provisions of the Act and with the policies established for the Bay Plan or if BCDC determines that the activity to be permitted is necessary for the health, safety, or welfare of the public in the entire Bay Area. Pursuant to Section 66605 of the McAteer-Petris Act, BCDC must determine if the proposed fill in the Bay: (1) is for a water-oriented use and provides public benefits that outweigh the adverse impacts from the loss of open water areas; (2) there is no alternative upland location available for the proposed action; (3) the fill would be the minimum amount necessary to achieve the purpose of the proposed action; (4) the nature, location, and extent of fill minimizes harmful effects on the Bay; (5) the fill is constructed in accordance with sound safety standards.

The McAteer-Petris Act also provides that a permit must be obtained from BCDC prior to undertaking construction activities within the shoreline band jurisdiction. In addition, for permitting purposes, the McAteer-Petris Act allows for areas associated with the shoreline band to be designated by BCDC for priority uses. Within such areas, the proposed use must be consistent with the priority uses specified for the designated area.

### 3.5.2.4 Local

#### City of Oakland General Plan

The *City of Oakland General Plan – Open Space, Conservation, and Recreation Element* (City of Oakland 1998) includes the following policies related to biological resources:

**Policy CO-7.1: Protection of Native Plant Communities** – Protect native plant communities, especially oak woodlands, redwood forests, native perennial grasslands, and riparian woodlands, from potential adverse impacts of development. Manage development in a way which prevents or mitigates adverse impacts on these communities. This policy includes the following applicable actions:

- **Action CO-7.1.1: Native Plant Mapping** – Map the remaining native oak woodlands, redwood forests, perennial grasslands, and other native plant communities within Oakland.
- **Action CO-7.1.2: Development of Standardized Mitigation Measures** – Develop standardized mitigation measures for development on lands containing coast live oak woodland, redwood forests, native perennial grassland, and riparian woodland communities.
- **Action CO-7.1.4: Riparian Setbacks** – Where legally permissible, consider establishing a 150-foot setback along riparian corridors which are wholly contained on public lands.

**Policy CO-7.2: Native Plant Restoration**. Encourage efforts to restore native plant communities in areas where they have been compromised by development or invasive species, provided that such efforts do not increase an area's susceptibility to wildfire. This policy includes the following applicable action:

- **Action CO-7.2.2: Control of Invasive Species** – On an on-going basis, work with the East Bay Regional Park District, the East Bay Municipal Utility District, and the University of California to control the spread of invasive species and protect native plant and animal habitat.

**Policy CO-7.3: Forested Character** – Make every effort to maintain the wooded or forested character of tree-covered lots when development occurs on such lots.

**Policy CO-7.4: Tree Removal** – Discourage the removal of large trees on already developed sites unless removal is required for biological, public safety, or public works reasons. The city's tree preservation ordinance requires a permit (and satisfaction of a number of conditions) prior to the removal of most species, with more restrictive requirements for coast live oaks and redwoods.

**Policy CO-7.5: Non-Native Plant Removal** – Do not remove non-native plants within park and open space areas solely because they are non-natives. Plant removal should be related to other valid management policies, including fire prevention.

**Policy CO-7.6: Rehabilitation of Damaged or Dead Vegetation** – Encourage programs which rehabilitate, enhance, or replace damaged or dead vegetation as appropriate.

**Policy CO-8.1: Mitigation of Development Impacts** – Work with federal, state, and regional agencies on an on-going basis to determine mitigation measures for development which could potentially impact wetlands. Strongly discourage development with unmitigable adverse impacts. This policy includes the following applicable actions:

- **Action CO-8.1.1: Mitigation Planning and Monitoring** – Support development of mitigation plans and monitoring programs for projects which may impact wetlands.
- **Action CO-8.1.2: Maintenance of Wetland Buffers** – Work with the Port to establish "buffers" or mandatory setbacks on the perimeter of wetlands.

**Policy CO-9.1: Habitat Protection** – Protect rare, endangered, and threatened species by conserving and enhancing their habitat and requiring mitigation of potential adverse impacts when development occurs within habitat areas. This policy includes the following applicable actions:

- **Action CO-9.1.1: Development of Standardized Mitigation Measures** – Develop performance criteria, development standards, and standardized mitigation measures for development within the habitat of special-status plant and animal species in Oakland identified in Tables 5 and 6 of the General Plan.
- **Action CO-9.1.2: Preparation of Pre-Development Surveys** – Require large-scale development within the habitat of species listed in Tables 5 and 6 of the General Plan to conduct pre-development surveys to determine whether these species are present. Require site-specific analyses of the effects of proposed development on the species where appropriate, along with a plan for minimizing those effects.

**Policy CO-11.2: Migratory Corridors** – Protect and enhance migratory corridors for wildlife. Where such corridors are privately owned, require new development to retain native habitat or take other measures which help sustain local wildlife population and migratory patterns. This policy includes the following applicable action:

**Action CO-11.2.2: Guidelines for Habitat Protection** – Develop guidelines for habitat protection which reduce the potential impacts of new development on wildlife movement and migratory patterns.

## City of Oakland Tree Preservation Ordinance

The City of Oakland *Tree Preservation Ordinance* includes the following policies related to biological resources:

Ordinance No. 9366 in Chapter 7, Article 6 of the Oakland Municipal Code establishes regulations and procedures to ensure the protection and preservation of trees. A protected tree is defined as:

- A coast live oak tree (*Quercus agrifolia*) measuring at least 4 inches diameter at breast height (DBH), or 4.5 feet above the ground.
- Any other tree measuring at least 9 inches DBH except eucalyptus (*Eucalyptus* spp.) and Monterey pine (*Pinus radiata*).

A tree removal permit application is required for the removal of or possible damage to protected trees on public or private property. A site plan indicating the location, species, and DBH of all protected trees proposed for removal must be included with the permit application.

## City of San Leandro 2035 General Plan

The City of San Leandro *2035 General Plan – Open Space, Conservation, and Parks Element* (City of San Leandro 2016) includes the following policies related to biological resources:

**Policy OSC-6.1: Ecosystem Management** – Promote the long-term conservation of San Leandro's remaining natural ecosystems, including wetlands, grasslands, and riparian areas. Future development should minimize the potential for adverse impacts on these ecosystems and should promote their restoration and enhancement.

**Policy OSC-6.2: Mitigation of Development Impacts –** Require measures to mitigate the impacts of development or public improvements on fish and wildlife habitat, plant resources, and other valuable natural resources in the City.

**Policy OSC-6.3: Habitat Restoration –** Encourage the restoration of native vegetation in the City's open spaces as a means of enhancing habitat and reducing wildfire hazards.

**Policy OSC-6.4: Species of Special Concern –** Ensure that local planning and development decisions do not damage the habitat of rare, endangered, and threatened species, and other species of special concern in the City and nearby areas.

## City of San Leandro Tree Ordinance

Ordinance 2019-015 serves as the City of San Leandro's tree ordinance and amends portions of Title 5, Chapter 5-2 of the San Leandro Municipal Code relating to street trees (City of San Leandro 2019). The ordinance covers the removal of street trees and requirements for obtaining an encroachment permit prior to removal, which may require a fee to replace the tree to be planted in a location of the City's choosing.

## City of Hayward 2040 General Plan

The *City of Hayward 2040 General Plan* (City of Hayward 2014) includes the following policies related to biological resources:

**Policy NR-1.1: Native Wildlife Habitat Protection** – The City shall limit or avoid new development that encroaches into important native wildlife habitats; limits the range of listed or protected species; or creates barriers that cut off access to food, water, or shelter of listed or protected species.

**Policy NR-1.2: Sensitive Habitat Protection** – The City shall protect sensitive biological resources, including state and federally designated sensitive, rare, threatened, and endangered plant, fish, and wildlife species and their habitats from urban development and incompatible land uses.

**Policy NR-1.7: Native Tree Protection** – The City shall encourage protection of mature, native tree species to the maximum extent practicable, to support the local ecosystem, provide shade, create windbreaks, and enhance the aesthetics of new and existing development.

**Policy NR-1.9: Native Plant Species Protection and Promotion** – The City shall protect and promote native plant species in natural areas as well as in public landscaping.

## City of Hayward Tree Ordinance (Hayward West Focus Area,[4] Industrial Parkway Focus Area)

The City of Hayward *Tree Ordinance* (City of Hayward 2002) includes the following policies related to biological resources:

**SEC. 10-15.11 Application of Ordinance** – The Tree Preservation Ordinance is applicable to all types of existing Industrial, Commercial, and Multi-family development, and to new development, under-developed properties, or undeveloped properties. Maintenance and removal of street trees is governed by the City's Street Tree Ordinance.

**SEC. 10-15.13 Protected Trees –** The following trees, when located on properties to which this Ordinance applies as set forth in Section 10-15.11 above, shall be Protected Trees:

- Trees having a minimum trunk diameter of eight inches measured 54 inches above the ground. When measuring a multi-trunk tree, the diameters of the largest three trunks shall be added together.
- Street trees or other required trees such as those required as a condition of approval, Use Permit, or other Zoning requirement, regardless of size.
- All memorial trees dedicated by an entity recognized by the City, and all specimen trees that define a neighborhood or community.
- Trees of the following species that have reached a minimum of four inches diameter trunk size:
    - big leaf maple (*Acer macrophyllum*).
    - California buckeye (*Aesculus californica*).
    - madrone (*Arbutus menziesii*).
    - western dogwood (*Cornus nuttallii*).
    - California sycamore (*Platanus racemosa*).

[4] The City of Hayward General Plan designates certain significant Focus Areas for the implementation of Smart Growth principles.

- coast live oak (*Quercus agrifolia*).
- canyon live oak (*Quercus chrysolepis*).
- blue oak (*Quercus douglassii*).
- Oregon white oak (*Quercus garryana*).
- California black oak (*Quercus kelloggi*).
- valley oak (*Quercus lobata*).
- interior live oak (*Quercus wislizenii*).
- California bay (*Umbellularia californica*).

- A tree or trees of any size planted as a replacement for a Protected Tree. Trees located on a developed single-family residential lot that cannot be further subdivided are exempt unless they have been required or protected as a condition of approval.

## City of Union City 2040 General Plan

The *City of Union City 2040 General Plan – Resource Conservation Element* (City of Union City 2019) includes the following policies related to biological resources:

**Policy RC-2.1: Preserve Significant Natural Resources** – The City shall commit to preservation of significant natural resources including wetlands; bay shores; hillside areas; and significant plant, animal, and fish habitats.

**Policy RC-2.2: Require Biological Surveys** – The City shall require a site survey by a qualified biologist for sites that have the potential to contain critical or sensitive habitat or special-status species or for sites within 100 feet of such areas. Appropriate mitigation measures shall be incorporated into the project as necessary to protect the resources.

**Policy RC-2.3: Require Wetland Delineation** – A wetland delineation shall be prepared using the protocol defined by the U. S. Army Corps of Engineers for sites with the potential to contain wetland resources. Appropriate mitigation measures shall be incorporated into the project as necessary to protect the resources.

**Policy RC-2.10: Nesting Bird Protection** – The City shall require project applicants to retain the services of a qualified biologist(s) to conduct a pre-construction nesting bird survey during the nesting season (February 1 through August 31) prior to all new development that may remove any trees or vegetation that may provide suitable nesting habitat for migratory birds or other special-status bird species. If nests are found the qualified biologist(s) shall identify appropriate avoidance measures, and these measures shall be incorporated into the project and implemented accordingly.

## City of Union City Tree Conservation Ordinance

Title 12; Chapter 12.16.170 of the *Union City Municipal Code* (City of Union City 1989) serves as a tree conservation ordinance. Protected trees include:

- All trees which have a 35-inch or greater circumference of a trunk measured 3 feet above the ground, or in the case of multi-trunk trees, a total of 70 inches or more of the circumference of all trunks, where such trees are located on residential property.

- All trees which have a twelve-inch or greater circumference of any trunk, when removal relates to any transaction for which zoning approval or subdivision approval is required.
- All trees with a minimum 12-inch trunk circumference on a vacant lot or undeveloped property, commercial, office, or industrial developed property.

A tree removal permit is required for the removal of any protected tree. The application must include the number and location of the trees to be removed, the type of tree, and reason for removal.

## City of Fremont General Plan

The *City of Fremont General Plan – Conservation Element* (City of Fremont 2011) includes the following policies related to biological resources:

**Policy 7-1.1: Preservation of Natural Habitat.** Preserve and protect fish, wildlife, and plant species and their habitats including wetlands, creeks, lakes, ponds, saltwater bodies, and other riparian areas. Maintain these areas for their critical biological values and to help improve water quality. This policy includes the following applicable implementation measures:

- **Implementation 7-1.1.A** – Protect Riparian and Wetland Areas – Preserve and minimize impacts on natural and semi-natural wetland areas, including riparian corridors, vernal pools and their wildlife habitat through the development and environmental review process. Riparian areas and wetlands should be protected and/or restored as project amenities. Require mitigation for potential significant environmental impacts on riparian areas from development.
- **Implementation 7-1.1.B** – Evaluate Development near Bodies of Water – Evaluate development within 100 feet of the top of bank of riparian areas and water bodies, including creeks, lakes, ponds, marshes, and vernal pools. This distance shall be increased to 200 feet in areas above the toe of the hill. Carefully assess the extent and characteristics of riparian corridors and creeks to a minimum distance of 100 feet from the top of bank below the toe of the hill and 200 feet from the top of bank above the toe of the hill. Consider the full spectrum of habitat needs for vegetation and wildlife in environmental assessments of these areas.
- **Implementation 7-1.1.C** – Control Measures to Limit Soil Erosion – Implement control measures in riparian areas to prevent soil erosion and minimize runoff of excess nutrients, sediments, and pesticides. Provide for maximum retention of natural vegetation and topographic features adjacent to the buffer described in Implementation 7-1.1.B.
- **Implementation 7-1.1.D** – Conservation of Habitat and Natural Areas – Require conservation, protection and/or revegetation of habitat and natural areas for nesting, foraging and retreat for projects that impact such areas.

**Policy 7-1.2: Protection of Species.** Preserve and protect rare, threatened, endangered and candidate species and their habitats consistent with State and Federal law. This policy includes the following applicable implementation measures:

- **Implementation 7-1.2.C** – Limit Development in Habitat Protection Areas – Evaluate and limit development near designated habitat protection areas unless sufficient mitigation can be provided to reduce impacts to insignificant levels.
- **Implementation 7-1.2.D –** Mitigation of Special-status Species – When offsite mitigation is required for special-status species, require that mitigation be provided within the City of

Fremont to the maximum extent practical. If not practical in the City of Fremont require mitigation in Alameda County, followed by the nine-county Bay Area.

**Policy 7.1.8: Urban Forests.** Promote and protect the City's urban forest and maintain healthy tree resources within the City. This policy includes the following applicable implementation measure:

- **Implementation 7-1.8.D –** Tree Preservation Ordinance – Enforce the City's Tree Preservation ordinance and continue to make information regarding the ordinance easily available to the public and development community.

## City of Fremont Tree Preservation Ordinance

Chapter 18.215 of the City of Fremont's Municipal Code (City of Fremont 1979) includes the following policies related to biological resources:

No person shall remove, damage, or relocate a private tree or any landmark tree, whether publicly or privately owned, except as follows:

- When authorized by a permit issued by the landscape architect, which permit shall, while any person is removing or damaging the subject tree, be posted on the lot by the applicant so as to be prominently visible from the street;
- When removal, damage or relocation is allowed without permit under Section 18.215.050;
- When expressly authorized as part of a city-issued entitlement or permit for a development project; or
- In the case of a landmark tree, when authorized by the city council in accordance with this chapter. (Ord. 2481 Section 1, 7-23-02. 1990 Code Section 4-5103.)

Permit or Other Authorization Required for Private Trees Other Than Landmark Trees.

A permit or other authorization conferred in accordance with this chapter is required to remove, damage, or relocate a private tree if it is:

- A tree having a diameter at breast height (DBH) of six inches or more and located on a vacant or underdeveloped lot.

A tree having a DBH of 6 inches or more and located on a developed lot which is the subject of a contemplated or pending application for a development project.

## City of Newark General Plan

The *City of Newark General Plan Conservation and Sustainability Element* (City of Newark 2013) includes the following policies related to biological resources:

**Policy CS-4.1** – Tree Preservation: Maintain and improve City programs for protecting and preserving trees.

Under this policy, a tree removal permit must be filed with the City's maintenance division.

### 3.5.2.5 Consistency with Plans, Policies, and Regulations

Section 15125(d) of the California Environmental Quality Act (CEQA) Guidelines requires an environmental impact report (EIR) to discuss "any inconsistencies between the proposed Project and applicable general plans, specific plans, and regional plans." Applicable plans, policies, and regulations were considered during the preparation of this analysis and were reviewed to assess whether the proposed Project would be consistent with the plans of relevant jurisdictions. The proposed Project would comply with all relevant federal, state, and local policies and regulations as they relate to biological resources. The proposed Project would make sure that all biological resource regulations are followed, which includes compliance with the FESA and CESA, CWA, and CDFW's 1602 program and all applicable goals and policies set forth by Alameda County and the cities of Hayward, Fremont, Newark, Oakland, San Leandro, and Union City.

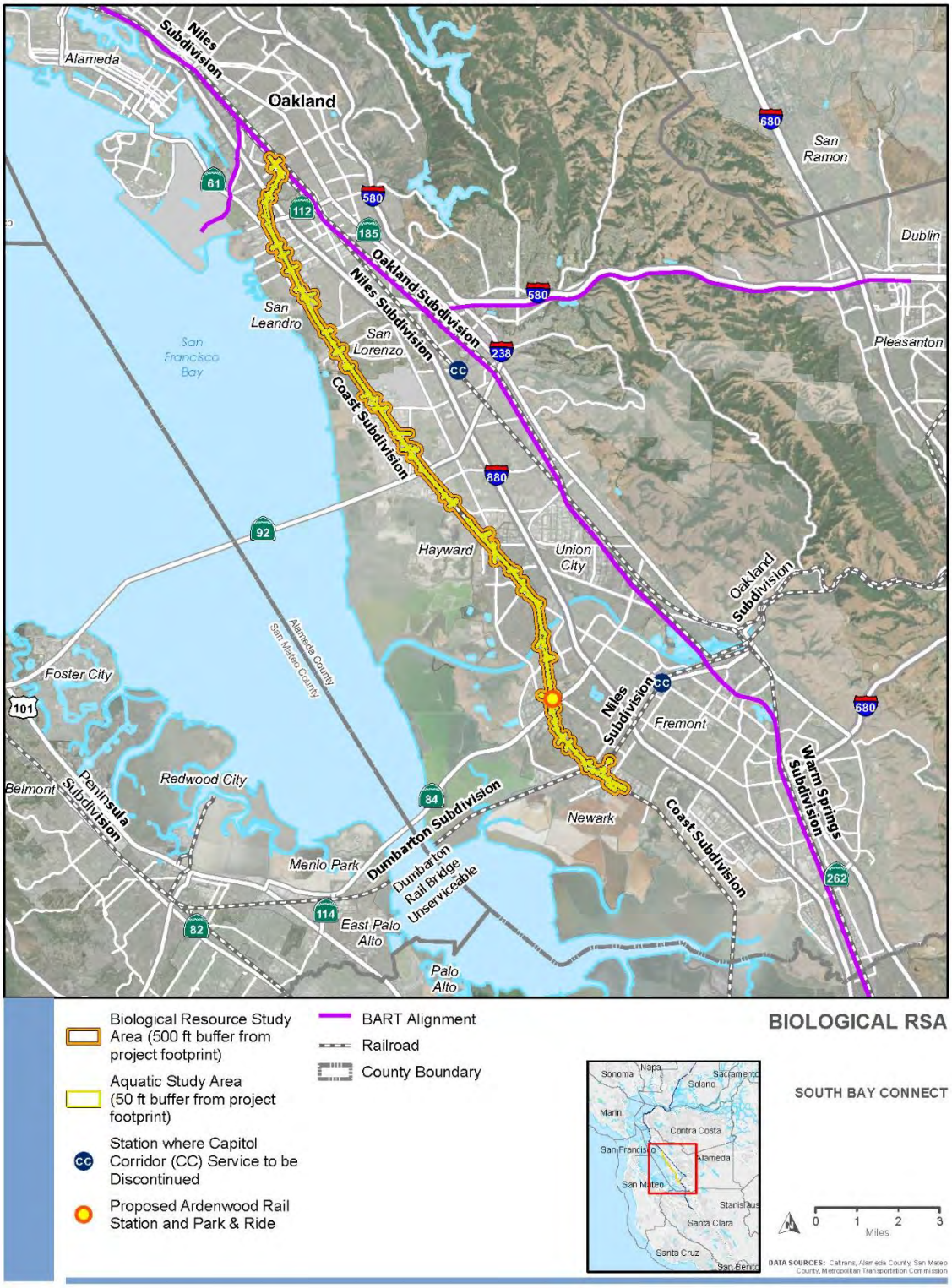
## 3.5.3 Methods for Evaluating Environmental Impacts

This section defines the RSA for biological resources and describes the methods used to analyze the impacts on biological resources within the RSA.

### 3.5.3.1 Resource Study Area

As defined in Section 3.1, *Introduction*, RSAs are the geographic boundaries within which the environmental analyses specific to each resource topic were conducted. As shown in Figure 3.5-1, the RSA for biological resources encompasses the area directly and indirectly affected by the construction and operation of the proposed Project, which is defined as the proposed Project footprint plus a 500-foot buffer to account for potential indirect impacts on sensitive communities and special-status botanical and wildlife species. In addition, a separate RSA for aquatic biological resources was developed as part of this analysis and is defined as the proposed Project footprint plus a 50-foot buffer to account for potential impacts on jurisdictional features. Given the linear nature of the proposed Project, its restrictions to the ROW, and the urban setting, a 50-foot buffer was deemed sufficient to capture all direct and indirect impacts on waters from the proposed Project. For the purposes of this document, unless specifically referring to the aquatic RSA, biological RSA will refer to all areas within both the aquatic and biological RSAs. Ingress and egress routes were not included as publicly available roads will be used to access proposed Project locations.

**Figure 3.5-1. Biological RSA**



### 3.5.3.2 Data Sources

The following sources were drawn upon to characterize the existing conditions in the biological and aquatic RSAs.

#### Desktop Review

Preliminary database searches were performed to identify general vegetation communities and sensitive communities, including federal and state-regulated aquatic resources and special-status species with the potential to occur in the biological and aquatic RSAs. A preliminary review of recent aerial imagery was also conducted to collect site-specific data regarding habitat suitability for special-status species. Preliminary database searches were performed of the following:

- Biological RSA
    - USFWS Information Planning and Conservation System (USFWS 2024a);
    - USFWS Critical Habitat Mapper (USFWS 2024b);
    - NMFS, West Coast Region, California Species List Tools (NMFS 2024);
    - CDFW California Natural Diversity Database (CNDDB) Rarefind 5 in BIOS (CDFW 2024a), including essential connectivity areas, natural landscape blocks, and missing linkage in California;
    - CDFW's California Wildlife Habitat Relationships (CWHR) (CDFW 2024b);
    - California Native Plant Society (CNPS) Inventory of Rare, Threatened, and Endangered Plants of California (CNPS 2024);
    - Google Earth aerial imagery (Google Earth Pro 2024);
    - U.S. Geological Survey topographical maps; and
    - Cal-IPC Inventory (Cal-IPC 2024).
- Aquatic RSA
    - USFWS National Wetland Inventory (USFWS 2024c);
    - Google Earth aerial imagery (Google Earth Pro 2024);
    - U.S. Geological Survey topographical maps.

The USFWS and NMFS databases were queried to identify special-status species, critical habitat, and EFH under their jurisdiction that have the potential to occur in the biological RSA. A query of CDFW's Rarefind provided a list of known occurrences for special-status species in the *Calaveras Reservoir, Diablo, Dublin, Hayward, Hunters Point, La Costa Valley, Las Trampas Ridge, Livermore, Milpitas, Mountain View, Newark, Niles, Oakland East, Oakland West, Palo Alto, Redwood Point, San Leandro, San Mateo, Tassajara*, and *Woodside* U.S. Geological Survey 7.5-minute quadrangles. A query of the CHWR database provided coarse-scale data on the location and extent of vegetation communities in the biological RSA. Lastly, a query of the CNPS database identified special-status plant species with the potential to occur in the aforementioned quadrangles. Raw data from the

database queries are provided in, Attachment 1 of Appendix C, which summarizes each species' potential to occur and the rationale for each determination.

### Reconnaissance Surveys

A reconnaissance survey of the biological RSA was conducted on August 2, 2019, to verify the desktop assessment results. Project biologists drove on publicly accessible roads and walked publicly accessible portions of the biological RSA to ground-truth information on existing vegetation communities, sensitive communities, and the suitability of habitats for special-status species. Wildlife observed during the August 2, 2019, reconnaissance survey included house finch (*Haemorhous mexicanus*), snowy egret (*Egretta thula*), California scrub jay (*Aphelocoma californica*), mallard (*Anas platyrhynchos*) and other waterfowl, and red-tailed hawk (*Buteo jamaicensis*). Only one special-status species, bald eagle (*Haliaeetus leucocephalus*), was observed during the survey in the vicinity of the Shinn Connection area. Although there were no other special-status species directly observed during the reconnaissance survey, suitable habitat for special-status species exists within the biological RSA.

### Aquatic Resources Delineation

Project biologists conducted a delineation of aquatic resources on September 7, 8, and 10, 2021. In locations where property access was permitted, soil analyses were conducted. The delineation was conducted using the routine onsite determination method described in the 1987 USACE *Wetlands Delineation Manual* (Environmental Laboratory 1987) and the supplemental procedures and wetland indicators provided in the *Arid West Supplement* (Environmental Laboratory 2008). The OHWM was delineated using methods and indicators described in *A Field Guide to the Identification of the OHWM in the Arid West Region of the Western United States* (Lichvar and McColley 2008). During a pre-field desktop analysis, the aquatic resources were delineated using color aerial images and then verified in the field, based on hydrologic, vegetation, and soil indicators. Aquatic resources within parts of the proposed Project footprint that did not overlap with the previously delineated areas were added to the delineation in May 2023. The mapping of these additional aquatic resources was based on a desktop analysis and the previously mapped aquatic resources that were verified in the field. This material is presented in Attachment 2 of Appendix C.

## 3.5.3.3 CEQA Thresholds

To satisfy CEQA requirements, biological resource impacts were analyzed in accordance with Appendix G of the CEQA Guidelines. According to the CEQA Guidelines, CCR, Title 14, Section 15002(g), "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed Project." As stated in CEQA Guidelines Section 15064(b)(1), the significance of an activity may vary with the setting. The impact analysis identifies and analyzes construction (short-term) and operation (long-term) impacts, as well as direct and indirect impacts (see PRC Section 21065). The proposed Project would have significant biological resource impacts under CEQA if it would:

a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife, U.S. Fish and Wildlife Service, or NOAA Fisheries; or

b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service; or

c. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means; or

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; or

e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or

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.

# 3.5.4 Affected Environment

## 3.5.4.1 Environmental Setting

### Regional Setting

The biological RSA is in the Central California Coast ecological section of the California Coastal Chaparral Forest and Shrub ecological province (McNab et al. 2007). The landscape of the California Central Coast ecological section is characterized by parallel valleys and ranges with low to moderate elevations. Cover types in this section consist of western hardwoods, coastal scrub, chaparral, and annual grasslands. Surface water is characterized by gently flowing streams flowing west into the San Francisco Bay. Local reservoirs store seasonal rainfall for municipal water supply and flood control, and streams are often channelized, especially in urban areas. In addition, the province is described as having a Mediterranean-like climate with mild, wet winters and dry, and hot summers (McNab et. Al. 2007).

### Local Setting

The biological RSA is located on the eastern edge of the San Francisco Bay, in the flatlands between Oakland, Hayward, and Fremont, including Niles and Newark. The biological and aquatic RSAs lie along the western edge of the Diablo Range at the base of the San Leandro Hills. Topography across the biological and aquatic RSAs is flat to gently rolling. Elevation ranges from sea level to approximately 100 feet above mean sea level. Land use within the biological and aquatic RSAs consists largely of industrial uses, with smaller amounts of commercial and residential usage. The majority of the proposed Project footprint consists of existing railroad corridors that are largely maintained (e.g., regularly mowed, trimmed, weed controlled) and devoid of vegetation.

### Vegetation Communities and Other Land Cover Types

Thirteen vegetation communities and other land cover types were identified during site surveys conducted within the biological RSA. Table 3.5-1 summarizes vegetation communities or land cover types within the biological RSA. As indicated in Table 3.5-1, the dominant vegetation communities or

land cover types in the biological RSA are urban (3,745.96 acres), lacustrine (122.77 acres), and California annual grassland (91.09 acres), which equals approximately 96.5 percent of the total area. Mapping of these vegetation communities is provided in Appendix C. Descriptions of common species associated with each vegetation community documented in the biological RSA are presented below. Vegetation classifications, mapping, and the following descriptions are based on data obtained from the CWHR database (CDFW 2021b). Characterization of aquatic resources is discussed in the Aquatic Resources Section and in more detail in Appendix C.

**Table 3.5-1. Summary of Vegetation Communities within Biological RSA**

| Vegetation Community | Portion of Biological RSA (acres) |
|---|---|
| **California Annual Grassland (AGS)** | 91.09 acres |
| **Coastal Oak Woodland (COW)** | 2.44 acres |
| **Coastal Scrub (CSB)** | 0.78 acre |
| **Cropland (CRP)** | 22.10 acres |
| **Estuarine (EST)** | 2.34 acres |
| **Eucalyptus (EUC)** | 1.66 acres |
| **Freshwater Emergent Wetland (FEW)** | 8.40 acres |
| **Lacustrine (LAC)** | 122.77 acres |
| **Mixed Riparian Forest (MRF)** | 4.85 acres |
| **Riverine (RIV)** | 32.36 acres |
| **Ruderal (RUD)** | 61.84 acres |
| **Saline Emergent Wetland (SEW)** | 6.42 acres |
| **Urban (URB)** | 3,745.96 acres |

#### California Annual Grassland (AGS)

The dominant species in this community are non-native annual grasses, such as wild oats (*Avena* spp.) and bromes (*Bromus* spp.). Invasive species, such as yellow star thistle (*Centaurea solstitialis*) and mullein (*Verbascum* spp.), were also observed. A few ornamental trees, such as Peruvian pepper

(*Schinus molle*) and eucalyptus (*Eucalyptus* spp.), and shrubs, such as native manzanita (*Arctostaphylos* spp.), are sparsely scattered in various portions of the biological RSA.

### Estuarine (EST)

Estuarine habitats occur on periodically and permanently flooded substrates and open water portions of bays and other coastal waters, where salt and freshwater mix, creating areas of moderate and often changing salinity levels. Estuarine habitats differ greatly in size, shape, and volume of water flow, based on local topography. In the biological RSA, estuarine habitat consists largely of channelized waterways, and include tidal canals, tidal wetland canals, and tidal perennial streams.

### Eucalyptus (EUC)

Eucalyptus communities are typically characterized by dense stands, with a closed canopy, and can have a range of understory compositions. Understory consists of annual grasses and weedy forbs. Eucalyptus habitat has the potential to support nesting and foraging raptors, small vertebrate species such as the gopher snake (*Pituophis catenifer*), and the monarch butterfly (*Danaus plexippus*). A small amount of Eucalyptus habitat, in the form of two rows of trees, occurs within the biological resource RSA at Ardenwood Historic Farm.

### Freshwater Emergent Wetland (FEW)

Freshwater emergent wetland habitat is flooded frequently and is characterized by rooted hydrophytic (i.e., water-loving), vegetation. This community can be found in shallow to deep depressions on flat to rolling topography. Typical plant species include those that thrive in saturated soil conditions, including cattails (*Typha* spp.), bulrushes (*Schoenoplectus* and *Bolboschoenus* spp.), sedges (*Carex* spp.), and rushes (*Juncus* spp.). This community is very productive and supports an array of plant and wildlife species. Raptors and other birds utilize this habitat for foraging and roosting, while other species rely on these areas for the duration of their life including countless freshwater invertebrates.

### Lacustrine (LAC)

Typical lacustrine habitats include permanently flooded lakes and reservoirs, intermittent lakes, and shallow ponds. Depth can vary from a few inches to hundreds of feet. Lacustrine habitats have the potential to support numerous aquatic and terrestrial native and non-native plant and wildlife species.

### Mixed Riparian Forest (MRF)

Riparian habitat consists of the corridor of woody species along the bank of intermittent and perennial riverine and detention basins. Trees and shrubs typical of riparian include willows (*Salix* spp.), maples (*Acer spp.*), alders (*Alnus* sp.), Fremont's cottonwood (*Populus fremontii*), valley oak (*Quercus lobata*), and coast live oak (*Quercus agrifolia*). Gaps in the riparian canopy can be dominated by cattails, tule, non-native annual grasses, or be unvegetated. Wildlife species associated with riverine habitats would also be associated with riparian habitat. However, riparian habitats also contain wildlife species that would occur above the OHWM, including small mammals and birds.

### Riverine (RIV)

Typical riverine habitats include intermittent or continually flowing water of streams and creeks. Freshwater perennial stream habitats that occur in the biological RSA include Alameda Creek and several channelized streams and canals. Alameda Creek is one of the largest tributaries feeding into the San Francisco Bay, covering roughly 680 square miles, and provides habitat for both fish and wildlife species including central California coast steelhead (*Oncorhynchus mykiss*) and western pond turtle (*Emys marmorata*). In addition, San Leandro Creek flows from Lake Chabot to the San Francisco Bay, between the cities of Oakland and San Leandro. Steelhead are known to occur within San Leandro reservoir and other species, such as western pond turtle, may use San Leandro Creek as a movement corridor. Within the biological RSA, Alameda Creek, San Leandro Creek, and Ward Creek are channelized and lined with riprap. Two drop structures within the Alameda Creek confine and slow the channel, resulting in long, deep pool habitat with some backwater habitat.[5] The USACE has identified the creek as a navigable water, protected by Section 10.

### Ruderal (RUD)

Ruderal communities are characterized by heavy disturbance and a sparse cover of non-native or weedy species. It is often classified as part of urban habitat, described below. Ruderal habitat in the biological RSA consists of a variety of non-native annual grasses and other plant species common in disturbed habitats. This vegetation community has the potential to support Congdon's tarplant and burrowing owl.

### Saline Emergent Wetland (SEW)

Saline emergent wetlands typically include salt/brackish marshes with thick vegetation coverage except in those locations with standing or flowing water. These communities tend to occur above intertidal sand and mud flats, and below upland communities. Plant species commonly observed in these habitats include California cordgrass (*Spartina foliosa*), pickleweed (*Salicornia* spp.), saltmarsh bulrush (*Bolboschoenus robustus*), and tules (*Schoenoplectus* spp.). This habitat type has the potential to support a variety of reptiles, amphibians, birds, and mammals. Species such as the California black rail (*Laterallus jamaicensis coturniculus),* a few sub-species of song sparrow (*Melospiza melodia*), and the salt marsh yellowthroat (*Geothlypis trichas*) are endemic to this community in the San Francisco Bay.

### Urban (URB)

Urban habitat in the biological RSA includes the existing rail ROW, industrial and residential properties, existing roads and road shoulders, recreational areas, and various other areas with a history of disturbance. These areas are a mix of man-made structures, hardscape, and semi-barren areas with sparse ruderal vegetation consisting primarily of non-native annual grasses and invasive weeds. Because of the high degree of disturbance, urban areas generally have a low habitat value for wildlife, although several species adapted to disturbed conditions can utilize these areas. Impacts on urban habitat are not discussed further in this document as these impacts would not affect special-status species or other biological resources.

[5] Backwaters are essentially ponds connected to main water bodies and are important in providing areas of still water as a refuge for fish, in particular fish fry which thrive in their warm, shallow waters.

## Sensitive Natural Communities

Natural communities are considered to be of special concern based on (1) federal, state, or local laws regulating their development; (2) limited distributions; and/or (3) the habitat requirements of special-status plants or animals occurring in those habitats. Additionally, jurisdictional aquatic resources are considered sensitive natural communities. CDFW maintains a list of natural communities that are provided sensitivity rankings of S1 through S5 and considers those with ranks of S1 through S3 sensitive. Sensitive natural communities in the biological RSA consist of California Sensitive Natural Communities, Critical Habitat, EFH, and jurisdictional aquatic resources such as riverine, freshwater emergent wetland, lacustrine, estuarine, and saline emergent wetland. Consultation with regulatory agencies regarding proposed Project impacts to sensitive natural communities occurring within or adjacent to the proposed Project footprint is required.

### California Sensitive Natural Communities

A California sensitive natural community is one that has a state rarity rank of S1, S2, S3, S4, or S5 as determined by the NatureServe Heritage Program Status Ranking system (Faber-Langendoen et al. 2012) or is identified as subject to local, state, or federal regulations (e.g., oak woodland alliance and vegetation communities meeting USACE's three -parameter wetland criteria). CDFW considers communities with a sensitivity ranking of S1- S3 as sensitive. Definitions of the state ranks are as follows:

- **S1:** Critically imperiled and at a very high risk of extinction or elimination due to extreme rarity, very steep declines, or other factors.
- **S2:** Imperiled and at high risk of extinction or elimination due to a very restricted range, very few populations or occurrences, steep declines, or other factors.
- **S3:** Vulnerable and at moderate risk of extinction or elimination due to a restricted range, relatively few populations or occurrences, recent and widespread declines, or other factors.

Within the biological RSA, mixed riparian forest is the only California sensitive natural community, with ranking S3. Consultation with regulatory agencies regarding proposed Project impacts to mixed riparian forest occurring within or adjacent to the proposed Project footprint would be required.

### Invasive Species

The Cal-IPC Invasive Plant Inventory highlights non-native plants that are serious problems in wildlands (i.e., natural areas that support native ecosystems, including national, State, and local parks; ecological reserves; wildlife areas; national forests; and Bureau of Land Management lands). The inventory categorizes plants as High, Moderate, or Limited based on each 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.

As shown in **Table 3.5-2**, 23 invasive plant species with a Limited, Moderate, or High Cal-IPC rating were identified in the RSA.

**Table 3.5-2. Cal-IPC Rating for Invasive Plant Species Identified in the RSA**

| Scientific Name | Common Name | Cal-IPC Rating |
|---|---|---|
| *Avena barbata* | slender oat | Moderate |
| *Avena fatua* | wild oat | Moderate |
| *Brassica nigra* | black mustard | Moderate |
| *Bromus diandrus* | ripgut brome | Moderate |
| *Carduus pycnocephalus* | Italian thistle | Moderate |
| *Cirsium vulgare* | bull thistle | Moderate |
| *Conium maculatum* | poison hemlock | Moderate |
| *Cortaderia jubata* | Pampas grass | High |
| *Cynodon dactylon* | Bermuda grass | Moderate |
| *Dittrichia graveolens* | stinkwort | Moderate |
| *Eucalyptus globulus* | blue gum | Limited |
| *Festuca myuros* | rattail sixweeks grass | Moderate |
| *Festuca perennis* | Italian rye grass | Moderate |
| *Foeniculum vulgare* | sweet fennel | Moderate |
| *Geranium dissectum* | cutleaf geranium | Limited |
| *Helminthotheca echioides* | bristly ox-tongue | Limited |
| *Hirschfeldia incana* | short-podded mustard | Moderate |
| *Hordeum marinum ssp. Gussoneanum* | Mediterranean barley | Moderate |

**Table 3.5-2. Cal-IPC Rating for Invasive Plant Species Identified in the RSA**

| Scientific Name | Common Name | Cal-IPC Rating |
|---|---|---|
| *Hordeum murinum ssp. Leporinum* | foxtail barley | Moderate |
| *Lepidium latifolium* | perennial pepperweed | High |
| *Ludwigia hexapetala* | six petal water primrose | High |
| *Marrubium vulgare* | white horehound | Limited |
| *Medicago polymorpha* | California burclover | Limited |
| *Mentha pulegium* | pennyroyal | Moderate |
| *Nicotiana glauca* | tree tobacco | Moderate |
| *Phytolacca americana* | pokeweed | Limited |
| *Plantago lanceolata* | English plantain | Limited |
| *Polypogon monspeliensis* | rabbitsfoot grass | Limited |
| *Raphanus sativus* | wild radish | Limited |
| *Rumex crispus* | curly dock | Limited |
| *Salsola tragus* | Russian thistle | Limited |
| *Schinus molle* | Peruvian pepper tree | Limited |
| *Sesbania punicea* | rattlebox | High |
| *Torilis arvensis* | field hedge parsley | Moderate |
| *Washingtonia robusta* | Mexican fan palm | Moderate |

### Critical Habitat

A small portion of the biological RSA contains designated critical habitat for southern distinct population segment green sturgeon. However, this critical habitat is located outside of the proposed Project footprint (Figure 3.5-2). Consultation with the USFWS regarding effects to green sturgeon is required for potential effects in the biological RSA and downstream.

### Essential Fish Habitat (EFH)

EFH includes those waters and substrates necessary to fish for spawning, breeding, feeding, or growth to maturity. Salmonid EFH overlaps the entire aquatic RSA, Figure 3.5-3 depicts the location and extent of EFH units in the vicinity of the biological RSA. Although salmonid EFH is mapped throughout the entire area, there is only a small amount of potentially suitable habitat for salmonid species within the proposed Project footprint. Consultation with the NMFS regarding effects to EFH is required for potential impacts in the biological RSA and downstream.

### Jurisdictional Aquatic Resources

Jurisdictional aquatic resources within the biological RSA are mapped as estuarine, freshwater emergent wetland, lacustrine, riverine, and saline emergent wetland. As depicted in Attachment 2 of Appendix C there are multiple jurisdictional aquatic resources mapped within the proposed Project footprint. Mitigation measures to ensure that the proposed Project does not result in significant impacts on jurisdictional aquatic resources would be required as part of the regulatory permits for impacts on jurisdictional features.

## Special-Status Species

Special-status species are plants and animals that are legally protected under FESA, CESA, or other regulations; and species that are considered sufficiently rare by the scientific community to qualify for such listing.

Of the 135 special-status species identified by the USFWS, NMFS, CDFW, and CNPS database queries for the biological RSA, 21 have the potential to occur based on suitable habitat being present. Table 3.5-3 provides those species determined to have potential to occur within the biological RSA, along with their status, habitat characteristics, and rationale. In cases where a determination was made that no suitable habitat for a given species was present, that species is not discussed further in this document. Attachment 1 of Appendix C, summarizes the special-status species identified in the database results, describes the habitat requirements for each species, and provides conclusions regarding the potential for each species to be affected by proposed Project-related activities in the biological RSA). Consultation with regulatory agencies regarding effects to special-status species is required for species that may be present in the biological RSA.

**Figure 3.5-2. Critical Habitat**

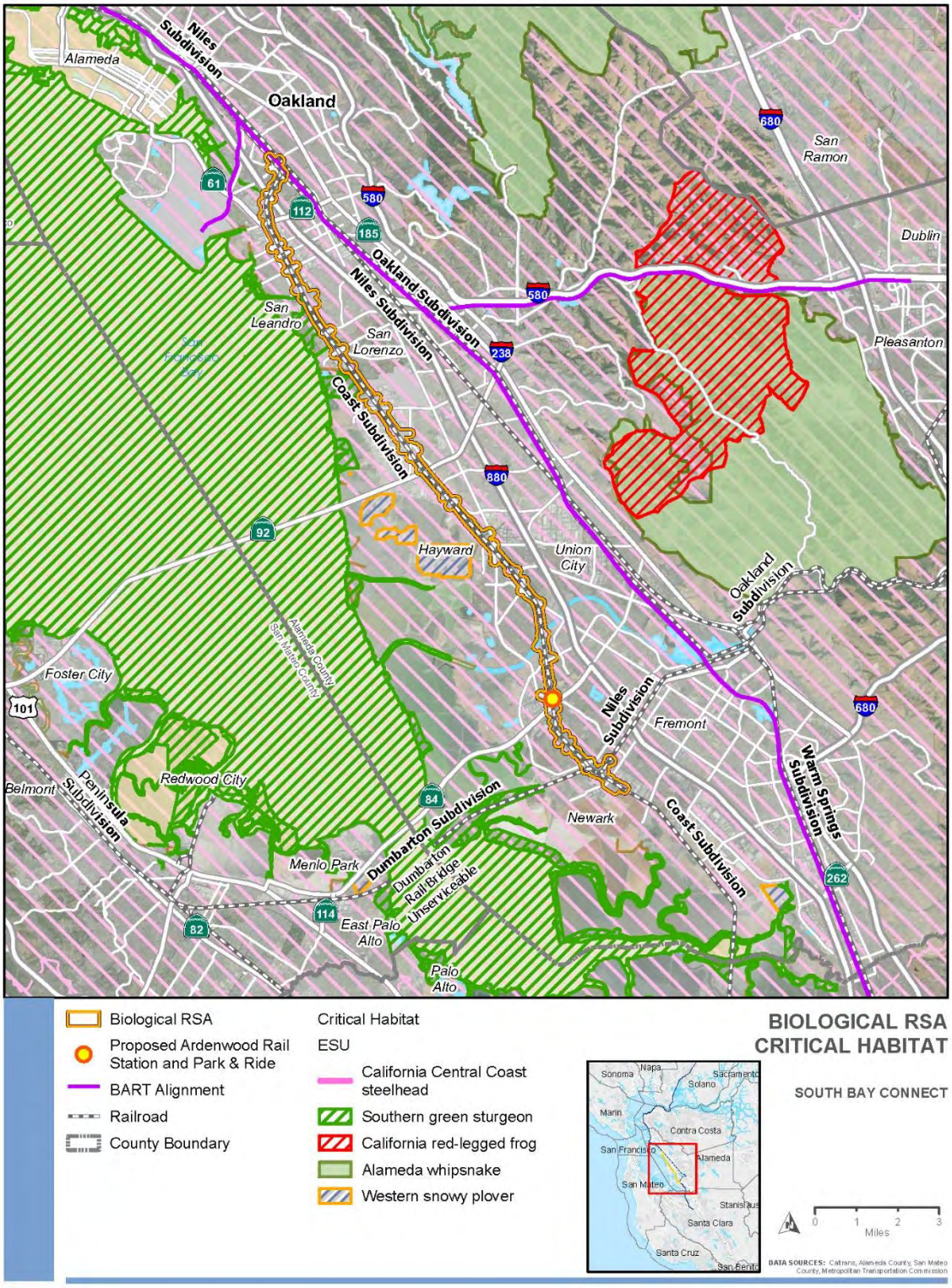


**Figure 3.5-3. Essential Fish Habitat**

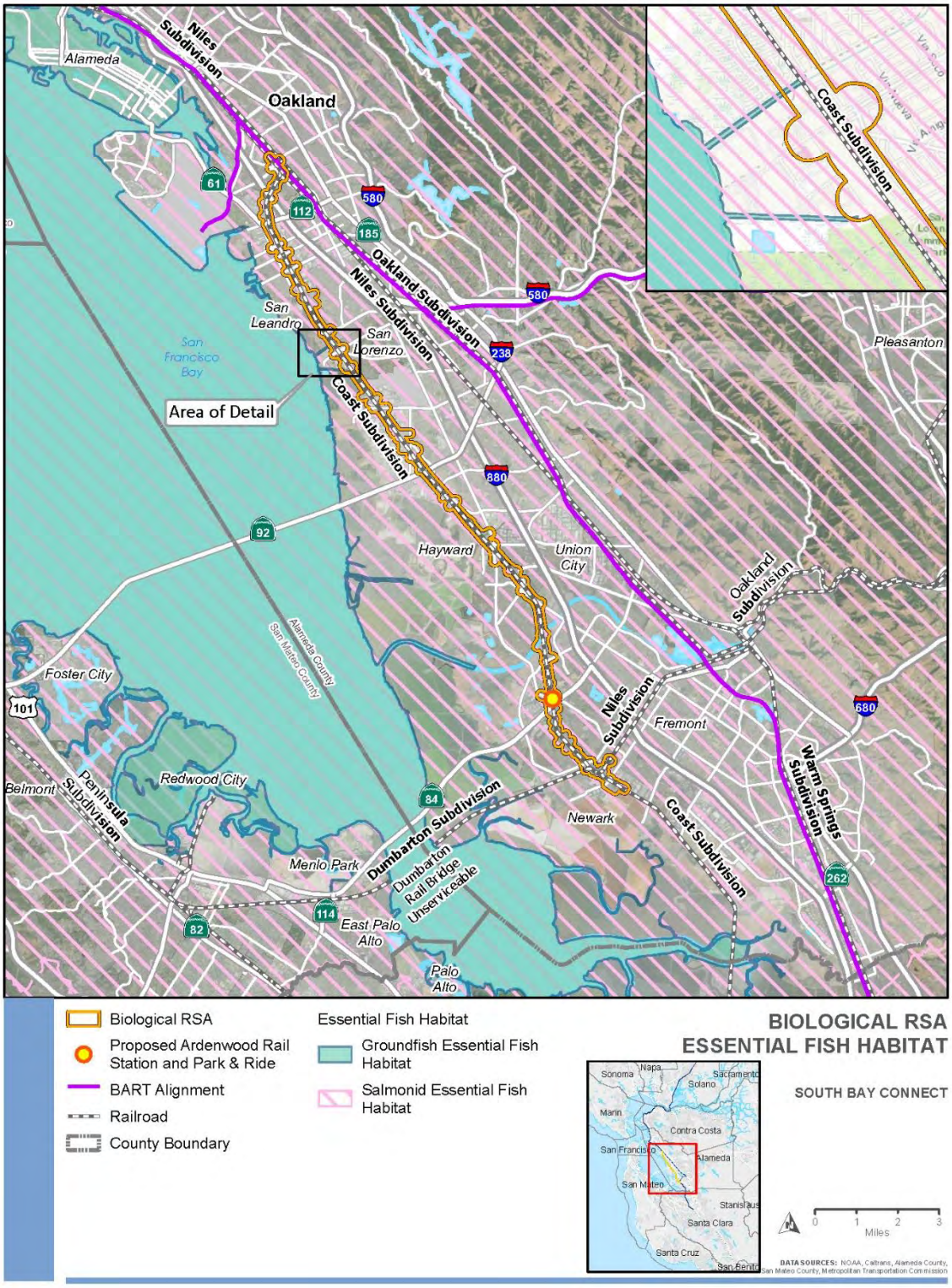


**Table 3.5-3. Special-status Species with the Potential to Occur in the Biological RSA**

| Species | Sensitivity Status[1] | Habitat Characteristics | Rationale |
|---|---|---|---|
| ***Plants*** | | | |
| **Congdon's tarplant (*Centromadia parryi* ssp. *Congdonii*)** | Federal: None<br>State: None<br>CNPS: 1B.1 | Congdon's tarplant is typically found in alkaline soils in grassland and ruderal habitat at elevations ranging from 0 to 755 feet. The plant's blooming period is between May and November. | Suitable habitat for this species is present within the RSA. |
| **California seablite (*Suaeda californica*)** | Federal: FE<br>State: None<br>CNPS: 1B.1 | California seablite is found in coastal salt marshes and swamps at elevations ranging from 0 to 50 feet. California seablite's blooming period is between July and October. | Suitable habitat for this species is present within the RSA. |
| ***Invertebrates*** | | | |
| **Crotch's bumble bee (*Bombus crotchii*)** | Federal: None<br>State: CE | Crotch's bumble bee inhabits open grassland and scrub habitats with nesting typically occurring underground. This species is classified as a short-tongued species, whose food plants include those in the following genera: Asclepias, Chaenactis, Lupinus, Medicago, Phacelia, and Salvia (Williams et al. 2014). | Suitable habitat for this species is present throughout the RSA. |
| **Western bumble bee (*Bombus occidentalis*)** | Federal: None<br>State: CE | The western bumble bee inhabits open grassy areas, urban parks and gardens, chaparral and shrub areas, and mountain meadows. The bee typically nests underground in abandoned rodent burrows, such as old squirrel or other animal nests, and in open west-southwest slopes bordered by trees, although a few nests have been reported from above-ground locations such as in logs among | Suitable habitat for this species is present throughout the RSA. |

**Table 3.5-3. Special-status Species with the Potential to Occur in the Biological RSA**

| Species | Sensitivity Status[1] | Habitat Characteristics | Rationale |
|---|---|---|---|
| | | railroad ties. Availability of nest sites may depend on rodent abundance (Xerces 2014). | |
| **Monarch butterfly (California overwintering population) [*Danaus plexippus* (pop. 1)]** | Federal: FC<br>State: None | The Monarch butterfly overwinters along the coast from Mendocino County, south into Baja California. The butterfly occupies wind-protected groves of gum (*Eucalyptus* spp.), Monterey pine (*Pinus radiata*), or Monterey cypress (*Hesperocyparis macrocarpa*) with nectar and water sources nearby (IELP 2012). | Suitable habitat for this species is present in the RSA. Additionally, the butterfly has known overwintering occurrences at Ardenwood Historic Farm, which is adjacent to the proposed Ardenwood Rail Station. |
| ***Fish*** | | | |
| **Green sturgeon (southern DPS) (*Acipenser medirostris*)** | Federal: FT<br>State: SSC | Spawning occurs primarily in the Sacramento River, but those that spawn in the Feather and Yuba Rivers are also part of the southern DPS. Oceanic waters, bays, and estuaries during non-spawning season. Enters San Francisco Bay late winter through early spring, and spawn occurs from April through early July. Spawn in cool sections of river mainstems in deep pools containing small to medium-sized gravel, cobble, or boulder substrate (NMFS 2015). | Designated critical habitat for this species occurs within and adjacent to the biological RSA. |
| **Steelhead (central California coast Distinct Population Segment [DPS]) [*Oncorhynchus mykiss irideus* (pop. 8)]** | Federal: FT<br>State: None | This DPS includes naturally spawned and artificially propagated steelhead. The naturally spawned anadromous steelhead originate below natural and manmade impassable barriers from the Russian River to Aptos Creek, and all drainages of San Francisco and San Pablo | Steelhead may utilize the portion of Alameda Creek (or other waterways) in the biological RSA for migration. |

**Table 3.5-3. Special-status Species with the Potential to Occur in the Biological RSA**

| Species | Sensitivity Status[1] | Habitat Characteristics | Rationale |
|---|---|---|---|
| | | Bays eastward to Chipps Island at the confluence of the Sacramento and San Joaquin Rivers. The artificially propagated steelhead originate from two artificial propagation programs: Don Clausen Fish Hatchery Program and Kingfisher Flat Hatchery Program (Monterey Bay Salmon and Trout Project). Spawning habitat includes gravel-bottomed, fast-flowing, well-oxygenated rivers and streams. Non-spawning habitat includes estuarine and marine waters (NMFS 2021). | |
| ***Reptiles*** | | | |
| **Western pond turtle (*Emys marmorata*)** | Federal: None<br>State: SSC | The western pond turtle is found throughout California except for Inyo and Mono counties. Generally, the turtle occurs in various water bodies including natural and artificial permanent and ephemeral systems. Upland habitat that is at least moderately undisturbed is required for nesting and overwintering, in soils that are loose enough for excavation (Thomson et al. 2016). | Suitable habitat for this species is present in Alameda Creek and is present in the RSA for Biological Resources. |
| ***Birds*** | | | |
| **Burrowing owl (*Athene cunicularia*)** | Federal: MBTA<br>State: SSC | The burrowing owl is found throughout California in open, dry grasslands and various desert habitats. The owl requires open areas with mammal burrows; especially those of California ground squirrel (*Otospermophilus beecheyi*). Inhabits rolling hills, grasslands, | Suitable habitat for this species is present along existing railroad tracks, grasslands, and other ruderal habitat throughout the RSA. |

**Table 3.5-3. Special-status Species with the Potential to Occur in the Biological RSA**

| Species | Sensitivity Status[1] | Habitat Characteristics | Rationale |
|---|---|---|---|
| | | fallow fields, sparsely vegetated desert scrub, vacant lots, and other open human disturbed lands such as airports and golf courses. The owl is absent at elevations above 5,500 feet (CWHR Program Staff 1999a). | |
| **Western snowy plover (*Charadrius nivosus nivosus*)** | Federal: FT, MBTA<br>State: SSC | Coastal populations of western snowy plover nest on sandy or gravelly dune-backed beaches, sand spits, and on estuarine salt pans and lagoons (USFWS 2005). Inland populations nest along barren to sparsely vegetated flats and along shores of alkaline and saline lakes, reservoirs, ponds, braided river channels, agricultural wastewater ponds, and salt evaporation ponds (Shuford and Gardali 2008). Inland nesting occurs at Salton Sea, Mono Lake, and isolated sites on the shores of alkali lakes in northeastern California, the Central Valley, and southeastern deserts (CWHR Program Staff 2008a). | Suitable habitat for this species is present within the RSA. Additionally, Eden Landing Ecological Reserve contains critical habitat for the species. Nearest critical habitat is 0.25 miles from the Union Pacific Railroad (UPRR) ROW on the Coast Subdivision. |
| **Northern harrier (*Circus hudsonius*)** | Federal: MBTA<br>State: SSC | Northern harriers nest on the ground in patches of dense, tall vegetation in undisturbed areas. The birds breed and forage in a variety of open habitats such as marshes, wet meadows, weedy borders of lakes, rivers and streams, grasslands, pastures, croplands, sagebrush flats, and desert sinks (Shuford and Gardali 2008). | Suitable habitat for this species is present within marshlands and grassland habitat within the RSA. |
| **White-tailed kite (*Elanus leucurus*)** | Federal: MBTA<br>State: FP | The white-tailed kite is a fairly common resident of the Central Valley, coast, and Coast Range Mountains. The bird nests in oak | Suitable habitat for this species is present throughout the RSA. |

**Table 3.5-3. Special-status Species with the Potential to Occur in the Biological RSA**

| Species | Sensitivity Status[1] | Habitat Characteristics | Rationale |
|---|---|---|---|
| | | savanna, oak and willow riparian, and other open areas with scattered trees near foraging habitat, and forages in open grasslands, meadows, farmlands, and emergent wetlands. The birds are often seen hover foraging over roadsides or grassy highway medians (CWHR Program Staff 2005a). | |
| **Bald eagle (*Haliaeetus leucocephalus*)** | Federal: MBTA, BGEPA<br>State: SE, FP | Permanent resident in the highest Coast Range mountains, across the Cascade Range, and down the Sierra Nevada to the eastern Transverse Ranges of San Bernardino and Riverside counties. Uncommon migrant and winter visitor to lowland rivers, lakes, and reservoirs. Nests in large, old-growth, or dominant live trees with open branches, especially ponderosa pine (*Pinus ponderosa*). Requires large bodies of water or rivers with abundant fish, and adjacent snags (CWHR Program Staff 1999b). | Juvenile observed during reconnaissance survey near Alameda Creek but outside of the RSA; suitable foraging habitat located within the biological RSA. However, no suitable nesting habitat present in the biological RSA. |
| **Alameda song sparrow (*Melospiza melodia pusillula*)** | Federal: MBTA<br>State: SSC | The Alameda song sparrow is found near to tidal salt marshes, mainly on the fringes of south San Francisco Bay with strongholds near Milpitas and in the Palo Alto Baylands, though a few persist within San Francisco city limits and as far north as El Cerrito in Contra Costa County (Shuford and Gardali 2008). | Suitable habitat for this species is present within a portion of the RSA. |
| **San Francisco common yellowthroat** | Federal: MBTA<br>State: SSC | The San Francisco common yellowthroat dwells only in the San Francisco Bay Area. The bird is primarily found in brackish and fresh marshes, but also | Suitable habitat for this species is present in the RSA. |

**Table 3.5-3. Special-status Species with the Potential to Occur in the Biological RSA**

| Species | Sensitivity Status[1] | Habitat Characteristics | Rationale |
|---|---|---|---|
| **(*Geothlypis trichas sinuosa*)** | | occupies salt marsh and riparian woodland habitat. (Shuford and Gardali 2008). | |
| **California black rail (*Laterallus jamaicensis coturniculus*)** | Federal: MBTA<br>State: ST, FP | The California black rail is found in saline, brackish, and fresh emergent wetlands. While the bird is considered scarce, their true abundance is difficult to determine due to small size and extremely secretive nature. The bird is known to nest at scattered locations in the San Francisco Bay Area and Delta region, Point Reyes National Seashore, San Luis Obispo, and Orange counties, as well as the Imperial and Lower Colorado River Valleys, and appears intermittently and sparingly at a few locations in the Sacramento Valley (CWHR Program Staff 1999c). | Suitable habitat for this species is present in the RSA. |
| **California Ridgway's rail (*Rallus obsoletus obsoletus*)** | Federal: FE<br>State: SE, FP | The California Ridgway's rail is found near tidal marshes on the fringes of San Pablo Bay, San Francisco Bay, Monterey Bay, and Morro Bay. The bird requires intricate network of sloughs with small natural berms along tidal channels, preferably with cordgrass (*Spartina* spp.) and pickleweed (*Salicornia* spp.) (USFWS 2017). | Suitable habitat for this species is present in the RSA. |
| ***Mammals*** | | | |
| **Salt marsh harvest mouse (*Reithrodontomys raviventris*)** | Federal: FE<br>State: SE, FP | The salt marsh harvest mouse is found in salt and brackish marshes with dense stands of pickleweed adjacent to upland, salt-tolerant vegetation in the San Francisco, San Pablo, and Suisun Bay areas (USFWS 2010). | Suitable habitat for this species is present within a portion of the RSA. |

**Table 3.5-3. Special-status Species with the Potential to Occur in the Biological RSA**

| Species | Sensitivity Status[1] | Habitat Characteristics | Rationale |
|---|---|---|---|
| **Pallid bat (*Antrozous pallidus*)** | Federal: None<br>State: SSC | The pallid bat can be found across nearly all of California except for high elevation portions of the Sierra Nevada Mountains and Del Norte, western Siskiyou, Humboldt, and northern Mendocino counties. The bat is generally found in a wide variety of habitats but with some preference for drier areas. Day roosts occur in caves, crevices, mines, and occasionally in hollow trees and buildings (Harris et al. 1990). | Suitable habitat for this species is present throughout the RSA. |
| **Townsend's big-eared bat (*Corynorhinus townsendii*)** | Federal: None<br>State: SSC | Townsend's big-eared bat ranges throughout California except for high elevation portions of the Sierra Nevada Mountains. Generally, the bats prefer mesic habitats but is known to occur in all non-alpine habitats of California. Roosting occurs in caves, tunnels, mines, buildings, or other structures and this species may use different roosting sites for day and night (CWHR Program Staff 2000). | Suitable habitat for this species is present throughout the RSA. |
| **Western mastiff bat (*Eumops perotis californicus*)** | Federal: None<br>State: SSC | The western mastiff bat ranges throughout all of Southern California, the central coast, and the Sierra Nevada Mountains. Generally, the bat occurs in open, arid, or semi-arid habitats, and roosts in rock crevices and buildings. (Ahlborn and White 1990). | Suitable habitat for this species is present throughout the RSA. |

**1 FE=Federally Endangered, FT=Federally Threatened, FC=Federal Candidate, MBTA=Migratory Bird Treaty Act, SE=State Endangered, ST=State Threatened, CE = California Candidate Endangered, FP=Fully Protected, SSC=State Species of Species Concern, 1B.1= Rare, Threatened, or Endangered in California and Elsewhere**

### Wildlife Movement Corridors

Wildlife corridors refer to established migration routes commonly used by resident and migratory species for passage from one geographic location to another. Corridors are present in a variety of habitats and link otherwise fragmented acres of high-quality habitat. Maintaining the continuity of established wildlife corridors is important to a) sustain species with specific foraging requirements, b) preserve a species' distribution potential, and c) retain diversity among many wildlife populations. Therefore, resource agencies consider wildlife corridors to be a sensitive resource.

A review of CDFW BIOS 5 Viewer (CDFW 2021c) and its wildlife movement corridor layers, including the Essential Connectivity Areas [ds620] layer, the Natural Landscape Blocks [ds621] layer, and the Missing Linkages in California [ds420] layer identified several natural landscape blocks occurring within or adjacent to the biological RSA. No Missing Linkages were identified that intersected the RSA; however, Natural Landscape Block #125, which includes the Coyote Hills Regional Park and Eden Landing Ecological Reserve, partially overlaps the RSA. Alameda Creek and its associated riparian corridor provide a wildlife corridor through the RSA. Additionally, multiple open culverts and channelized ditches and streams provide some connectivity through the biological RSA between the marsh and estuarine habitat in San Francisco Bay and upland habitats to the east.

In addition to the wildlife movement corridors, creeks within the RSA provide fish passage, such as Alameda Creek. The Caltrans Fish Passage Assessment Database (CalFish 2024) layer was also reviewed in relation to the biological RSA, all total barriers to fish passage are upstream of the proposed Project. Consultation with regulatory agencies regarding effects to wildlife movement corridors is required when there may be potential effects to corridors in the biological RSA.

### Aquatic Resources

Per Section 404 of the CWA, the Aquatic Resources Delineation Report (ICF 2021) documented 30.7 acres of potentially jurisdictional features in the aquatic RSA, which consists of the proposed Project footprint plus a 50-foot buffer. As shown in Attachment 2 of Appendix C, potentially jurisdictional features in the aquatic RSA that could be subject to Sections 404 and 401 of the CWA included 0.2 acres of freshwater wetlands, 6.6 acres of tidal wetlands, 12.7 acres of freshwater non-wetland waters, and 11.3 acres of tidal non-wetland waters. Tidal features were mapped below the mean high tide line using vegetative and hydrologic field indicators. Per Section 10 of the Rivers and Harbors Act, 1.2 acres of navigable waters were delineated in the aquatic RSA along San Lorenzo Creek and Alameda Creek. Navigable waters were delineated below the mean high-water line. For more details, see Attachment 2 of Appendix C. Consultation with RWQCB/CDFW/USACE regarding effects to aquatic resources is required for potential effects to aquatic resources that may be present in the biological RSA.

## 3.5.5 Best Management Practices

As noted in Chapter 2, Project Alternatives, CCJPA would incorporate a range of BMPs to avoid and minimize adverse effects on the environment that could result from implementation of the proposed Project. BMPs are included in the proposed Project description, and the impact analyses were conducted assuming application of these practices.

The following BMPs would be implemented as part of the proposed Project:

**BMP HYD-1 Stormwater Management and Treatment Plan.**

**BMP BIO-1 Weed Abatement Program.**

## 3.5.6 Environmental Impacts

This section describes the potential environmental impacts on biological resources as a result of implementation of the proposed Project. Lettering shown within title for each environmental factor below correlates with CEQA Statute and Guidelines, Appendix G table lettering and numbering.

Impacts as a result of implementing the proposed Project can be broadly classified into construction and operational effects. Long-term or permanent impacts and short-term or temporary impacts related to biological resources would be anticipated as a result of constructing the proposed Project. Most impacts related to biological resources would occur during construction when sensitive plant communities or habitat is disturbed from clearing for construction, placement of permanent structures (e.g., track, stations, bridges, and other rail infrastructure), staging of equipment, and stockpiling of soil, ballast, or other construction materials. Other short-term construction-related impacts on adjacent habitats and corresponding wildlife could be caused by noise, vibration, and air pollution from construction equipment and activities. Operational impacts on biological resources could result in an increased strike risk to local wildlife from permanent changes to sensitive habitat within the biological RSA.

### 3.5.6.1 (a) Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife, U.S. Fish and Wildlife Service, or NOAA Fisheries?

#### No Project Alternative

**No Impact**. Under the No Project Alternative, the Capitol Corridor passenger rail service between Oakland and San Jose would not be relocated from the Niles Subdivision to the Coast Subdivision associated with the proposed Project. Improvements proposed for the Coast and Niles Subdivisions associated with the proposed Project would not occur. Capitol Corridor passenger trains would continue to operate based on current routes with no changes. There would be no changes to connectivity or operational efficiency. Therefore, the No Project Alternative would not result in impacts or changes to special-status species within the RSA, resulting in no impact.

#### Proposed Project

##### Construction

**Less Than Significant Impact with Mitigation Incorporated.** As summarized in Table 3.5-3, 21 special-status plant and wildlife species have the potential to occur within the RSA and be impacted with implementation of the proposed Project.

***Special-Status Plants***

*Federally Listed Plant Species*

*California seablite (FE- Federally Endangered, 1B.1 – Rare, Threatened, or Endangered in California and Elsewhere).*

California seablite has the potential to occur in saline emergent wetlands and estuarine habitats, both of which occur in the biological RSA along the Coast Subdivision, adjacent to Heron Bay (Attachment 3 of Appendix C). Potential impacts on California seablite may occur as a result of track and adjacent land improvements at Thornton Road and the Newark Junction, the replacement of portions of existing rail and ties, the addition of several inches of new ballast, and the upgrade and slight shift of tracks. If the species is present, implementation of the proposed Project may impact California seablite due to disturbance or destruction of individual plants and suitable habitat. Direct impacts could include grading or filling areas supporting this species, trampling or crushing of plants, and soil compaction. Indirect impacts could include increased mobilization of dust onto plants, which can affect their photosynthesis and respiration, or changes to hydrology supporting these plants due to grading or construction in nearby habitats.

The proposed Project includes implementation of BMP HYD-1 Stormwater Management and Treatment Plan, and BMP BIO-1 Weed Abatement Program which would avoid and minimize potential impacts on California seablite during construction. Mitigation Measures (MM) BIO-1 through MM BIO-4 would be required to mitigate impacts. BMP HYD-1 requires compliance with construction BMPs related to soil stabilization, sediment control, wind erosion control, vehicle tracking control, non-stormwater management, and waste management practices. MM BIO-1 Implement Biological Resource Protection Measures during Construction requires a mandatory environmental awareness training program for all on-site construction personnel. Prior to ground disturbance, MM BIO-2 Rare Plant Pre-construction Surveys would require rare plant surveys in work areas where suitable habitat for California seablite have the potential to occur. In the event that California seablite is identified during pre-construction surveys, MM BIO-3 Rare Plant Avoidance Buffers, and MM BIO-4 Rare Plant Mitigation/Habitat Mitigation Management Plan would be required. Implementation of the measures would reduce construction related impacts on California seablite to a less than significant level.

*Other Special-status Plant Species*

*Congdon's Tarplant (1B.1- – Rare, Threatened, or Endangered in California and Elsewhere).*

Congdon's tarplant is a special-status plant with a California rare plant rank of 1B.1. Congdon's tarplant has the potential to occur within ruderal habitat in the biological RSA along a portion of the Coast Subdivision adjacent to Heron Bay and along other portions of the corridor (Attachment 3 of Appendix C). Potential impacts on Congdon's tarplant may occur during construction activities such as track and adjacent land improvements, replacement of portions of existing rail and ties, addition of new ballast, and the upgrade and shifting of tracks. Implementation of the proposed Project may impact Congdon's tarplant due to disturbance, destruction of individual plants and degradation or destruction of suitable habitat. Direct impacts to Congdon's tarplant may result in grading or filling of areas supporting this species, soil compaction and individual plants being walked or driven on. Potential indirect impacts include increased mobilization of dust onto plants or changes to the hydrology supporting these plants from proposed Project construction activities in adjacent areas next to the rail ROW.

The proposed Project includes implementation of BMP HYD-1 (Stormwater Management and Treatment Plan ) and BMP BIO-1 (Weed Abatement Program), which would minimize potential impacts on Congdon's tarplant during proposed Project construction activities. Mitigation Measures MM BIO-1 (Implement Biological Resource Protection Measures during Construction), MM BIO-2 (Rare Plant Pre-construction Surveys), would be implemented to mitigate proposed Project impacts. In the event that Congdon's tarplant is identified during pre-construction surveys, MM BIO-3 (Rare Plant Avoidance Buffers) and MM BIO-4 (Rare Plant Mitigation/Habitat Mitigation Management Plan) would be required. Implementation of the measures would reduce construction-related impacts on Congdon's tarplant to a less than significant level.

***Special-Status Invertebrates***

*Crotch's Bumble Bee and Western Bumble Bee (CE – California Candidate Endangered).*

In September 2022, the California Supreme Court ruled that the California Fish and Game Commission can protect bumble bees under CESA. Two species of bumble bee—Crotch's bumble bee (*Bombus crotchii*) and western bumble bee (*Bombus occidentalis occidentalis*) that historically occurred in the Alameda County area are now special-status species for the purposes of CEQA review.

Like most bumble bees, the Crotch's bumble bee and western bumble bee primarily nests underground. The size of Crotch's bumble bee and western bumble bee colonies has not been well documented. Generally, for all bumble bee species, high-quality habitat has three major components: a diverse supply of flowers for nectar and pollen, nesting locations, and subterranean spaces for overwintering queens (Hatfield et al. 2012). In California, Crotch's bumble bee is found in grassland and scrub habitats (Attachment 3 of Appendix C). Proposed Project construction could impact Crotch's bumble bees and/or western bumble bees if they are present within the construction area at the time of construction, by causing the injury or mortality of adults, eggs, and larvae, burrow collapse, nest abandonment, and reduced nest success.

The proposed Project includes BMP HYD-1 Stormwater Management and Treatment Plan, which would minimize impacts on Crotch's bumble bee and western bumble bee during construction activities. The proposed Project will also implement Mitigation Measures MM BIO-1 Implement Biological Resource Protection Measures during Construction, MM BIO-6 Bumble Bee Pre-Construction Surveys, and MM BIO-7 Bumble Bee CESA Section 2080 Coordination would be required to mitigate proposed Project impacts. MM BIO-6 would require focused pre-construction surveys in work areas where suitable habitat for Crotch's bumble bee and western bumble bee have the potential to occur. In the event that Crotch's bumble bee and western bumble bee are identified during pre-construction surveys and cannot be avoided, MM BIO-7 requires consultation with CDFW to determine if a CESA Section 2080 Incidental Take Permit is required if "take" or adverse impacts to Crotch's bumble bees and/or western bumble bees cannot be avoided. Implementation of the measures would reduce construction related impacts on Crotch's bumble bee and western bumble bee to a less than significant level.

*Monarch Butterfly (FC – Federal Candidate).*

The monarch butterfly is known to overwinter in and near Ardenwood Historic Farm in eucalyptus trees (Attachment 3 of Appendix C). Ardenwood Historic Farm is one of over 500 sites along the west coast of California where monarchs gather for the winter to wait out cold winter temperatures further north. While monarchs mostly roost in trees, the species are known to rest on the ground

when they are too cold to fly. When the monarchs are warm enough to fly, they forage for nectar from plants nearby. Suitable breeding and foraging habitat for the monarch is higher-quality grassland habitat that is more likely to support milkweed and other nectar plant species (James et al. 2021). The monarch butterfly depends solely on milkweed plants for completing their life cycle, and milkweed plants are not expected to be present in all suitable habitat. Milkweed plants are expected to be restricted to small patches or isolated individual plants in most locations.

Direct impacts during construction activities could include mortality and injury of individual adults, eggs, and larvae, however prohibitions on take do not apply to federal candidates. While California annual grassland is present within the portions of the biological RSA within the Coast Subdivision, rail improvements are not anticipated to impact grassland vegetation communities. In addition, no tree removal is anticipated as part of work in or near Ardenwood Historic Farm, in the Coast Subdivision, where monarchs are known to overwinter.

However, if individual milkweed plants and other nectar plant species are present within or adjacent to the proposed Project footprint, construction activities conducted during the breeding or migratory season could crush host plants supporting egg masses and larvae or kill adult monarch butterflies feeding on nectar plants. In addition, fugitive dust generated from construction activities could temporarily affect host or nectar plants by covering leaves and reducing the vigor of plants. Similarly, fugitive dust during construction could also reduce the health and vigor of any monarch butterfly larvae present on host plants affected by fugitive dust and could also affect the ability of adult monarch butterflies to lay eggs or feed on host and nectar plants covered in fugitive dust.

The proposed Project would not cause indirect impacts on habitat from increased cover of non-native invasive plants because the habitat in the rail corridor is heavily disturbed and non-native invasive species are already widespread. As part of the proposed Project, BMP HYD-1 Stormwater Management and Treatment Plan would minimize indirect impacts to monarch butterfly during construction. MM BIO-1 Implement Biological Resource Protection Measures during Construction, MM BIO-2 Rare Plant Pre-construction surveys, and MM BIO-5 Monarch Butterfly Avoidance would mitigate direct and indirect impacts to monarchs during construction, reducing impacts to a less than significant level.

***Special-Status Fish***

*Central California Coast Steelhead (FT – Federally Threatened) and Green Sturgeon – southern DPS (FT – Federally Threatened/SSC – Species of Special Concern).*

Potentially suitable habitat for central California coast steelhead and green sturgeon occurs within the biological RSA, and critical habitat for green sturgeon occurs within the proposed Project footprint (Attachment 3 of Appendix C).

Habitat requirements for the central California coast steelhead include cool, clean flowing water with sufficient dissolved oxygen and minimal turbidity for successful incubation and rearing. Implementation of the proposed Project may require construction of a new railroad bridge over Alameda Creek. Due to the width of the creek, the new bridge structure may require up to two in-channel piers to support the structure. While no steelhead spawning or rearing habitat occurs within this reach of Alameda Creek, steelhead are known to utilize it as a migration corridor for adults moving upstream to spawn and for juveniles moving downstream to enter the ocean. Mature steelhead primarily migrate from the ocean to freshwater in the fall, then stays in suitable habitat until spawning during the winter and early spring (McEwan and Jackson 1996). Peak immigration

seems to have occurred historically in the fall from late September to late October (Hallock 1989), with peak spawning typically occurring January through March (Hallock et al. 1961; McEwan and Jackson 1996).

Green sturgeon (southern DPS) are typically found in the Sacramento River during spawning season, although populations do occur in the Feather and Yuba rivers. During the spawning season, the sturgeon requires cool water in the mainstems of rivers, with deep pools containing small to medium sized gravel, cobble or boulders. When not spawning, green sturgeon can be found in oceanic waters, bays, and estuaries.

In-water piers associated with the new railroad bridge are anticipated to be constructed using cast-in-drilled-hole piles which may require dewatering of a portion of Alameda Creek during construction and the need for pile-driving activities. NMFS (2023) identifies a behavioral disturbance threshold for fish from all source types as 150 dB. Anything higher than 150 dB could result in injury and/or mortality. It is anticipated that aquatic noise levels from pile-driving activities are not expected to have any significant impacts on fish within Alameda Creek, since the area where the pile-driving would occur would be dewatered. Therefore, there is no aquatic sound to travel through water. If bridge construction methods change and pile-driving activities would occur within the water, MM BIO-8 (Steelhead and Green Sturgeon Work Window) and MM BIO-9 (Dewatering and Aquatic Species Relocation Plan) would ensure that hydroacoustic impacts to special-status fish species would be mitigated to a less than significant level.

Direct impacts on steelhead and green sturgeon associated with the construction of the rail bridge structure would include temporary loss of migratory and/or critical habitat and potential injury or death of steelhead and/or green sturgeon. Construction of in-water piers associated with the railroad bridge over Alameda Creek would also permanently impact riverine habitat. Shoreline aquatic habitat and associated riparian habitat performs valuable functions for special-status fish, such as providing shade/cover, reduction in water temperature, and provide habitat for food sources such as invertebrates. The proposed Project includes implementation of BMP HYD-1, which would minimize potential impacts on steelhead and green sturgeon. The proposed Project would also implement MM BIO-1 Implement Biological Resource Protection Measures during Construction, MM BIO-8 Steelhead and Green Sturgeon Work Window, MM BIO-9 Dewatering and Aquatic Species Relocation Plan, MM BIO-10 Steelhead and Green Sturgeon Habitat Replacement, and MM BIO-17 Compensate for the Loss of Riparian Habitat to mitigate for direct take of individuals and degradation of habitat. MM BIO-1 requires a mandatory environmental awareness training program for all on-site construction personnel. MM BIO-8 requires that work within and over Alameda Creek occur when steelhead and green sturgeon are not anticipated to occur within this portion of Alameda Creek. MM BIO-9 requires a dewatering and aquatic species relocation plan if work in Alameda Creek would occur when flowing water is present. MM BIO-10 requires the replacement of steelhead and green sturgeon habitat that results from construction activities while MM BIO-17 compensates for the loss of riparian habitat. Implementation of these measures would reduce the construction impacts on Central California DPS steelhead and green sturgeon to less than significant.

Indirect impacts on water quality could potentially occur as a result of sediment mobilization or spills of fluids/materials from construction activities occurring in Alameda Creek. These indirect impacts on water quality could affect the steelhead and steelhead habitat. Compliance with permit conditions to protect water quality, as described in BMP HYD-1, would minimize the potential for impacts to water quality and to sensitive species that inhabit Alameda Creek waters due to increases in erosion, sedimentation, and turbidity as well as releases of pollutants.

***Special-Status Amphibians and Reptiles***

*Western Pond Turtle (SSC – Species of Special Concern).*

The western pond turtle is designated as a California Species of Special Concern by the CDFW. This species is a fully aquatic turtle found in slow moving rivers, streams, lakes, ponds, wetlands, reservoirs, brackish estuarine waters, and irrigation ditches. The western pond turtle prefers areas that provide logs, algae, or vegetation for cover, and boulders for basking and requires well vegetated upland refuge sites to escape predators or high-water levels. Suitable habitat for this species is present in Alameda Creek, which flows through the Coast Subdivision (Attachment 3 of Appendix C).

Implementation of the proposed Project may result in the construction of a new railroad bridge over Alameda Creek which would require up to two in-channel piers to support the structure. Western pond turtle is known to occur within Alameda Creek and may occur in the adjacent percolation ponds. Construction of the bridge may require dewatering of a portion of Alameda Creek and the need for pile-driving activities. Construction activities, such as vegetation removal, grading, and bank stabilization, could directly impact the western pond turtle should they be in the construction area and be trampled or crushed by vehicles or equipment. In addition, earthwork, vegetation removal, installation of water diversions, and demolition activities within riparian habitat present within Alameda Creek could result in temporary impacts on breeding, upland, and dispersal habitat suitable for the western pond turtle. Direct impacts on western pond turtle associated with the construction of the bridge structure would include a permanent loss of habitat, and potentially injury or death. Increased noise and dust during construction also has potential to temporarily displace western pond turtle individuals utilizing this portion of Alameda Creek.

As part of the proposed Project, BMP HYD-1 Stormwater Management and Treatment Plan, would minimize potential indirect impacts on western pond turtle. To mitigate for potential impacts on western pond turtle including direct take of individuals and degradation of habitat, implementation of MM BIO-1 Implement Biological Resource Protection Measures during Construction, MM BIO-11 Western Pond Turtle Pre-construction Surveys (requires preconstruction surveys for western pond turtles within Alameda Creek and adjacent aquatic habitats), and MM BIO-17 Compensate for the Loss of Riparian Habitat would be required. Implementation of these mitigation measures would reduce the construction impacts on western pond turtle to less than significant.

***Special-Status Birds, including Migratory Birds***

Habitat within the biological RSA provides suitable foraging opportunities for many avian species, including special-status bird species. Raptors (e.g., burrowing owl, northern harrier, white-tailed kite, bald eagle) and raptor nests are considered to be a special resource by federal and state agencies and are protected under the MBTA and California Code of Regulations. Nesting birds are protected under the MBTA (16 USC § 703 et seq.) and the California FGC (§ 3503 et. seq.). Federal regulations prohibit any person to "pursue, hunt, take, capture, kill, attempt to take, capture, or kill, possess, offer for sale, sell, offer to barter, barter, offer to purchase, [or] purchase" any migratory bird, including parts of birds, as well as eggs and nests. The California FGC Sections 3503, 3503.5 and 3512 also prohibit the take of birds and active nests.

Although only one special-status bird species was directly observed during the reconnaissance survey (bald eagle), suitable habitat for other special-status bird species also exists within the biological RSA. As long as habitat that supports special-status bird species exists, there is the

potential for bird species to enter areas where construction activities could occur for foraging, nesting, or movement between territories. Therefore, construction activities associated with the proposed Project may directly impact special-status bird species or indirectly impact special-status bird species habitat, which would be considered a potentially significant impact. In addition, construction activities that require disturbance of trees or other vegetation containing active nests could cause direct impact to nesting raptors and migratory birds. Construction could also result in noise, dust, increased human activity, and other indirect impacts to nesting raptors or migratory bird species in the proposed Project vicinity. Potential nest abandonment and mortality to eggs and chicks, as well as stress from loss of foraging areas, would also be considered a significant impact. Disturbance of active nests within the proposed Project footprint would be considered a significant impact, but implementation of MM BIO-12 Nesting Migratory Birds, Special-Status Birds, and Raptor Pre-construction Surveys would reduce this to a less than significant impact. However, there would be no take of nests for birds protected by the MBTA and FGC with implementation of MM BIO-12.

Indirect impacts on water quality could potentially occur as a result of sediment mobilization or spills of fluids/materials from construction activities. These indirect impacts on water quality could affect habitat for special-status bird species. The proposed Project includes implementation of BMP HYD-1 Stormwater Management and Treatment Plan and compliance with permit conditions to protect water quality, which would minimize the potential for impacts to water quality and to sensitive species that inhabit estuarine and saline emergent wetland habitats due to increases in erosion, sedimentation, as well as releases or bioaccumulation of pollutants.

*Federally Listed Bird Species*

*Western Snowy Plover (FT – Federally Threatened/SSC – Species of Special Concern).* Suitable foraging and nesting habitat (e.g., estuarine and saline emergent wetland) for western snowy plover (WSNPL) occurs within portions of the Coast Subdivision, outside of the proposed Project footprint (Attachment 3 of Appendix C). Construction activities associated with the proposed Project include the replacement of portions of existing rail and ties, the addition of several inches of new ballast, and the upgrade of tracks along a portion of the Coast Subdivision. While all construction activities would occur within the existing rail ROW, the work would be conducted directly adjacent to potential foraging and nesting habitat for western snowy plover. Therefore, there is potential for WSNPL to be indirectly impacted by construction activities, including impacts to estuarine and saline waters. Implementation of BMP HYD-1 Stormwater Management and Treatment Plan as part of the proposed Project would minimize indirect impacts to potentially suitable aquatic habitat for western snowy plover resulting in less than significant impacts.

Construction of the proposed Project would provide potential perching sites for raptors in trees, on light posts, or on buildings adjacent to the construction area. The addition of potential perching sites could increase foraging opportunities for predators of WSNPL, such as raptors. However, numerous existing trees, light poles, and existing buildings and structures provide perches for raptors in the area. Therefore, relative to baseline conditions, the construction of the proposed Project is not expected to result in a substantial increase in the predation of WSNPL adults and nestlings inhabiting adjacent habitats by raptors, or to affect regional populations of these species. Impacts are considered less than significant.

Construction activities could also generate sources of food waste from workers accessing the construction work area. The presence of food waste on site could attract native and non-native nuisance wildlife, such as raccoons, ravens, and coyotes, which could prey on WSNPL adults and

nestlings. However, implementation of MM BIO-1 (Implement Biological Resource Protection Measures during Construction) and MM BIO-12 (Nesting Migratory Birds, Special-Status Birds, and Raptor Pre-construction Surveys) would reduce impacts to a less than significant level.

*Bald Eagle (SE – State Endangered/FP – Fully Protected).*

The bald eagle is a permanent resident in the highest Coast Range mountains, across the Cascade Range, and down the Sierra Nevada to the eastern Transverse Ranges of San Bernardino and Riverside counties. An uncommon migrant and winter visitor to lowland rivers, lakes, and reservoirs, bald eagles nest in large, old-growth, or dominant live trees with open branches, especially ponderosa pine (*Pinus ponderosa*). This species requires large bodies of water or rivers with abundant fish, and adjacent snags.

While suitable nesting habitat is absent from the proposed Project footprint and biological RSA, potentially suitable foraging habitat occurs within and adjacent to the biological RSA (Attachment 3 of Appendix C). Due to the presence of foraging habitat within and adjacent to the biological RSA, construction activities have potential to indirectly impact bald eagle. The proposed Project includes BMP HYD-1 Stormwater Management and Treatment Plan, which would minimize indirect impacts to potential habitat. To reduce direct and indirect impacts on bald eagle to a less than significant level, MM BIO-1 Implement Biological Resource Protection Measures during Construction, and MM BIO-12 Nesting Migratory Birds, Special-Status Birds, and Raptor Pre-construction Surveys would be implemented.

*California Ridgway's Rail (FE – Federally Endangered/FP – Fully Protected/SE – State Endangered).*

California Ridgway's rail is listed as endangered at both the federal and state levels. Throughout their distribution, they occur within salt and brackish marshes. In south and central San Francisco Bay and along the perimeter of San Pablo Bay, this species typically inhabits salt marshes dominated by pickleweed and Pacific cordgrass. Pacific cordgrass dominates the middle marsh zone throughout the south and central San Francisco Bay.

However, in recent decades, populations of non-native cordgrass species, which were introduced in the late 20th century, have spread rapidly and begun to dominate much of the San Francisco Bay estuary system. These more aggressive cordgrass species eventually render the marsh habitat less suitable for California Ridgway's rails (California State Coastal Conservancy 2003).

Use of brackish marshes by California Ridgway's rail is largely restricted to major sloughs and rivers of San Pablo Bay and Suisun Marsh, and along Coyote Creek in south San Francisco Bay. California Ridgway's rails have rarely been recorded in non-tidal marsh areas.

Breeding California Ridgway's rails require tidal marshes with the following elements: a well-developed tidal channel system with full tidal influence, cordgrass, and a vegetated upper marsh/ upland ecotone. Suitable foraging and nesting habitat for California Ridgway's rail occurs within the biological RSA, but outside of the proposed Project footprint (Attachment 3 of Appendix C). Construction activities associated with the proposed Project would include replacing segments of existing rail and ties, adding new ballast, as well as track upgrades for sections of the Coast Subdivision. All construction activities would occur within the existing railroad ROW, however, potentially suitable foraging and nesting habitat for California Ridgway's rail occurs adjacent to the ROW. Therefore, there is potential for indirect impacts from construction activities to California Ridgway's rail. The proposed Project includes implementation of BMP HYD-1 Stormwater Management and Treatment Plan, which would minimize indirect impacts California Ridgway's rail

habitat during construction activities. The proposed Project would apply MM BIO-1 Implement Biological Resource Protection Measures during Construction, and MM BIO-12 Nesting Migratory Birds, Special-Status Birds, and Raptor Pre-construction Surveys to mitigate potentially significant impacts to this special-status bird species to a less than significant level.

*State Listed Bird Species*

*White-tailed Kite (FP – Fully Protected).* White-tailed kite is a state fully protected raptor species in California that nests in oak savanna, oak and willow riparian, and other open areas with scattered trees near their foraging habitat of open grasslands, meadows, and farmland. They are often seen hover foraging over roadsides or grassy highway medians in pursuit of their prey, mainly small mammals such as voles, mice, and pocket gophers, although birds, reptiles, and insects are sometimes taken. White-tailed kite has the potential to occur in non-native annual grassland, ruderal/disturbed, and oak woodland in and adjacent to the biological RSA, but outside of the proposed Project footprint (Attachment 3 of Appendix C). Tall, landscaped trees (e.g., gum, oak, pine) within and adjacent to the biological RSA provide suitable nesting habitat for white-tailed kites.

Construction activities associated with the proposed Project would include replacing existing rail and ties, the addition of new ballast, and track upgrades for sections of the Coast Subdivision. Potentially suitable foraging and nesting habitat for white-tailed kite occurs adjacent to the ROW, there is potential for indirect impacts from construction activities to white-tailed kite. The proposed Project includes BMP BIO-1 (Protect Water Quality and Minimize Sedimentation Runoff during Construction), which would minimize indirect impacts to white-tailed kite habitat. In order to reduce direct and indirect impacts to a less than significant level, MM BIO-1 Implement Biological Resource Protection Measures during Construction, and MM BIO-12 Nesting Migratory Birds, Special-Status Birds, and Raptor Pre-construction Surveys would be implemented.

*California Black Rail (ST – State Threatened/FP – Fully Protected).* The California black rail is found in saline, brackish, and fresh emergent wetlands. While the bird is considered scarce, their true abundance is difficult to determine due to small size and extremely secretive nature. The bird is known to nest at scattered locations in the San Francisco Bay Area and Delta region, Point Reyes National Seashore, San Luis Obispo, and Orange counties, as well as the Imperial and Lower Colorado River Valleys, and appears intermittently and sparingly at a few locations in the Sacramento Valley.

Construction activities associated with the proposed Project would include replacing existing rail and ties, adding new ballast, and upgrading portions of the tracks along the Coast Subdivision. Construction activities would occur within the existing ROW. However, since potentially suitable foraging habitat for California black rail occurs adjacent to the ROW in the Coast Subdivision (Attachment 3 of Appendix C), there is potential for indirect impacts from construction activities. The proposed Project includes implementation of BMP HYD-1 Stormwater Management and Treatment Plan, which would minimize indirect impacts to California black rail habitat. In order to reduce direct and indirect impacts to a less than significant level, MM BIO-1 Implement Biological Resource Protection Measures during Construction, and MM BIO-12 Nesting Migratory Birds, Special-Status Birds, and Raptor Pre-construction Surveys would be implemented.

*Other Special-Status Bird Species*

*Raptors-Burrowing Owl and Northern Harrier (SSC – Species of Special Concern).* Burrowing owl and northern harrier are California SSCs and are protected under the MBTA. Burrowing owls are a year-round resident of open, dry grassland and desert habitats, and in grass, forb, and open shrub stages of pinyon-juniper and ponderosa pine habitats. In general, burrowing owls prefer open grasslands and desert shrub habitats where grass height is relative short, including areas that are actively grazed by livestock, particularly when perches (artificial or natural) are present. However, burrowing owls may also occur within urban areas in vacant lots, weedy fields, and utility, railroad, and road/highway rights-of-ways. In California, nest and roost burrows of the burrowing owl are most commonly dug by ground squirrels, but they may use badger, coyote, and fox dens or holes, as well as structures such as culverts, pipes, concrete rubble and nest boxes.

Burrowing owls have the potential to occur within portions of the biological RSA, especially in ruderal habitats (Attachment 3 of Appendix C). Because of the disturbed nature of the ROW and the ongoing maintenance activities of the active rail corridors, suitable foraging and nesting habitat is absent for burrowing owls within the proposed Project footprint, therefore direct impacts to burrowing owls are not anticipated. However, there could be available nesting habitat for burrowing owls adjacent to the existing railroad ROW in areas with suitable ruderal habitat, outside of the proposed Project footprint.

Northern harrier frequent meadows, grasslands, open rangelands, desert sinks, and fresh- and saltwater emergent wetlands. Open areas of tall, dense grasses, moist or dry shrubs, and edges are used for nesting, cover, and feeding. Suitable foraging habitat for this species is present within marshlands and grassland habitat within and adjacent to the proposed Project footprint (Attachment 3 of Appendix C).

The proposed Project includes implementation of BMP HYD-1 Stormwater Management and Treatment Plan, which would minimize indirect impacts to burrowing owl and northern harrier habitat. Since there is a potential to directly and indirectly impact burrowing owl and northern harrier during construction activities, MM BIO-1 Implement Biological Resource Protection Measures during Construction, MM BIO-12 Nesting Migratory Birds, Special-Status Birds, and Raptor Pre-construction Surveys, and MM BIO-13 Burrowing Owl Habitat Assessment are required to reduce potentially significant impacts to these species to a less than significant level.

Construction of the proposed Project would provide potential perching sites for raptors within trees, on light posts, or on buildings adjacent to the construction area. The addition of potential perching sites could increase foraging opportunities for predators of these bird species, such as raptors. However, numerous existing trees, light poles, and existing buildings and structures provide perches for raptors in the area. Therefore, relative to baseline conditions, the construction of the proposed Project is not expected to result in a substantial increase in the predation of special-status bird species adults and nestlings inhabiting adjacent habitats by raptors, or to affect regional populations of these species. Impacts are considered less than significant.

*Passerines-Alameda Song Sparrow and San Francisco Common Yellowthroat (SSC – Species of Special Concern).*

Suitable foraging and nesting habitat (e.g., estuarine and saline emergent wetland) for Alameda song sparrow and San Francisco common yellowthroat occurs within portions of the RSA but outside of the proposed Project footprint (Attachment 3 of Appendix C). Construction activities associated with

the proposed Project include the replacement of portions of existing rail and ties, the addition of several inches of new ballast, and the upgrade of tracks along a portion of the Coast Subdivision. While all construction activities would occur within the existing rail ROW, the work would be conducted directly adjacent to potential foraging and nesting habitat for these special-status bird species. Therefore, there is potential that these special-status bird species be indirectly impacted by construction activities.

While there is likely no suitable habitat for special-status bird species within the active railroad ROW, trees and vegetation located in areas adjacent to the railroad ROW could provide nesting habitat for these special-status bird species. Implementation of MM BIO-12 Nesting Migratory Birds, Special-Status Birds, and Raptor Pre-construction Surveys and MM BIO-1 Implement Biological Resource Protection Measures during Construction would reduce potential impacts to nesting birds to a less than significant level.

The proposed Project includes implementation of BMP HYD-1 Stormwater Management and Treatment Plan which includes good housekeeping measures as part of the SWPPP. Construction activities could also generate sources of food waste from workers accessing the construction work area. The presence of food waste on site could attract native and non-native nuisance wildlife, such as raccoons, ravens, and coyotes, which could prey on special-status bird species adults and nestlings. With inclusion of BMP HYD-1, the proposed Project would have less than significant impacts.

***Special-Status Mammals***

*Federally Listed Mammal Species*

*Salt Marsh Harvest Mouse (FE – Federally Endangered/SE – State Endangered/FP – Fully Protected).*

Salt marsh harvest mouse has the potential to occur in saline emergent wetland habitat within the RSA along the Coast Subdivision (Attachment 3 of Appendix C). No permanent acquisition or conversion of salt marsh harvest mouse habitat is proposed. Construction activities associated with the proposed Project include the replacement of portions of existing rail and ties, the addition of several inches of new ballast, and the upgrade of tracks along a portion of the Coast Subdivision adjacent to Heron Bay. While all construction activities would occur within the existing rail ROW, the work would be conducted directly adjacent to existing salt marsh harvest mouse habitat. Therefore, there is potential that salt marsh harvest mice could access the construction area during periods of high tide.

In the absence of protective measures, construction activities may cause the injury or mortality of salt marsh harvest mice as a result of crushing by equipment, vehicle traffic, and worker foot traffic. Individuals that access the construction area could also be exposed to increased levels of predation because of unfamiliarity with the new area or lack of sufficient cover. As described under Regulatory Section, Senate Bill 147 authorizes the CDFW to issue an incidental take permit that would authorize the take of a fully protected species. MM BIO-1 Implement Biological Resource Protection Measures during Construction, MM BIO-14 Salt Marsh Harvest Mouse Avoidance and MM BIO-15 Salt Marsh Harvest Mouse Immediate Work Stoppage would be required.

In addition, implementation of the proposed Project has the potential to degrade habitat adjacent to the proposed Project site through the introduction of invasive weeds during and following proposed Project construction when seeds are attached to vehicles, equipment, and clothing. The spread of

invasive plants can displace native vegetation and reduces habitat quality for salt marsh harvest mice by reducing the availability of plants they use for refugia and nesting. BMP HYD-1 Stormwater Management and Treatment Plan and BMP BIO-1 Weed Abatement Program would minimize indirect habitat impacts. However, implementation of MM BIO-20 Salt Marsh Harvest Mouse Habitat Replacement would be required to reduce impacts to a less than significant level.

Small mammals that inhabit natural areas adjacent to the rail ROW would be subjected to increased noise and vibrations during construction. However, no studies have been conducted to determine what noise levels result in disturbance of salt marsh harvest mice. In addition, rail improvements associated with the proposed Project would occur within an active rail corridor. Should salt marsh harvest mice in nearby habitat be disturbed by proposed Project activities, including noise or vibration, and move away from the source, they would move away from the construction area. Therefore, construction noise levels are not expected to cause salt marsh harvest mice to flush out into the open, or to increase mortality of individuals due to predation. In addition, suitable habitat adjacent to the construction area site would only be subjected to increased noise and vibrations during construction; following completion of construction, individual mice would re-occupy any habitat that was vacated during construction. Therefore, noise from construction activities would not result in take of individual salt marsh harvest mice and impacts are less than significant.

Construction of the proposed Project would be unlikely to provide new potential perching sites for raptors (which prey on salt marsh harvest mice) within trees, on light posts, or on buildings adjacent to the construction area. However, numerous existing trees, light poles, and existing buildings and structures provide perches for raptors in the area. Therefore, relative to baseline conditions, the construction of the proposed Project is not expected to result in a substantial increase in the predation of small mammal species by raptors, or to affect regional populations of these small mammal species. Impacts due to increased raptor predation are considered less than significant.

Construction activities could also generate sources of food waste from workers accessing the construction work area. The presence of food waste on site could attract native and non-native nuisance wildlife such as American crows, common ravens (*Corvus corax*), gulls (*Larus spp.*), raccoons, and others, which prey on salt marsh harvest mice. However, implementation of MM BIO-1 Implement Biological Resource Protection Measures during Construction would reduce impacts to a less than significant level.

Construction lighting associated with the proposed Project could result in impacts on salt marsh harvest mice by increasing the likelihood of predation and/or deterring these species from using well-lit habitat, thus resulting in potential loss of individuals and effective habitat loss in well-lit areas immediately adjacent to the proposed Project site. Lighting that increases nighttime illumination in adjacent areas could potentially result in temporary habitat loss, as salt marsh harvest mice would avoid illuminated areas at night. Additionally, increases in illumination of adjacent habitat could increase predation on the species by making them more visible to predators. Implementation of MM BIO-1 Implement Biological Resource Protection Measures during Construction and MM BIO-20 Salt Marsh Harvest Mouse Habitat Replacement would reduce impacts to the salt marsh harvest mouse to a less than significant level.

*Other Special-status Mammal Species*

*Bats-Pallid Bat, Townsend's Big-Eared Bat, and Western Mastiff Bat, (SSC – Species of Special Concern).* Three special-status bat species (Pallid bat, Townsend's big-eared bat, and Western Mastiff bat)

have potential to occur in the RSA through occupation of existing bridges, culverts, building structures, and trees adjacent to the proposed Project corridor. Bats commonly roost between narrow spaces above bridge beams, above or behind intact expansion or insulation boards, within concrete spalls, pipe collars and similar crevices whose openings are not oriented towards the ground. For special-status and common bat species, construction activities could result in the removal or disturbance of potential nesting habitat, mortality or injury; the permanent conversion of occupied nesting and foraging habitat to rail or station infrastructure; and fragmentation of habitats and landscapes resulting from construction of the proposed Project. Specifically, the proposed Project has potential to temporarily affect bat species due to work adjacent to existing bridges over waterways, creeks, and other portions of the proposed Project corridor adjacent to culverts, trees, and other potential bat roosting habitat.

If construction occurs during the bat maternity season (generally April 1 to August 31), bat roosts could also be disturbed, which could disrupt bat breeding or roosting activity. In addition, increased lighting after sunset could disrupt foraging activities by special-status bat species, causing them to leave an area that has prolonged disturbance. Nocturnal insects are drawn by lighting, which in turn attracts foraging bats. Special-status bats that are attracted to lighted construction areas could have higher potential mortality through disorientation and collisions with construction equipment. Some maintenance activities (e.g., surface treatments including chip sealing, crack filling, crack sealing, patching) can kill/entomb bats or cause the abandonment of non-volant young. Additionally, these activities can create excessive noise, vibrations, and modify thermal conditions of roosts; and consequently, may promote roost abandonment. Nighttime maintenance activities can also affect special-status bat species. Light, odors and noise can delay or discourage bats from emergence, or potentially, cause site abandonment. The proposed Project may result in the construction of various rail infrastructure including new bridges over Ward and Alameda creeks, which could provide additional roosting opportunities for special-status bat species.

The proposed Project includes implementation of BMP HYD-1 Stormwater Management and Treatment Plan which would minimize indirect impacts. To mitigate potentially significant impacts on special-status bats during construction activities, including direct take of individuals and loss of roosts, , Mitigation Measure MM BIO-1 Implement Biological Resource Protection Measures during Construction and MM BIO-16 Bat Habitat Suitability Assessment and Surveys would be required. MM BIO-1 requires a mandatory environmental awareness training program for all on-site construction personnel. MM BIO-16 would require a bat habitat suitability assessment at all locations where suitable habitat and proposed Project-related impacts would occur. MM BIO-1 requires that work in areas where night roosting is known or suspected to be limited to daylight hours where feasible. Implementation of these measures would reduce construction related impacts on special-status bat species to less than significant.

### Operations

#### *Special-Status Plants*

During operation of the proposed Project, maintenance activities could include, but are not limited to, cleaning, preventative maintenance to preserve and lengthen service life and technical or specialized repairs. These activities may involve the operation of support vehicles and equipment, pavement repair, welding and grinding operations and already occur within the existing rail corridor as part of existing rail operations. Implementation of the proposed Project would result in

the continuation of current maintenance activities within the rail corridor. Therefore, operational impacts on special-status plants are anticipated to be less than significant.

***Special-Status Invertebrates***

*Crotch's Bumble Bee and Western Bumble Bee (CE – California Candidate Endangered)*

During operation of the proposed Project, maintenance activities could include, but are not limited to, cleaning, preventative maintenance to preserve and lengthen service life and technical or specialized repairs. These activities may involve the operation of support vehicles and equipment, pavement repair, welding and grinding operations and already occur within the existing rail corridor as part of existing rail operations. Implementation of the proposed Project would result in the continuation of current maintenance activities within the rail corridor. Therefore, operational impacts on Crotch's bumble bee and western bumble bee are anticipated to be less than significant.

*Monarch Butterfly (FC – Federal Candidate)*

Proposed Project operations would include passing trains and inspection and maintenance activities along the railroad ROW. The monarch butterfly may be able to access the railroad ROW and be present during operational activities. Because inspection and maintenance activities would be a continuation of existing inspection and maintenance activities within the rail corridor, operation of the proposed Project would not cause any new impacts on the monarch butterfly.

***Special-Status Fish***

*Central California Coast Steelhead (FT – Federally Threatened) and Green Sturgeon – southern DPS (FT – Federally Threatened/SSC – Species of Special Concern)*

Operational noise and vibration impacts from trains crossing the new railroad bridge over Alameda Creek could result in substrate vibrations and sounds that could potentially startle juvenile and adult steelhead, thus increasing the risk of predation for juveniles and adults. To reduce impacts from noise to a less than significant level for green sturgeon and steelhead, MM BIO-19 Fish Passage and Noise Analysis would be required. This measure requires a noise study be conducted to determine current dB levels of Alameda Creek and the anticipated noise levels of operation activities, as well as proposed methods of reducing noise levels should they be found to exceed 150 dB. The additional noise study analysis would be done in coordination with NMFS and CDFW during final design and will establish the approved construction work window for steelhead and green sturgeon, which is required to be observed per MM BIO-8 Steelhead and Green Sturgeon Work Window.

In addition, additional permanent piers in the Alameda Creek could create upstream and downstream migration impediments (e.g., narrowing the passage corridor, debris accumulation, scour, and creating predatory fish and bird habitat) potentially inhibiting feeding and rearing of steelhead and green sturgeon. Construction of an additional bridge may affect steelhead and green sturgeon through increased shading of Alameda Creek. However, implementation of MM BIO-10 Steelhead and Green Sturgeon Habitat Replacement, MM BIO-17 Compensate for the Loss of Riparian Habitat, and MM BIO-19 Fish Passage and Noise Analysis would mitigate impacts on the abundance, productivity, spatial structure, or diversity of Central California DPS steelhead and green sturgeon to a less than significant level.

***Special-Status Amphibians and Reptiles***

*Western Pond Turtle (SSC – Species of Special Concern).* Implementation of the proposed Project may also result in an increase in the shading of Alameda Creek. Since the western pond turtle may utilize portions of Alameda Creek to bask and thermoregulate, additional shading of Alameda Creek may result in an impact on the species. To reduce impacts associated with additional shading of Alameda Creek to a less than significant level, MM BIO-17 (Compensate for the Loss of Riparian Habitat) would be required.

***Special-Status Birds, including Migratory Birds***

Operational impacts on special-status bird species, including those covered by the MBTA, are not anticipated to be significant when compared to existing conditions. There may be changes in the frequency and timing of rail traffic throughout the proposed Project area, however, rail traffic throughout the rail corridor is anticipated to be similar to noise levels generated from existing railroad traffic. During operation of the proposed Project, maintenance activities could include, but are not limited to, cleaning, preventative maintenance to preserve and lengthen service life and technical or specialized repairs. These activities may involve the operation of support vehicles and equipment, pavement repair, welding and grinding operations which already occur within the existing rail corridor as part of existing rail operations. In addition, within the existing rail corridor, regular maintenance occurs that greatly limits the growth of any vegetation including non-native grasslands, which could be considered foraging habitat for special-status bird species. As this limitation to foraging habitat is already present within the existing corridor this would result in no new impact due to the proposed Project. Therefore, operational impacts on the special-status bird species addressed under construction above are anticipated to be less than significant with no mitigation measures required.

***Special-Status Mammals***

*Federally Listed Mammal Species*

*Salt Marsh Harvest Mouse (FE – Federally Endangered/SE – State Endangered/FP – Fully Protected).* During operation of the Project, maintenance activities could include, but are not limited to, cleaning, preventative maintenance to preserve and lengthen service life and technical or specialized repairs. These activities may involve the operation of support vehicles and equipment, ballast repair, welding and grinding operations and already occur within the existing rail corridor as part of existing rail operations. Implementation of the proposed Project would result in the continuation of maintenance activities within the rail corridor. Therefore, operational impacts on the salt marsh harvest mouse are anticipated to be less than significant.

*Other Special-status Mammal Species*

During operation of the proposed Project, maintenance activities could include, but are not limited to, cleaning, preventative maintenance to preserve and lengthen service life and technical or specialized repairs. Minor maintenance activities typically have minor or no impact on bats. Operational activities are anticipated to be the same as existing activities; therefore, operational impacts on special-status bats are anticipated to be less than significant.

### 3.5.6.2 (b) Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

## No Project Alternative

**No Impact.** Under the No Project Alternative, the Capitol Corridor passenger rail service between Oakland and San Jose would not be relocated from the Niles Subdivision to the Coast Subdivision associated with the proposed Project. Improvements proposed for the Coast and Niles Subdivisions associated with the proposed Project would not occur. Capitol Corridor passenger trains would continue to operate based on current routes with no changes. Therefore, the No Project Alternative would not have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFW or USFWS.

## Proposed Project

### Critical Habitat

**Less Than Significant Impact with Mitigation Incorporated**. The biological RSA contains designated critical habitat for southern distinct population segment green sturgeon and snowy plover, as shown on Figure 3.5-1; however, the critical habitat for sturgeon occurs outside of the proposed Project footprint. The proposed Project includes implementation of BMP HYD-1 Stormwater Management and Treatment Plan, which would minimize water quality impacts. To avoid potential direct or indirect effects on critical habitat for green sturgeon (southern DPS), MM BIO-1 Implement Biological Resource Protection Measures during Construction, MM BIO-7 Steelhead and Green Sturgeon Work Window, and MM BIO-8 Dewatering and Aquatic Species Relocation Plan would be implemented. Implementation of the mitigation measures would reduce construction related impacts on green sturgeon (Southern DPS) critical habitat to a less than significant level. No impact to snowy plover critical habitat is anticipated.

### Essential Fish Habitat

**Less Than Significant Impact with Mitigation Incorporated**. EFH for Pacific salmonids and groundfish occurs throughout the entire biological resource area, however, only a small amount of salmonid and groundfish EFH occurs within the proposed Project footprint. The proposed Project includes implementation of BMP HYD-1 Stormwater Management and Treatment Plan, which would minimize impacts to water quality. In order to avoid potential direct or indirect effects on EFH occurring within and adjacent to the proposed Project footprint, MM BIO-1 Implement Biological Resource Protection Measures during Construction, MM BIO-7 Steelhead and Green Sturgeon Work Window, and MM BIO-8 Dewatering and Aquatic Species Relocation Plan would be implemented. Implementation of the mitigation measures would reduce construction related impacts on EFH to a less than significant level.

### California Sensitive Natural Communities

**Less Than Significant Impact with Mitigation Incorporated**. Construction and demolition of existing and new tracks would require ground disturbance, grading, possible removal of vegetation,

relocation of existing utilities, and staging of equipment and materials. This could directly affect sensitive natural communities present in the biological RSA. Additionally, impacts in the form of dust and contaminant runoff (i.e., oil, grease, concrete) may occur as a result of construction activities within the biological RSA and decrease the quality of sensitive communities. However, the only California sensitive natural communities that are mapped as occurring within the biological RSA is mixed riparian forest and aquatic resources (Attachment 3 of Appendix C). The mixed riparian forest has a state rarity rank of S3, meaning it is vulnerable and at moderate risk of extinction or elimination. Impacts on aquatic resources, their significance, and mitigation are described in detail under Impact Discussion (c) below. With the implementation of MM BIO-1 Implement Biological Resource Protection Measures and MM BIO-17 Compensate for the Loss of Riparian Habitat during Construction, the proposed Project would avoid impacts on sensitive natural communities during construction. All temporary impacts on sensitive natural communities would be avoided, minimized and/or mitigated. With the implementation of MM BIO-1 and MM BIO-17, construction and operational impacts would be reduced to a less than significant level. As noted above, additional discussion regarding aquatic species is below.

#### Jurisdictional Aquatic Resources

**Less Than Significant Impact with Mitigation Incorporated.** Five jurisdictional aquatic resources were mapped within the biological RSA: estuarine, freshwater emergent wetland, lacustrine, riverine, and saline emergent wetland. However, none of these resources occur within the proposed Project footprint (Attachment 3 of Appendix C). The proposed Project would implement BMP HYD-1 Stormwater Management and Treatment Plan which would minimize water quality impacts. To avoid potential direct or indirect effects on jurisdictional aquatic resources, MM BIO-1 Implement Biological Resource Protection Measures during Construction would be implemented to reduce impacts to less than significant.

#### Invasive Plant Species

**Less Than Significant Impact with Mitigation Incorporated**. Potential impacts from invasive species associated with the construction and operation of transportation projects are considered permanent impacts. Implementation of the proposed Project has the potential to spread invasive species to adjacent native habitats in the RSA through the entering and exiting of contaminated construction equipment, the inclusion of invasive species in seed mixtures and mulch, and the improper removal and disposal of invasive species causing seed to be spread along the rail corridor. To avoid potential direct or indirect effects attributable to the spread of invasive plant species within the RSA, MM BIO-21 (Weed Abatement Program) will be implemented to reduce impacts to less than significant.

### 3.5.6.3 (c) Would the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

#### No Project Alternative

**No Impact.** Under the No Project Alternative, the Capitol Corridor passenger rail service between Oakland and San Jose would not be relocated from the Niles Subdivision to the Coast Subdivision associated with the proposed Project. Improvements proposed for the Coast and Niles Subdivisions

associated with the proposed Project would not occur. Capitol Corridor passenger trains would continue to operate based on current routes with no changes. Therefore, the No Project Alternative would not have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, and coastal) through direct removal, filling, hydrological interruption, or other means.

### Proposed Project

**Less Than Significant Impact with Mitigation Incorporated**. Construction and demolition of existing and new tracks would require ground disturbance, grading, possible removal of vegetation, relocation of existing utilities, and staging of equipment and materials that could directly affect aquatic resources through direct removal, filling, hydrological interruption, compaction, or sedimentation. Additionally, impacts in the form of dust and contaminant runoff (e.g., oil, grease, concrete) may occur as a result of construction activities and decrease the quality of aquatic resources within the biological RSA.

Although the aquatic RSA is highly urbanized and disturbed in nature, direct impacts on state and federally protected wetlands and waters could occur during proposed Project construction under the proposed Project. This would occur at several locations, including Alameda Creek, and other stream crossings located within the biological RSA.

Therefore, the proposed Project could result in permanent and temporary impacts on aquatic resources and WOUS. The proposed Project includes BMP HYD-1 (Protect Water Quality and Minimize Sedimentation Runoff During Construction), which protects water quality during construction. However, with the implementation of MM HYD-1 Stormwater Management and Treatment Plan, which avoids impacts on aquatic resources and MM BIO-17 Compensate for the Loss of Riparian Habitat, which mitigates for the loss of aquatic resources, impacts on aquatic resources would be reduced to a less than significant level. Anticipated required permits are discussed below.

## 3.5.6.4 (d) Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

### No Project Alternative

**No Impact.** Under the No Project Alternative, the Capitol Corridor passenger rail service between Oakland and San Jose would not be relocated from the Niles Subdivision to the Coast Subdivision associated with the proposed Project. Improvements proposed for the Coast and Niles Subdivisions associated with the proposed Project would not occur. Capitol Corridor passenger trains would continue to operate based on current routes with no changes. Therefore, the No Project Alternative would not 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.

### Proposed Project

**Less Than Significant Impact with Mitigation Incorporated**. Several natural landscape blocks and essential habitat connectivity areas occur adjacent to the biological RSA. In addition, a corridor for fish passage is associated with Alameda Creek and other creeks occurring within the Coast Subdivision where new railroad bridges would be constructed or culverts installed.

The proposed Project has the potential to impact natural landscape blocks or essential habitat connectivity areas identified by CDFW BIOS. As described under Section 3.5.4.1, permanent impacts on Alameda Creek associated with a new railroad bridge structure (i.e., in-water piers) are anticipated under the proposed Project. Construction of in-channel bridge piers has potential to affect fish and wildlife passage during construction. If dewatering is needed as part of the pier construction in Alameda Creek, western pond turtle and other native fish and wildlife species may be deterred from passing upstream or downstream. However, the deterrence would be a temporary impact. The installation of these new piers would not have a permanent impact on the movement of native fish and wildlife species through Alameda Creek. The proposed Project includes implementation of BMP HYD-1 Stormwater Management and Treatment Plan, which would minimize water quality impacts during construction. During construction, dewatering of the work area would be required. This would require the temporary installation of a cofferdam and may involve temporary work pads in the stream channel. With implementation of MM BIO-1 Implement Biological Resource Protection Measures during Construction, MM BIO-8 Steelhead and Green Sturgeon Work Window, MM BIO-9 Dewatering and Aquatic Species Relocation Plan, MM BIO-10 Steelhead and Green Sturgeon Habitat Replacement, and MM BIO-17 Compensate for the Loss of Riparian Habitat, construction related impacts to wildlife movement would be considered less than significant.

During maintenance and operations, the installation of these new structures would not have a permanent impact on the movement of native fish and wildlife species through Alameda Creek. The proposed Project would have no impact on natural landscape blocks or essential habitat connectivity (including fish passage) areas during operational activities. With implementation of MM BIO-19, final design of the proposed Project would ensure that any new bridges or culverts would not impede fish passage. Therefore, proposed Project-related construction would be considered less than significant with implementation of MM BIO-19.

## 3.5.6.5 (e) Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

### No Project Alternative

**No Impact.** Under the No Project Alternative, the Capitol Corridor passenger rail service between Oakland and San Jose would not be relocated from the Niles Subdivision to the Coast Subdivision associated with the proposed Project. Improvements proposed for the Coast and Niles Subdivisions associated with the proposed Project would not occur. Capitol Corridor passenger trains and UPRR freight trains would continue to operate based on current routes with no changes. Therefore, the No Project Alternative would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

### Proposed Project

**Less Than Significant Impact with Mitigation Incorporated**. The Cities of Hayward, Fremont, Newark, Oakland, San Leandro, and Union City all have policies and ordinances to protect and preserve certain trees and other sensitive native biological resources, such as wildlife habitat and native plant species. As described under *CEQA Threshold* a), the proposed Project could result in permanent and temporary impacts on vegetation and aquatic communities. These habitats are protected by applicable City policies and ordinances as well as applicable resource agency rules and regulations. Protected trees covered under local jurisdiction ordinances, as described in Section 3.5.1, could be impacted through removal and would require relocation or replacement. In the absence of mitigation, these impacts are considered potentially significant. However, with implementation of MM BIO-1 (Implement Biological Resource Protection Measures during Construction), MM BIO-2 (Rare Plant Pre-construction Surveys) and MM-BIO-18 (Protected Trees Pre-construction Surveys), proposed Project-related construction impacts would be considered less than significant. During operation, the proposed Project would not include any activities that would conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

BCDC has authorization to issue a permit to place fill in the Bay if it is determined that a proposed project would be consistent with the provisions of the McAteer-Petris Act, with the policies established in the Bay Plan and if BCDC determines that the activity to be permitted is necessary for the health, safety, or welfare of the public in the Bay Area. The proposed Project would not conflict with the BCDC regulations. Sea-level rise considerations that would involve BCDC area described in Chapter 4, Sea-Level Rise.

## 3.5.6.6 (f) Would the project conflict with the provision of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

### No Project Alternative

**No Impact**. Under the No Project Alternative, the Capitol Corridor passenger rail service between Oakland and San Jose would not be relocated from the Niles Subdivision to the Coast Subdivision associated with the proposed Project. Improvements proposed for the Coast and Niles Subdivisions associated with the proposed Project would not occur. Capitol Corridor passenger trains would continue to operate based on current routes with no changes. Therefore, the No Project Alternative would not conflict with an adopted habitat conservation plan.

### Proposed Project

**No Impact.** There are no local, regional, or state habitat conservation plans within the biological RSA. Therefore, the proposed Project would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

# 3.5.7 Mitigation Measures

The following Mitigation Measures would be applied to the proposed Project:

**MM BIO-1 Implement Biological Resource Protection Measures during Construction.**

CCJPA will implement the following measures during construction to minimize direct and indirect impacts on special-status species.

a. Prior to the commencement of construction, CCJPA will designate a CDFW-approved Project Biologist who has familiarity with special-status plant and wildlife species with the potential to be impacted by the proposed Project. The Project Biologist will be responsible for overseeing compliance with protective measures for biological resources during vegetation clearing and work activities within and adjacent to areas of special-status species habitat. The Project Biologist will be familiar with the local habitats, plants, and wildlife, and will maintain communications with the contractor to ensure that issues relating to biological resources are appropriately and lawfully managed. The Project Biologist may designate qualified biologists or biological monitors to help oversee proposed Project compliance or conduct pre-construction surveys for special-status species. These biologists will have familiarity with the species for which they will be conducting pre-construction surveys or monitoring during construction activities.

b. The Project Biologist or qualified biologist shall review final plans, designate areas that need temporary fencing measures to identify ESAs (e.g., fencing or flagging), and monitor construction activities within and adjacent to areas with native vegetation communities or special-status plant and wildlife species and their habitats. The qualified biologist shall monitor activities within designated areas during critical times such as vegetation removal, initial ground-disturbing activities, and the installation of BMPs and fencing to protect native species. The qualified biologist will also track proposed Project wildlife and regulatory agency permit requirements, conservation measures, and general avoidance and minimization measures are properly implemented and followed. The qualified biologist shall check construction barriers or exclusion fencing and shall provide corrective measures to the contractor to ensure that the barriers or fencing are maintained throughout construction.

c. The qualified biologist will have the authority to stop work if a special-status wildlife species is encountered within or adjacent to the proposed Project footprint during construction. The Project Biologist or qualified biologist will request that the resident engineer halt work within 100 feet of the encounter (or within an appropriate distance, as determined by the Project Biologist or qualified biologist) and confer with CCJPA to confirm proper implementation of species and habitat protection measures. Construction activities shall cease until the Project Biologist or qualified biologist determines that the animal will not be harmed or that it has left the construction area on its own. The Project Biologist will report any encounters or other non-compliance issue(s) to CCJPA. CCJPA will notify the appropriate regulatory agency(is) within 24 hours of the occurrence.

d. Prior to the start of construction, all proposed Project personnel and contractors who will be on site during construction will complete mandatory training

conducted by the Project Biologist or a designated qualified biologist. Any new proposed Project personnel or contractors that come on board after the initiation of construction shall also be required to complete the mandatory Worker Environmental Awareness Program training before they commence with work. The training will advise workers of potential impacts on special-status vegetation communities and special-status species, and the potential penalties for impacts on such vegetation communities and species. At a minimum, the training will include the following topics:

i. Occurrences of special-status species and special-status vegetation communities in the proposed Project area (including vegetation communities subject to USACE, CDFW, and RWQCB jurisdiction).

ii. The purpose for resource protection.

iii. Sensitivity of special-status species to human activities.

iv. Protective measures to be implemented in the field, including strictly limiting activities, vehicles, equipment, and construction materials to the fenced to avoid special-status resource areas in the field (i.e., avoided areas delineated on maps or on the proposed Project site by fencing).

v. Environmentally responsible construction practices.

vi. The protocol to resolve conflicts that may arise at any time during the construction process.

vii. Reporting requirements and procedures to follow should a special-status species be encountered during construction.

viii. Avoidance and minimization measures designed to reduce the impacts on special-status species.

ix. The training program will include color photos of special-status species and special-status vegetation communities. Following the education program, the photos will be posted in the contractor and resident engineer's office, where the photos shall remain throughout the duration of proposed Project construction. Photos of the habitat in which special-status species are found will be posted onsite.

x. The contractor will be required to provide CCJPA with evidence of the employee training (e.g., a sign-in sheet) on request. Proposed Project personnel and contractors will be instructed to immediately notify the Project Biologist or designated biologist of any incidents that could affect special-status vegetation communities or special-status species, and incidents that could include fuel leaks or injury to any wildlife. The Project Biologist will notify CCJPA of any incident and CCJPA will notify the appropriate regulatory agency within 24 hours of notification.

e. The Project Biologist will monitor the proposed Project site immediately prior to and during construction to identify the presence of invasive weeds and will

recommend measures to avoid their inadvertent spread in association with the proposed Project. Such measures will include inspection and cleaning of construction equipment and use of eradication strategies. All heavy equipment will be washed and cleaned of debris prior to entering special-status species habitats to minimize the spread of invasive weeds.

f. At least ten days prior to initiating construction, the Contractor will submit to CCJPA proposed plans for ESA fencing/flagging and initial clearing and grubbing of the proposed Project footprint at that segment. Following implementation of CCJPA-approved delineation plan for ESA's and construction area perimeters in the field, and at least five days prior to initiating construction at that segment, CCJPA will submit final plans for initial clearing and grubbing of the proposed Project footprint to the appropriate regulatory agencies for approval; these plans will also identify locations of established ESA protections and will include photographs that show the fenced and flagged ESA limits and all areas to be impacted or avoided, including perimeter fencing and flagging.

g. All native or special-status plant or wildlife habitat within and adjacent to the designated proposed Project footprint will be designated as ESAs on proposed Project maps. Following CCJPA approval of final plans for ESA fencing and flagging, and initial clearing and grubbing, and prior to construction, the Contractor will delineate the proposed Project footprint, including construction, staging, lay-down, and equipment storage areas, and establish construction boundaries, with fencing, along the perimeter of the identified construction area to protect adjacent special-status wildlife habitats and special-status plant populations. . In areas where fencing cannot be installed, other means of identifying the ESA can be used, such as flagging or paint. ESAs within and adjacent to the proposed Project footprint will be clearly delineated with fencing or flagging prior to construction to inform construction personnel where the ESAs are located. ESA fencing may include orange plastic snow fence, orange silt fencing, or stakes and flagging in areas of flowing water. No personnel, equipment, or debris will be allowed within the ESAs. The Contractor will install fences and flagging in a manner that does not impact habitats to be avoided and such that it is clearly visible to personnel on foot or operating equipment. Delineations will be approved by the Project Biologist or qualified biologist prior to any ground disturbance. If work inadvertently occurs beyond the flagged or demarcated limits of impact, all work will cease until the problem has been remedied to the satisfaction of CCJPA and the appropriate regulatory agencies. Temporary construction fences, flagging, and markers will be maintained in good repair by the contractor throughout the duration of work at that segment, and will be removed upon completion of proposed Project construction at that segment.

h. No work activities, materials or equipment storage or access will be permitted outside the proposed Project footprint. All parking and equipment storage by the contractor related to the proposed Project will be confined to the proposed Project footprint. Areas outside and adjacent to the proposed Project footprint will not be used for parking or equipment storage. Proposed Project-related

vehicle traffic will also be restricted to the proposed Project footprint and established roads and construction access points.

i. When nighttime activities are required, then workers will direct all lights for nighttime lighting into the work area and will minimize the lighting of natural habitat areas adjacent to the work area. The contractor will use light glare shields to reduce the extent of illumination. If the work area is located near surface waters, the lighting will be shielded such that it does not shine directly into the water.

j. Vegetation clearing will be confined to the minimal area necessary to facilitate construction activities. Cleared vegetation and spoils will be disposed of daily at a permanent offsite disposal facility or at a temporary onsite location that will not create habitat for special-status wildlife species. Spoils and dredged material will be disposed of at an approved site or facility in accordance with all applicable federal, state, and local regulations.

k. All garbage will be disposed of in wildlife-proof containers and will be removed from the proposed Project area daily during the construction period. Vehicles carrying trash will be required to have loads covered and secured to prevent trash and debris from falling onto roads and adjacent properties.

l. Construction equipment used for the proposed Project will be maintained in accordance with manufacturer's recommendations and requirements and will be maintained to comply with noise standards (e.g., exhaust mufflers, acoustically attenuating shields, shrouds, or enclosures).

m. The Contractor will store all construction-related vehicles and equipment in the designated staging areas. These areas will not contain native or sensitive natural communities and will not provide habitat for special-status plant or wildlife species.

n. The Contractor will avoid wildlife entrapment by completely covering or providing escape ramps for all excavated steep-walled holes or trenches that are more than 1 foot deep at the end of each construction workday. The qualified biologist will inspect open trenches and holes and will remove or release any trapped wildlife found in the trenches or holes prior to being refilled by the construction contractor.

o. Wildlife species can be attracted to den-like structures and may enter stored materials or equipment and become trapped or injured. All construction pipes, culverts, or similar features; construction equipment; or construction debris left overnight in areas that may be occupied by wildlife species that could occupy such structures will be inspected by a qualified biologist prior to being used for construction. Such inspections will occur at the beginning of each day's activities for those materials to be used or moved that day. If necessary, and under the direct supervision of the qualified biologist, the structure may be moved up to one time to isolate it from construction activities, until the wildlife species has moved from the structure of their own volition, has been captured and relocated, or has otherwise been removed from the structure.

p. Capture and relocation of trapped or injured special-status wildlife species will only be performed by personnel with appropriate state and/or federal permits. CCJPA and resource agencies will be notified by biologists within 24 hours of discovery of injury to or mortality of a special-status species that results from proposed Project-related construction activities or is observed at the construction site. Notification will include the date, time, and location of the incident or of the discovery of an individual special-status species that is dead or injured. For a special-status species that is injured, general information on the type or extent of injury will be included. The location of the incident will be clearly indicated on a USGS 7.5-minute quadrangle and/or similar map at a scale that will allow others to find the location in the field, or as requested by resource agencies. A follow-up report will be prepared for governing regulatory agencies, including dates, locations, habitat description, and any corrective measures taken to protect special-status species encountered. Any general sightings (no injury or mortality) will be recorded per monitoring requirements. For each special-status species encountered, the biologist will submit a completed CNDDB field survey form (or equivalent) to CDFW no more than 90 days after completing the last field visit to the proposed Project site.

q. The spread of dust from work sites to sensitive natural communities or habitats for special-status plant or wildlife species on adjacent lands will be minimized by use of a water truck. During dry conditions, dirt access roads, haul roads, and spoils areas will be watered at least twice each day when being used during construction.

r. The Contractor will strictly limit their activities, vehicles, equipment, and construction materials to established roads and the proposed Project footprint limits. Posted speed limit signs on local roads and a 15 mile-per-hour speed limit along access and haul routes will be observed. Extra caution will be used when special-status reptile species may be basking on roads.

s. To avoid injury or death to wildlife, no firearms will be allowed on the proposed Project site except for those carried by authorized security personnel or local, state, or federal law enforcement officials.

t. To prevent harassment, injury, or mortality of special-status wildlife species by dogs or cats, no canine or feline pets of workers will be permitted in the construction area.

u. Plastic monofilament netting or similar material will not be used for erosion control because smaller wildlife may become entangled or trapped in it. Acceptable substitutes include coconut coir matting or tackifier hydroseeding compounds. This limitation will be communicated to the contractor through specifications or special provisions included in the construction bid solicitation package.

v. Rodenticides and herbicides will be used in accordance with the manufacturer recommended uses and applications, and in such a manner as to prevent primary or secondary poisoning of special-status fish and wildlife species and depletion of prey populations or vegetation upon which they depend. All uses of

such compounds will observe label and other restrictions mandated by the U.S. Environmental Protection Agency, the California Department of Pesticide Regulation, and other appropriate state and federal regulations.

w. Hazardous materials and equipment stored overnight, including small amounts of fuel to refuel handheld equipment, will be stored within secondary containment at least 50 feet from open water to the fullest extent practicable.

x. The Contractor will be required to conduct vehicle refueling in upland areas where fuel cannot enter Waters of the U.S. or Waters of the State, and in areas that do not have suitable habitat to support special-status species. Any fuel containers, repair materials including creosote treated wood, and/or stockpiled material that is left on site overnight will be secured in secondary containment within the construction work area or a staging area and covered with plastic at the end of each workday.

y. In the event that no activity is to occur in the work area for the weekend and/or a period of time greater than 48 hours, the Contractor will remove all portable fuel containers from the proposed Project site or place them within a secured container.

z. Equipment and containers will be inspected daily for leaks. Should a leak occur, contaminated soils and surfaces will be cleaned up and disposed of following the guidelines identified in the Stormwater Pollution Prevention Plan (SWPPP), Materials Safety Data Sheets, and any specifications required by other permits issued for the proposed Project.

aa. If maintenance of equipment must occur onsite, fuel/oil pans, absorbent pads, or appropriate containment will be used to capture spills/leaks. Where feasible, maintenance of equipment will occur in upland areas where fuel cannot enter WOUS or WOS and in areas that do not have suitable habitat to support special-status species.

**MM BIO-2 Rare Plant Pre-construction Surveys.**

At least one year prior to initial ground disturbance and during the appropriate blooming period (June through November), a focused survey for rare plants, including Congdon's tarplant and California seablite, will be conducted by a qualified plant ecologist within suitable habitat in the proposed Project footprint (e.g., areas of ruderal grassland, estuarine, and saline emergent wetland habitat) and a 50-foot buffer around the identified suitable habitat. This buffer may be increased by the qualified plant ecologist depending on site-specific conditions and activities planned in the area but must be at least 50 feet wide for permanent impacts. Situations for which a greater buffer may be required include proximity to proposed activities expected to generate large volumes of dust that cannot be effectively mitigated, such as grading; potential for proposed Project activities to alter hydrology supporting the habitat for the species; or proximity to proposed structures that may shade areas farther than 50 feet away. The purpose of the survey will be to assess the presence or absence of Congdon's tarplant and California seablite. If the target species are not found in the impact area or the identified buffer, then no further

mitigation will be warranted. If Congdon's tarplant and/or California seablite are observed on or in proximity to the proposed Project site, or during proposed Project surveys, CCJPA will submit California Natural Diversity Data Base (CNDDB) forms and maps to the CNDDB within five working days of the sightings. In addition, if California seablite is found, consultation with USFWS would be required.

**MM BIO-3 Rare Plant Avoidance Buffers.**

To the extent feasible, and in consultation with a qualified plant ecologist and USFWS, CCJPA and/or its contractors will design and construct the proposed Project to avoid and minimize impacts on all populations of Congdon's tarplant and California seablite within the proposed Project footprint or within the identified buffer of the impact area. Avoided Congdon's tarplant and California seablite populations will be protected by establishing and enforcing ESAs with fencing and appropriate signage between plant populations and the impact area. If a reduced buffer is needed for temporary impacts, the qualified plant ecologist will work with the proposed Project construction team to minimize temporary indirect impacts (e.g., watering of construction areas periodically during construction to minimize dust mobilization). All such populations located in the impact area or the identified buffer, and their associated designated avoidance areas, will be clearly depicted on any construction plans. In addition, prior to initial ground disturbance or vegetation removal, the limits of the identified buffer around Congdon's tarplant and California seablite individuals to be avoided will be marked in the field (e.g., with flagging, fencing, paint, or other means appropriate for the site). This marking will be maintained intact and in good condition throughout proposed Project-related construction activities.

- If more than 10 percent of a population of Congdon's tarplant (by occupied area or individuals) would be impacted as determined by a qualified plant ecologist, then Mitigation Measure MM BIO-4 will be implemented.
- If complete avoidance of California seablite is not feasible, then Mitigation Measure MM BIO-4 will be implemented.

**MM BIO-4 Rare Plant Mitigation/Habitat Mitigation Management Plan.**

If avoidance of more than 10 percent of the existing Congdon's tarplant is not feasible, and complete avoidance of California seablite individuals and/or populations is not feasible, CCJPA will consult relevant regulatory agency(ies) (e.g. CDFW/USFWS) regarding compensatory mitigation to be provided via the preservation, enhancement, and management of occupied habitat for the species, or the creation and management of a new population, or as directed by CDFW/USFWS.

- To compensate for impacts on Congdon's tarplant, off-site habitat occupied by the species will be preserved and managed in perpetuity at a minimum 1:1 mitigation ratio (at least one plant preserved for each plant affected, and at least one occupied acre preserved for each occupied acre affected), for any impact over the 10 percent significance threshold. Alternately, seed from the population to be impacted may be harvested and used either to expand an existing population (by a similar number/occupied area to compensate for

impacts to Congdon's tarplant beyond the 10 percent significance threshold) or establish an entirely new population in suitable habitat.

- Areas proposed to be preserved as compensatory mitigation for impacts on Congdon's tarplant and/or California seablite must contain verified extant populations of the species, or in the event that enhancement of existing populations or establishment of a new population is selected, the area must contain suitable habitat for the species as identified by a qualified plant ecologist. Mitigation will be achieved through a combination of in-kind creation, restoration, and/or enhancement as determined to be appropriate through consultation with the resource agencies. Mitigation will first be considered on site, then with an approved mitigation bank, and thirdly through offsite mitigation. The appropriate permit applications will be submitted to state and federal regulatory agencies. The permits issued by these agencies will finalize the mitigation requirements.

A habitat mitigation and monitoring plan (HMMP) will be developed and implemented for the mitigation lands. That plan will include, at a minimum, the following information:

- A summary of habitat impacts and the proposed mitigation;
- A description of the location and boundaries of the mitigation site and description of existing site conditions;
- A description of measures to be undertaken to enhance (e.g., through focused management that may include removal of invasive species in adjacent suitable but currently unoccupied habitat) the mitigation site for Congdon's tarplant and California seablite;
- A description of measures to transplant individual plants or seeds from the impacted area to the mitigation site, if appropriate (which will be determined by a qualified plant or restoration ecologist);
- Proposed management activities to maintain high-quality habitat conditions for Congdon's tarplant and California seablite;
- A description of habitat and species monitoring measures on the mitigation site, including specific, objective final and performance criteria, monitoring methods, data analysis, reporting requirements, and monitoring schedule. At a minimum, performance criteria will include demonstration that any plant population fluctuations over the monitoring period of a minimum of five years for preserved populations and a minimum of 10 years for enhanced or established populations do not indicate a downward trajectory in terms of reduction in numbers and/or occupied area for the preserved mitigation population that can be attributed to management (e.g., that are not the result of local weather patterns, as determined by monitoring of a nearby reference population, or other factors unrelated to management);
- If a new population is established, the new population must contain at least 200 individuals or the same number of impacted individuals, whichever is greater,

by year five. This is to make sure the created population will be large enough to expect to persist and gain sufficient dedicated pollination services. If year five is a poor weather year for summer and fall-blooming annual plants and reference populations show a decline, these criteria can be measured in the next year occurring with average or better rainfall; and

- Contingency measures for mitigation elements that do not meet performance criteria.

The HMMP will be prepared by a qualified plant or restoration ecologist. CDFW and USFWS approval of the HMMP will be required before proposed Project impacts on Congdon's tarplant or California seablite occur.

**MM BIO-5 Monarch Butterfly Avoidance.**

Prior to construction, CCJPA will make sure that a qualified biologist conducts a pre-construction survey for overwintering monarchs or milkweed plants within 50 feet of the proposed Project footprint prior to any ground disturbance associated with the proposed Project. If overwintering monarchs are found to be present in any tree within 50 feet of any disturbance area or milkweed is found within 50 feet of any disturbance area during the pre-construction survey, the following guidelines will also be implemented:

- The tree and/or milkweed will be mapped, delineated with ESA fencing, and avoided;
- The modification and/or minimizing of herbicide usage to promote growth of milkweed and flowering plants outside of UPRR ROW; and
- Use local seed mixes that include a variety of flowering plants and milkweed.

**MM BIO-6 Bumble Bee Pre-construction Surveys.**

Within one year prior to construction, CCJPA will perform a habitat assessment for Crotch's and western bumble bee be conducted within the proposed Project footprint and an appropriate survey buffer be established by a qualified biologist with experience surveying for and observing Crotch's and western bumble bee. If the qualified biologist determines that suitable habitat is present, surveys will be conducted to determine the presence/absence of Crotch's and western bumble bee. Surveys will be conducted during flying season when the species are most likely to be detected above ground, between March 1 to September 1. Survey results, including negative findings, will be submitted to the CDFW prior to implementing proposed Project-related ground-disturbing activities and/or vegetation removal where there may be impacts to Crotch's and/or western bumble bee. At minimum, a survey report will provide the following:

a) A description and map of the survey area, focusing on areas that could provide suitable habitat for Crotch's and/or western bumble bee;

b) Field survey conditions including name(s) of qualified entomologist(s) and brief qualifications; date and time of survey; survey duration; general weather conditions; survey goals, and species searched;

c) Map(s) showing the location of nests/colonies; and,

d) A description of physical (e.g., soil, moisture, slope) and biological (e.g., plant composition) conditions where each nest/colony is found, a sufficient description of biological conditions, primarily impacted habitat, will include native plant composition (e.g., density, cover, and abundance) within impacted habitat (e.g., species list separated by vegetation class; density, cover, and abundance of each species).

If the target species is not found in the impact area, then no further mitigation will be warranted. If Crotch's bumble bee or western bumble bee individuals are found within the survey area, then Mitigation Measure MM BIO-7 will be implemented.

**MM BIO-7 Bumble Bee CESA Section 2080 Coordination.**

If a qualified biologist determines Crotch's and/or western bumble bees are present within the proposed Project footprint, CCJPA will develop a plan to minimize impacts to Crotch's and western bumble bee be developed in consultation with a qualified entomologist during final design. The plan will include effective, specific, enforceable, and feasible measures. An avoidance plan will be submitted to CDFW prior to implementing proposed Project-related ground-disturbing activities and/or vegetation removal where there may be impacts to Crotch's and/or western bumble bee. If Crotch's and/or western bumble bees are determined to be present within the proposed Project footprint and it is determined the species will be impacted by proposed Project implementation, appropriate mitigation will be determined in consultation with CDFW.

If Crotch's and/or western bumble bee is detected during the survey, and if impacts to Crotch's and/or western bumble bee cannot be feasibly avoided during proposed Project construction and activities, CCJPA and a designated qualified entomologist coordinate will coordinate with CDFW to obtain appropriate permit for incidental take of Crotch's and/or western bumble bee prior to commencement of proposed Project activities in habitat occupied by the bumble bees. The incidental take permit will quantify and provide appropriate mitigation for impacts on Crotch's and/or western bumble bee habitat. Mitigation for impacts to Crotch's and/or western bumble bee habitat would be at a ratio comparable to the proposed Project's level of impacts.

**MM BIO-8 Steelhead and Green Sturgeon Work Window.**

In water work within and over Alameda Creek will be restricted to a seasonal window when surface water flows are lowest, and steelhead and green sturgeon are least likely to be present. The specific work windows (e.g., June 15 to October 15) will be in accordance with the terms identified during NMFS consultation, if warranted.

**MM BIO-9 Dewatering and Aquatic Species Relocation Plan.**

Prior to any construction activities that could occur in Alameda Creek when flowing water is present, CCJPA will prepare a water diversion/dewatering and aquatic species relocation plan. The plan will be submitted to the RWQCB, CDFW, USFWS,

and NMFS for review and concurrence. If warranted, the plan may need to be shared with the Alameda Flood Control District, or USACE. The plan will include but not be limited to the following:

- Detailed qualifications for an approved fish biologist to monitor in-water construction activities and ensure implementation of Dewatering and Aquatic Species Relocation Plan;
- Detailed methods for cofferdam or other barrier placement and dewatering;
- Methods and best management practices for the relocation of special-status fish and other aquatic species to appropriate suitable habitat; and
- If in-water pile driving activities are required, the *Technical Guidance for Assessment and Mitigation of the Hydroacoustic Effects of Pile Driving on Fish* developed and released by Caltrans in November 2015 will be the basis for avoidance and minimization measures.

**MM BIO-10 Steelhead and Green Sturgeon Habitat Replacement.**

Prior to construction activities, CCJPA will coordinate with the NMFS to determine mitigation ratios for permanent impacts on Central California Coast Distinct Population Segment steelhead habitat and green sturgeon (Southern DPS) critical habitat. Mitigation may include on-site restoration, in-lieu fee payment, purchase of mitigation credits at a NMFS-approved mitigation bank, or as defined by NMFS as part of consultation, if warranted.

**MM BIO-11 Western Pond Turtle Pre-construction Surveys.**

A CDFW approved qualified biologist will conduct a pre-construction survey for western pond turtle prior to any proposed ground disturbing activities occurring within 350 feet of Alameda Creek, and other waterways in the proposed Project footprint. The survey area will include all disturbance areas within 350 feet of water line. In areas of suitable habitat, the qualified biologist will conduct a pre-construction survey for the species within 48 hours prior to construction activities before construction equipment mobilizes to the proposed Project footprint. If any pond turtles or their nests are found, the biologist will prepare a relocation plan and submit it to the CDFW for written acceptance prior to starting proposed Project activities, and then implement the plan. Construction activities will avoid all pond turtles and their nests including an appropriate buffer as determined by the CDFW approved qualified biologist.

**MM BIO-12 Nesting Migratory Birds, Special-Status Birds, and Raptor Pre-construction Surveys.**

CCJPA and its contractors will conduct vegetation removal, where required to construct proposed Project features, during the non-breeding season for migratory birds and raptors (generally between September 16 and January 14) to the extent feasible. If construction activities occur between January 15 and September 15, a qualified biologist will conduct a preconstruction survey (within seven days prior to construction activities) to determine whether any active bird nests are present and, if so, identify their locations. The results of the surveys will be submitted to CCJPA

(and made available to the wildlife agencies [USFWS/CDFW], upon request) prior to initiation of any construction activities. Should nesting birds be found, exclusionary buffers will be determined by a qualified biologist. Proposed Project activity will not commence within the buffer areas until a qualified biologist has determined, that the young have fledged, the nest is no longer active, or reducing the buffer would not result in nest abandonment. The size of the buffer may be adjusted if a qualified biologist and CCJPA determine that such an adjustment would not be likely to adversely affect the nest. The qualified biologist will monitor active nests during construction to confirm that the buffer is adequate and will document and provide notification when the nest has fledged or failed. Consultation with CDFW may be required if species of state-listed special concern, or fully protected species are observed.

**MM BIO-13 Burrowing Owl Habitat Assessment.**

Prior to the start of construction activities, CCJPA will retain a qualified biologist to conduct a focused burrowing owl habitat assessment in areas of ruderal and grassland habitat within the proposed Project footprint in accordance with the methodologies outlined in the California Department of Fish and Wildlife's (CDFW's) *2012 Staff Report on Burrowing Owl Mitigation*. If burrowing owls or the presence of suitable burrows are detected during the burrowing owl habitat assessment, the qualified biologist, in coordination with CCJPA and CDFW, will implement avoidance, minimization, and mitigation methodologies outlined in CDFW's *2012 Staff Report on Burrowing Owl Mitigation* prior to initiating proposed Project-related activities that may impact burrowing owls or burrowing owl habitat.

**MM BIO-14 Salt Marsh Harvest Mouse Avoidance.**

Salt marsh harvest mouse (SMHM) will be assumed present within the proposed Project footprint; therefore, the following measures below would be implemented:

- A barrier will be installed at limits of the construction work area to exclude SMHM from the construction area:
    - This exclusionary barrier, which will be shown on the proposed Project plans and will be constructed and installed under the guidance of a biologist qualified to survey for SMHM (must meet permit requirements and be approved by USFWS), will consist of a 3-foot tall, tight cloth, smooth plastic, or sheet-metal (or similar material approved by the USFWS) fence toed into the soil at least 3 inches deep and supported with stakes placed on the inside of the barrier;
    - A qualified biologist will conduct a preconstruction survey of the area every morning, prior to construction activities commencing for the day;
    - The qualified biologist will monitor the installation of the exclusionary barrier and will remain on site to monitor all work performed adjacent to SMHM ESAs;

- Any excavations or open trenches in or adjacent to SMHM habitat will either be backfilled or closed at the end of the construction day, or escape ramps will be provided;
- Following the installation of the exclusionary barrier, the qualified biologist will check its integrity each morning that construction activities occur and will have construction personnel initiate repairs, under the supervision of a qualified biologist immediately as needed.

**MM BIO-15 Salt Marsh Harvest Mouse Immediate Work Stoppage.**

If a salt marsh harvest mouse or an animal that could be a harvest mouse (e.g., a similar species of mouse), is observed within the work area during construction activities, all work will stop immediately and the qualified biologist will be immediately notified. The animal will be allowed to leave the area on its own and will not be handled except by a qualified, permitted biologist.

**MM BIO-16 Bat Habitat Suitability Assessment and Surveys.**

A qualified and CDFW-approved bat biologist will survey potentially suitable structures and vegetation during bat maternity season, prior to construction, to assess the potential for the structures' and vegetation's use for bat roosting and bat maternity roosting, as maternity roosts are generally formed in spring. The qualified bat biologist will also perform preconstruction surveys or temporary exclusion within 2 weeks prior to construction, as bat roosts can change seasonally. These surveys will include a combination of structure inspections, exit counts, and acoustic surveys.

If a roost is detected, a bat management plan will be prepared if it is determined that proposed Project construction would result in direct impacts on roosting bats. The bat management plan will be submitted to California Department Fish and Wildlife (CDFW) prior to implementation and include appropriate avoidance and minimization efforts such as:

- **Temporary Exclusion.** If recommended by the qualified bat biologist, to avoid indirect disturbance of roosting bats adjacent to construction activities, temporary bat eviction and exclusion devices will be installed under the supervision of a qualified and permitted bat biologist prior to the initiation of construction activities. Eviction and subsequent exclusion will be conducted during the fall (September or October) to avoid trapping flightless young bats inside during the summer months or hibernating/overwintering individuals during the winter. Such exclusion efforts are dependent on weather conditions, take a minimum of 2 weeks to implement, and must be continued to keep the structures free of bats and birds until the completion of construction. All eviction and/or exclusion techniques will be coordinated between the qualified bat biologist and the appropriate resource agencies (e.g., CDFW) if the structure is occupied by bats. If deemed appropriate, the biologist may recommend installation of temporary bat panels during construction.

If a roost is detected but would only be subject to indirect impacts:

- **Daytime Work Hours.** All work conducted under the occupied roost will take place during the day. If this is not feasible, lighting and noise will be directed away from night roosting and foraging areas.

**MM BIO-17 Compensate for the Loss of Riparian Habitat.**

Prior to construction, CCJPA will make sure that permanent direct impacts on riparian habitat will be mitigated through the purchase of credits at a minimum ratio of 2:1 for native riparian habitats and a minimum ratio of 1:1 for non-native riparian habitats. This will be done through in-lieu fee payment to an appropriate mitigation bank for enhancement, restoration and/or creation of riparian habitat within approved watersheds or funding of a minimum 1:1 ratio of riparian habitat enhancement at approved conservation easements/mitigation banks. The final mitigation acreage will be confirmed during review of final engineering drawings and may be modified during the agency consultation process (e.g., CDFW, RWQCB, NMFS). CCJPA will provide written evidence to the resource agencies that compensation has been established through the purchase of mitigation credits. Alternatively, as part of the CDFW Section 1600 Land and Streambed Alteration Agreement (LSAA) process, CCJPA may provide a plan/proposal for CDFW approval to conduct on or off-site riparian habitat creation/enhancement to compensate for the proposed Project's direct riparian impacts. All riparian areas subject to temporary construction disturbance will be restored by CCJPA and its contractors in accordance with a post construction Erosion Control and Habitat Restoration Plan (ECHRP). The ECHRP will address all temporarily disturbed areas, be prepared by a qualified biologist, be developed as part of the CDFW LSAA process and be reviewed and approved by CDFW prior to implementation.

**MM BIO-18 Protected Trees Pre-construction Surveys.**

Prior to the start of construction activities, CCJPA will retain a qualified arborist to conduct a pre-construction survey for protected trees (e.g., all historic trees, all mature native trees, or any mature trees) that may require removal, pruning or may otherwise be impacted by the proposed Project. The pre-construction survey will identify the types, location, sizes, health of protected trees and summarize survey findings in a tree protection report. The tree protection report will be submitted to the applicable city for review and concurrence. The report will include but not be limited to the following:

- Recommended avoidance and impact minimization measures, replacement value, and feasibility of relocation for protected trees subject to removal.
- Methods and measures for relocation of protected trees to appropriate suitable habitat. Identification of which of the surveyed trees these measures apply to, and if any other tree permit requirements are necessary to comply with municipal policies and ordinances.

**MM BIO-19 Fish Passage and Noise Analysis.**

To evaluate potential impacts to native fish species and fisheries resources, CCJPA will conduct a fish passage analysis during final proposed Project design. The proposed Project will be designed and constructed so that it does not present a

barrier to fish passage or result in operational noise exceeding 150 dB. CCJPA will coordinate with the necessary regulatory agencies, including NMFS and CDFW prior to initiating the analysis, and will consult with NMFS and CDFW during development of conceptual through the final design plans. NMFS and CDFW will be engaged for coordination during design.

**MM BIO-20 Salt Marsh Harvest Mouse Habitat Replacement.**

Prior to construction activities, CCJPA will coordinate with the USFWS to determine mitigation ratios for impacts on SMHM. Pending consultation with USFWS, mitigation may include on-site restoration, in-lieu fee payment, purchase of mitigation credits at a USFWS-approved mitigation bank, or as defined by USFWS as part of consultation.

## 3.5.8 Cumulative Impact Analysis

Cumulative impacts can result from individually minor but collectively considerable impacts from past, present, and reasonably foreseeable future projects. A cumulatively considerable impact to biological resources would occur if the incremental effects of the proposed Project on biological resources (including special-status species, sensitive natural communities including protected aquatic resources, and wildlife migration or nursery sites) were substantial relative to other past, present, and reasonably foreseeable projects.

The geographic context for the analysis of potential contributions to cumulative biological resources impacts includes the proposed Project footprint where proposed Project elements are located, as well as the immediate vicinity. For potential impacts on terrestrial species, the geographic context includes the biological RSA. For aquatic species, the geographic context also includes the streams traversed by the South Bay Connect Project in the aquatic RSA.

Cumulative projects within this geographic context include the projects listed in Section 3.1 that are within or adjacent to proposed Project components and features. As provided in Section 3.1, multiple past, present, and reasonably foreseeable projects were considered for the purpose of this cumulative impact analysis. These cumulative projects include infrastructure projects, transportation and transit projects, recreational and community facility projects, and other private development projects within the proposed Project's RSA.

Some of the projects identified in Section 3.1 have impacts on special-status species and sensitive biological resources described in this Section including potentially significant impacts on sensitive plant species, steelhead, western pond turtle, special-status bird species, salt marsh harvest mouse, and special-status bat species. In addition, potentially significant impacts on riparian habitat, wetlands and other waters, migration corridors, and sensitive natural communities may occur from development of these projects. However, mitigation measures described in the environmental documents associated with the aforementioned projects would reduce the impacts from each project to less than significant. The proposed Project includes implementation of BMP HYD-1 and apply MM BIO-1 through MM BIO-20; therefore, offsetting the proposed Project's contribution to cumulative impacts. Therefore, the proposed Project's contribution to cumulative impacts on biological and aquatic resources would not be cumulatively considerable, and cumulative impacts would be less than significant.

## 3.5.9 Agency Consultation

As described in Chapter 6, Public Outreach and Agency Consultation, CCJPA has consulted with San Francisco BCDC which focused on sea-level rise. No other agency coordination has been conducted for the proposed Project at this time.

Based on the findings of the focused surveys and technical studies conducted to date, the proposed Project is anticipated to result in a "less than significant impact, with mitigation" determination with respect to seven federally listed species, seven state listed species, and twelve other special-status species. As a result, formal Section 7 consultation with the NMFS and USFWS is expected to be necessary. At this time, it is assumed that FRA would be the federal lead to initiate consultation with federal agencies, such as NMFS and USFWS.

Additionally, coordination with CDFW may be required to pursue a Lake and Streambed Alteration Agreement (impacts to Alameda Creek) or other waterways within the proposed Project footprint. Additionally, consultation with CDFW may be needed for pursuing an Incidental Take Permit of state-listed or fully protected species. Fully protected species, if present, would need to be identified under Senate Bill 147.

Consultation with the NMFS regarding impacts on EFH would also be required because the proposed Project is anticipated to result in a "less than significant impact, with mitigation" determination regarding EFH. Additionally, consultation with San Francisco Bay BCDC would be required because some components of the proposed Project may potentially impact areas under BCDC jurisdiction.

### Anticipated Permits Required

Prior to discharge of fill and/or modification of bed and bank to these jurisdictional aquatic resources, the following permits and authorizations will be required:

- USACE – Section 404 Nationwide Permit
    - Nationwide Permit 14 for Linear Transportation Projects would likely be appropriate for implementation of the proposed Project because it is expected to permanently affect less than 0.5 acre of WOUS.
    - Nationwide Permit 14 does not require submittal of a Preconstruction Notification to USACE for fill of less than 1/10 acre.
- CDFW – Section 1600 Lake and Streambed Alteration Agreement
    - A Lake and Streambed Alteration Notification would need to be prepared and submitted to CDFW to acquire a Streambed Alteration Agreement prior to construction.
- RWQCB – Section 401 Water Quality Certification
    - A Section 401 Water Quality Certification from the RWQCB would be required for any proposed impacts on features determined to be subject to USACE jurisdiction.
    - State Water Resources Board Certification Action Order No. WQ 20210048DWQ (General Order) conditionally certifies projects resulting in dredge/fill to WOUS authorized under certain USACE Nationwide Permits, including Nationwide Permit 14. The proposed Project would qualify for Section 401 Certification under this General Order if:

- The proposed Project is exempt from CEQA;
- Permanent Impact Acreage to WOUS is no more than 0.01 acre;
- Total Impact Acreage to WOUS is no more than 0.2 acre;
- Permanent Impact Length to WOUS is no more than 100 linear feet; and
- Total Impact Length to WOUS is no more than 300 linear feet.

- BCDC Regionwide or Major Permit

## 3.5.10 CEQA Significance Findings Summary Table

Table 3.5-4 summarizes the biological resource impacts of the proposed Project.

**Table 3.5-4. Biological Resources Impacts Summary**

| Impact | Level of Significance Before Mitigation | Incremental Project Contribution to Cumulative Impacts | Mitigation | Level of Significance with Mitigation Incorporated | Incremental Project Cumulative Impact after Mitigation |
|---|---|---|---|---|---|
| **a) Would the project have a substantial adverse effect, either directly or through habitat modifications, on a species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife, U.S. Fish and Wildlife Service, or NOAA Fisheries:** | S/M | NCC | MM BIO-1<br>MM BIO-2<br>MM BIO-3<br>MM BIO-4 | LTS | NCC |
| • **Special-Status Plants?** | | | | | |
| • **Crotch's Bumble Bee and Western Bumble Bee?** | S/M | NCC | MM BIO-1<br>MM BIO-6<br>MM BIO-7 | LTS | NCC |
| • **Monarch Butterfly?** | S/M | NCC | MM BIO-1<br>MM BIO-2<br>MM BIO-5 | LTS | NCC |
| • **Special-Status Fish?** | S/M | NCC | MM BIO-1<br>MM BIO-8<br>MM BIO-9<br>MM BIO-10<br>MM BIO-17<br>MM BIO-19 | LTS | NCC |

**Table 3.5-4. Biological Resources Impacts Summary**

| Impact | Level of Significance Before Mitigation | Incremental Project Contribution to Cumulative Impacts | Mitigation | Level of Significance with Mitigation Incorporated | Incremental Project Cumulative Impact after Mitigation |
|---|---|---|---|---|---|
| • **Special-Status Amphibians and Reptiles?** | S/M | NCC | MM BIO-1<br>MM BIO-11<br>MM BIO-17 | LTS | NCC |
| • **Western Snowy Plover?** | S/M | NCC | MM BIO-1<br>MM BIO-12 | LTS | NCC |
| • **Bald Eagle, California Ridgway's rail, White-tailed Kite, California Black Rail?** | S/M | NCC | MM BIO-1<br>MM BIO-12 | LTS | NCC |
| • **Burrowing Owl?** | S/M | NCC | MM BIO-1<br>MM BIO-12<br>MM BIO-13 | LTS | NCC |
| • **Northern Harrier?** | S/M | NCC | MM BIO-1<br>MM BIO-12 | LTS | NCC |
| • **Alameda Song Sparrow and San Francisco Common Yellowthroat?** | S/M | NCC | MM BIO-1<br>MM BIO-12 | LTS | NCC |
| • **Salt Marsh Harvest Mouse?** | S/M | NCC | MM BIO-1<br>MM BIO-14<br>MM BIO-15 | LTS | NCC |

**Table 3.5-4. Biological Resources Impacts Summary**

| Impact | Level of Significance Before Mitigation | Incremental Project Contribution to Cumulative Impacts | Mitigation | Level of Significance with Mitigation Incorporated | Incremental Project Cumulative Impact after Mitigation |
|---|---|---|---|---|---|
| • **Special-Status Bat Species?** | S/M | NCC | MM BIO-1<br>MM BIO-16 | LTS | NCC |
| **b) Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?** | S/M | NCC | MM BIO-1<br>MM BIO-7<br>MM BIO-8<br>MM BIO-17<br>MM BIO-21 | LTS | NCC |
| **c) Would the project have a substantial adverse effect on state or federally protected wetlands (including but not limited to, marsh, vernal pool, coastal etc.) through direct removal, filling, hydrological interruption, or other means?** | S/M | NCC | MM BIO-1<br>MM BIO-17 | LTS | NCC |
| **d) Would the project 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?** | S/M | NCC | MM BIO-1<br>MM BIO-8<br>MM BIO-9<br>MM BIO-10<br>MM BIO-17 | LTS | NCC |

**Table 3.5-4. Biological Resources Impacts Summary**

| Impact | Level of Significance Before Mitigation | Incremental Project Contribution to Cumulative Impacts | Mitigation | Level of Significance with Mitigation Incorporated | Incremental Project Cumulative Impact after Mitigation |
|---|---|---|---|---|---|
| **e) Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?** | S/M | NCC | MM BIO-1<br>MM BIO-2<br>MM BIO-18 | LTS | NCC |
| **f) Would the project conflict with the provision of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?** | NI | NCC | N/A | NI | NCC |

**Notes: LTS = Less than Significant Impact, NI = No Impact, N/A = Not Applicable, SI = Significant Impact, S/M = Significant Impact but Mitigable to a Less than Significant Level, CC = Cumulatively Considerable, NCC = Not Cumulatively Considerable.**

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# 3.6 Cultural Resources

## 3.6.1 Introduction

This section describes the regulatory setting and affected environment for cultural resources. The term cultural resources refers to built-environment resources (e.g., buildings, structures, objects, districts), archaeological resources, and human remains. This section addresses cultural resources that are known to occur or have the potential to occur in the cultural resources RSA and describes the potential impacts on those resources during construction and operation of the proposed Project. This section also identifies the potential for cumulative impacts of the proposed Project on cultural resources when considered in combination with other relevant projects.

## 3.6.2 Regulatory Setting

This section identifies the applicable federal, state, regional, and local laws, regulations, and orders that are relevant to the analysis of cultural resources. This section also addresses the proposed Project's consistency with the regulations described herein.

### 3.6.2.1 Federal

#### National Historic Preservation Act, Section 106

Although the proposed Project is not anticipated to require compliance with Section 106 of the National Historic Preservation Act (NHPA), the National Register of Historic Places (NRHP) and federal guidelines related to the treatment of cultural resources are relevant for the purposes of determining whether significant cultural resources, as defined under CEQA, are present and guiding the treatment of such resources.

#### National Historic Preservation Act and National Register of Historic Places

Built-environment and archaeological resources are protected through the NHPA (16 United States Code 470f). The NHPA requires project review of effects on historic properties only when projects involve federal funding or permitting or occur on federal land; therefore, it is not applicable to discretionary actions at the municipal level. However, the NHPA establishes the NRHP, which provides a framework for resource evaluation and informs the process for determining impacts on historical resources under CEQA.

The NRHP is the nation's official comprehensive inventory of historic properties. Administered by the National Park Service, the NRHP includes buildings, structures, sites, objects, and districts that possess historic, architectural, engineering, archaeological, or cultural significance at the national, state, or local level. Typically, a resource that is more than 50 years of age is eligible for listing in the NRHP if it meets any one of the four eligibility criteria and retains sufficient historical integrity. A resource less than 50 years old may be eligible if it can be demonstrated that it is of "exceptional importance" or a contributor to a historic district. NRHP criteria are defined in *National Register Bulletin Number 15:* How to Apply the National Register Criteria for Evaluation.

Properties that are listed in the NRHP, as well as properties that are formally determined to be eligible for listing in the NRHP, are automatically listed in the California Register of Historical Resources (CRHR), described below, and therefore considered historical resources under CEQA.

### The Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation

These standards, effective as of 1983, provide technical advice for archaeological and historic preservation practices. Their purposes are (1) to organize the information gathered about preservation activities; (2) to describe results to be achieved by federal agencies, states, and others when planning for the identification, evaluation, registration, and treatment of historic properties; and (3) to integrate the diverse efforts of many entities performing historic preservation into a systemic effort to preserve the nation's culture heritage (48 Code of Federal Regulations [CFR] 44716).

### The Secretary of the Interior's Standards for Rehabilitation

These standards were established by the Secretary of the Interior in 1986 as a way to homogenize rehabilitation efforts of nationally significant historic properties and buildings. These standards pertain to actions involved in returning a property to a state of utility through repair or alteration. This allows for the preservation of historic and cultural values of the property, while giving it an efficient contemporary use (36 CFR 67).

### The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings

The Standards for the Treatment of Historic Properties are a compilation of 34 guidelines to promote the responsible preservation of U.S. historic cultural resources. The standards specifically address preservation, rehabilitation, restoration, and reconstruction of historic materials. The standards are not intended to be the sole basis for decision-making in regard to whether a historic property should be saved, but rather are intended to provide consistency in conservation and restoration practice (36 CFR 68).

## 3.6.2.2 State

### California Environmental Quality Act Public Resources Code Section 21082.2 and CEQA Guidelines

CEQA requires the lead agency to consider the effects of a project on historical resources. State CEQA Guidelines Section 15064.5 provides specific guidance for determining the significance of impacts on historical resources (State CEQA Guidelines Section 15064.5(b)) and unique archaeological resources (State CEQA Guidelines Section 15064.5(b) and Public Resources Code [PRC] Section 21083.2). Under CEQA, these resources are called "historical resources" whether they are of historic or pre-European contact age. CEQA Section 21084.1 defines historical resources as those listed, or eligible for listing, in the CRHR, or those listed in the historical register of a local jurisdiction (county or city) unless the preponderance of the evidence demonstrates that the resource is not historically or culturally significant. NRHP-listed "historic properties" in California are considered historical resources for the purposes of CEQA and are also listed in the CRHR. The CRHR criteria for listing

such resources are based on, and are very similar to, the NRHP criteria. CEQA Section 21083.2 and State CEQA Guidelines Section 15064.5(c) provide further definitions and guidance for archaeological sites and their treatment.

## California Register of Historical Resources (PRC Section 5024.1)

PRC Section 5024.1 establishes the CRHR, which lists all California properties considered to be significant historical resources. The CRHR also includes all properties listed or determined eligible for listing in the NRHP, including properties evaluated and determined eligible under Section 106. The criteria for listing in the CRHR, criteria 1–4, are similar to those of the NRHP:

- Criterion 1: Resources associated with important events that have made a significant contribution to the broad patterns of our history.
- Criterion 2: Resources associated with the lives of persons important to our past.
- Criterion 3: Resources that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master.
- Criterion 4: Resources that have yielded, or may be likely to yield, information important in prehistory or history.

The CRHR regulations govern the nomination of resources to the CRHR (14 California Code of Regulations Section 4850). The regulations set forth the criteria for eligibility as well as guidelines for assessing historical integrity and resources that have special considerations.

## Unique Archaeological Resources

State CEQA Guidelines Section 15064.5(c) specifies how CEQA applies to archaeological sites, including archaeological sites that are historical resources, unique archaeological resources, or neither.

PRC Section 21083.2(g) defines a unique archaeological resource as an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

- It contains information needed to answer important scientific research questions, and there is a demonstrable public interest in that information.
- It has a special and particular quality, such as being the oldest of its type or the best available example of its type.
- It is directly associated with a scientifically recognized important prehistoric or historic event or person.

State CEQA Guidelines Sections 15064.5(d) and (e) specify responsibilities and respectful treatment of human remains, including Native American human remains, that are found or likely to be found within a project site.

## Discovery of Human Remains

With respect to the potential discovery of human remains, § 7050.5 of the California Health and Human Safety Code states the following:

a. Every person who knowingly mutilates or disinters, wantonly disturbs, or willfully removes any human remains in or from any location other than a dedicated cemetery without authority of law is guilty of a misdemeanor, except as provided in Section 5097.99 of the Public Resources Code. The provisions of this subdivision shall not apply to any person carrying out an agreement developed pursuant to subdivision (l) of Section 5097.94 of the Public Resources Code or to any person authorized to implement Section 5097.98 of the Public Resources Code.

b. In the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the human remains are discovered has determined, in accordance with Chapter 10 (commencing with Section 27460) of Part 3 of Division 2 of Title 3 of the Government Code, that the remains are not subject to the provisions of Section 27491 of the Government Code or any other related provisions of law concerning investigation of the circumstances, manner and cause of any death, and the recommendations concerning the treatment and disposition of the human remains have been made to the person responsible for the excavation, or to his or her authorized representative, in the manner provided in Section 5097.98 of the Public Resources Code. The coroner shall make his or her determination within two working days from the time the person responsible for the excavation, or his or her authorized representative, notifies the coroner of the discovery or recognition of the human remains.

c. If the coroner determines that the remains are not subject to his or her authority and if the coroner recognizes the human remains to be those of a Native American or has reason to believe that they are those of a Native American, he or she shall contact, by telephone within 24 hours, the Native American Heritage Commission. (California Health and Human Safety Code Section 7050.5)

After notification, the Native American Heritage Commission will follow the procedures outlined in PRC § 5097.98, which include notification of Most Likely Descendants (MLD), if possible, and recommendations for treatment of the remains. Also, knowing or willful possession of Native American human remains or artifacts taken from a grave or cairn is a felony under State law, pursuant to PRC § 5097.99.

### California Native American Graves Protection and Repatriation Act (California Health and Safety Code Section 8010 et seq.)

The California Native American Graves Protection and Repatriation Act establishes a state repatriation policy that strives to ensure that all California Native American human remains and cultural items are treated with dignity and respect, and asserts intent for the state to provide mechanisms for aiding California Native American tribes, including non-federally recognized tribes, in repatriating remains and cultural items.

## 3.6.2.3 Regional

### Alameda County

Alameda County adopted a historic preservation ordinance (2012-5, Chapter 17.62) that codifies definitions and procedures for identifying and preserving historic resources within the

unincorporated communities of Alameda County, including parameters for designating historic resources for the Alameda County Register. Because the parameters for designation meet the standard set by CEQA for qualified registers (State CEQA Guidelines Section 15064.5(a)(2)), any resources that are already designated on the Alameda County Register would be considered CEQA historical resources.

### 3.6.2.4 Local

#### City of Oakland

The City of Oakland's General Plan includes policies for designating, modifying, and demolishing cultural and historic resources under two broad goals: to "use historic preservation to foster economic vitality and quality of life" and to "prevent unnecessary destruction of properties of special historical, cultural, and aesthetic value." These are supported by a number of policies, which are elaborated upon in the Oakland General Plan Historic Preservation Element, Chapter 4, Preservation Incentives and Regulations. Because the parameters for designation under the City of Oakland policies meet the standard set by CEQA for qualified registers (State CEQA Guidelines Section 15064.5(a)(2)), any resources that are already designated would be considered CEQA historical resources.

#### City of San Leandro

Title 4, Public Welfare, Chapter 4-26, Historic Preservation, of the San Leandro municipal code defines the regulations and procedures for identifying, designating, protecting, enhancing, and using historical resources within the city. This chapter includes specific regulations for recording, designating, and altering such resources within the city, and also includes procedures for demolishing, destroying, relocating, or removing a designated historic resource. Because the parameters for designation defined by the City of San Leandro meet the standard set by CEQA for qualified registers (State CEQA Guidelines Section 15064.5(a)(2)), any resources that are already designated would be considered CEQA historical resources.

#### City of Hayward

The City of Hayward adopted a historic preservation ordinance (Article 11 of the City's municipal code) that codifies procedures for altering, relocating, or demolishing historic resources, as well as designating historic resources on the city's local register. It also discusses incentives for the preservation of designated historic resources. Because the parameters for designation adopted by the City of Hayward meet the standard set by CEQA for qualified registers (State CEQA Guidelines Section 15064.5(a)(2)), any resources that are already designated would be considered CEQA historical resources.

#### City of Union City

The City of Union City's 2040 General Plan includes policies for designating, modifying, and demolishing cultural and historic resources under Goal RC-4: To protect, to the extent possible, the city's significant archaeological and historical resources. Goal RC-4 is supported by a number of policies, as follows.

- Policy RC-4.1: Preserve Public Landmarks. The City shall encourage the preservation of public landmarks.

- Policy RC-4.2: Support the Preservation and Rehabilitation of Historical Resources. The City shall support public and private efforts to preserve, rehabilitate, and continue the use of historic structures and sites.
- Policy RC-4.3: Use Appropriate Standards to Evaluate Historical Resources. The City shall use appropriate federal, State, and local standards in evaluating the significance of historical resources within the City.
- Policy RC-4.4: Incorporate Historical Resources into the Landmark and Historic Preservation Overlay Zone. The City shall work with property owners to apply the Landmark and Historic Preservation Overlay Zone to properties or buildings of historic significance. The properties or buildings may be those that provide significant examples of architectural styles of the past, are landmarks in the history of architecture, are unique and irreplaceable assets to the City and its neighborhoods or provide for future generations examples of the physical surroundings in which past generations lived.
- Policy RC-4.5: Support Union City Historical Museum. The City shall continue to encourage and provide support for the Union City Historical Museum.
- Policy RC-4.6: Protection of Archeological Resources. The City shall strive to ensure that significant archaeological resources are adequately identified and protected from destruction through avoidance where feasible. In the event that any previously unidentified cultural resources are uncovered during site preparation, excavation, or other construction activity, all such activity shall cease until these resources have been evaluated by a qualified archaeologist (or other qualified specialist as appropriate) and specific measures can be implemented to protect these resources in accordance with Sections 21083.2 and 21084.1 of the California Public Resource Code (PRC). Where such resources are Native American, the developer shall prepare the assessment in consultation with appropriate Native America tribe(s).
- Policy RC-4.7: Treatment of Remains. Consistent with California Health and Safety Code Section 7050.5 and California PRC Section 5097.98, if human remains are encountered, no further disturbance shall occur until the County Coroner has made the necessary findings as to origin. The remains shall be left in place and free from disturbance until a final decision as to the treatment and disposition has been made. If the coroner determines the remains to be Native American, the NAHC [Native American Heritage Commission] shall be contacted within 24 hours. The NAHC must then immediately identify the MLD(s) of receiving notification of the discovery. The MLD(s) shall then make recommendations within 48 hours and engage in consultations concerning the treatment of the remains.

Because the parameters for designation of resources outlined by the policies adopted by the City of Union City meet the standard set by CEQA for qualified registers (State CEQA Guidelines Section 15064.5(a)(2)), any resources that are already designated would be considered CEQA historical resources.

## City of Newark

The City of Newark's municipal code (Chapter 17.20 – Historical Resources) includes procedures for designating, modifying, and demolishing historic resources. The City has also established criteria for designating historic resources as "primary" or "secondary" landmarks depending on such factors as the age of the resource and its relationship to a historic event, person, or architectural style. Because

the parameters for designation adopted by the City of Newark meet the standard set by CEQA for qualified registers (State CEQA Guidelines Section 5064.5(a)(2)), any resources that are already designated under City policies would be considered CEQA historical resources.

### City of Fremont

The City of Fremont has adopted a historic resources ordinance (Chapter 18.175 of the City's municipal code) that codifies procedures for adding or removing resources to the City's historic register; altering, demolishing, or relocating resources on the local register; and evaluating potential resources prior to demolition or relocation. Because the parameters for designation adopted by the City of Fremont meet the standard set by CEQA for qualified registers (State CEQA Guidelines Section 15064.5(a)(2)), any resources that are already designated under City policies would be considered CEQA historical resources.

## 3.6.3 Methods for Evaluating Environmental Impacts

This section defines the RSA for cultural resources and describes the methods used to analyze the impacts on cultural resources within the RSA.

### 3.6.3.1 Resource Study Area

As defined in Section 3.1, Introduction, RSAs are the geographic boundaries within which the environmental investigations specific to each resource topic were conducted.

The RSA for built-environment resources and archeological resources includes the geographic area in which proposed Project activities could impact built-environment and archaeological resources, should they exist. The RSA for built-environment resources and archeological resources encompasses the Project Footprint plus a 0.125-mile (or ⅛-mile) buffer outside of the footprint.

### 3.6.3.2 Built-Environment Resources – Data Sources

Background research was conducted to identify cultural resources and studies within the RSA to assess the potential for built-environment resources. The background research consisted of records searches at the Northwest Information Center (NWIC) of the California Historical Resources Information System (CHRIS), a literature and historical map review, and a field survey. The results of these tasks are summarized below. Refer to Appendix D, Attachment 1, Historical Resources for details.

#### California Historical Resources Information Systems Record Search

Staff at the NWIC conducted five records searches to identify previous cultural resources studies and site records within the RSA. The first occurred on July 25, 2019 (NWIC File No. 19-0146) and the second on August 13, 2021 (NWIC File No. 21-0209). Supplemental records searches were conducted on March 10, 2022, May 4, 2023, and September 5, 2023. The results revealed 52 previously recorded built-environment resources within the RSA. In addition to the NWIC records, the following State of California inventories for the resource study area were reviewed:

- Five Views: An Ethnic Historic Site Survey for California (Office of Historic Preservation [OHP] 1988);
- California Historical Landmarks (OHP 2022a);

- California Points of Historical Interest (OHP 2022b); and
- Built Environment Determinations of Eligibility (OHP 2012).

## Native American Heritage Commission Sacred Land File Search

The NAHC is a state agency that maintains the Sacred Lands File, an official list of sites that are of cultural and religious importance to California Native American tribes. A review of the NAHC Sacred Lands File was conducted on July 15, 2020, for any Native American cultural resources within the 2019 proposed station areas, rather than the entire resource study area. On September 20, 2021, a subsequent search was conducted that encompassed the entire RSA.

## Built-Environment Desktop Review and Field Survey

Prior to the field survey, ICF completed a desktop review to identify buildings and built-environment resources older than 45 years old using the records search results, Google Earth, county tax assessor records, historic aerial photographs, historic maps, and ParcelQuest. ICF cross-referenced this information with the records search results as KMZ files in Google Earth to identify all properties older than 45 years within the record search area, paying particular attention to those found within the study area for built-environment resources.

The field survey was completed from the public right-of-way (ROW) September 14–15, 2021, and February 11, 2023. For inaccessible resources or resources not visible from the public ROW, ICF used available desktop information (aerial imagery, Google Street views, county assessor's records, building permits, etc.) to complete the survey. During the field survey, paper maps and smartphones were used to photograph and survey locations. Architectural styles, integrity, and obvious visible alterations were also noted. During the field survey, researchers photographed and noted visible alterations to previously identified or previously evaluated built-environment resources to compare existing conditions with extant documentation to figure out if the previous NRHP and CRHR evaluations meet present-day technical standards and to document any changes in integrity that may have occurred since the most recent recordation.

In those areas of the Project footprint where all Project activities stay within the existing railroad or roadway ROW and where those components do not add any new features to the adjacent setting, no field survey was conducted because the Project footprint does not extend beyond the existing railroad or roadway ROW and Project activities were limited to at-grade surface improvements to roadways and rail. In those areas of the Project footprint, a desktop review in Google Earth was completed to ensure that no built-environment resources crossed into the Project footprint. Similarly, in areas of proposed roadway improvements, if those roadway improvements replace features in-kind or are utilitarian upgrades and stay within the existing road ROW, a desktop review in Google Earth was completed to ensure that no potential built-environment resources crossed into the Project footprint.

## Consultation Outreach per Public Resources Code Section 21080.3.1

Letters requesting information concerning historical resources found within or near the RSA were sent to various groups on February 10, 2022. The following groups were contacted:

- Alameda County Historical Society;
- Ardenwood Historic Farm;

- California Nursery Historical Park;
- Niles Canyon Railway, Pacific Locomotive Association;
- Niles Main Street Association;
- Railroad Museum at Ardenwood; and
- San Leandro Historical Railway Society.

To date, ICF received one response from Jack Burgess, Treasurer for the Society for the Preservation of Carter Railroad Resources (SPCRR) on February 22, 2022. The SPCRR runs the Railroad Museum at Ardenwood. The Treasurer requested more information on where the Project proposes construction of the Ardenwood Station and parking area, and whether the Project proposes a passing track in the vicinity of the station. ICF replied with the requested information in an email on February 23, 2022, and received no further questions. To date, no further replies from the interested parties have been received.

### 3.6.3.3 Archaeological Resources – Data Sources

ICF conducted background research to identify cultural resources and studies within the RSA and to assess the potential for subsurface archaeological deposits. The background research consisted of a records search at the NWIC and a literature and historical map review. The results of these tasks are summarized below.

#### Records Search

As discussed above in Section 3.6.3.2 for Built Environment resources, four cultural resources record searches of the RSA were conducted by staff at NWIC for the proposed Project Study Area to identify previous recorded cultural resources.

The initial search was conducted on July 20, 2019 (NWIC File No. 19-0146) and focused on the 2019 proposed station areas rather than the entire Project Study Area. On August 13, 2021 (NWIC File No. 21-0209), an additional records search was conducted, which included the Project Study Area and RSA. Supplemental records searches were conducted by ICF on May 5, 2023 (NWIC File Number 22-1723) and September 5, 2023 (NWIC File Number 23-0307).

ICF also reviewed the following State of California inventories for the RSA:

- Five Views: An Ethnic Historic Site Survey for California (OHP 1988);
- California Historical Landmarks (OHP 2022a);
- California Points of Historical Interest (OHP 2022b); and
- Archaeological Resources Determinations of Eligibility (OHP 2012).

#### Geological Map Analysis

A review of geologic maps was completed to assess the proposed Project's potential for containing as-yet undocumented buried archaeological resources. For the purposes of this analysis, the phrase *buried archaeological sensitivity* is used to characterize a given area's likelihood for containing buried archaeological resources. For example, if an area is defined as having a high degree of buried

archaeological sensitivity, it is considered to have a high likelihood for containing buried archaeological resources. The analysis considers two factors to determine archaeological sensitivity: landform age and depositional environment (which refers to the way in which a landform is formed).

The term *geologic unit* is used to describe discrete accumulations of sediment or rock with a shared origin and age. Based on landform age and depositional environment, the proposed Project is divided into three categories of archaeological sensitivity: *high*, *moderate*, and *low*. To determine archaeological sensitivity, ICF reviewed the digital database of Quaternary deposits produced by Knudsen et al. (2000). This database compiled from 1:24000- and 1:100,000-scale geologic maps. ICF then determined the ages and depositional environment for all geologic units that intersect with the Project; and then categorized each geologic unit as *high*, *moderate*, or *low* sensitivity based on the aforementioned criteria.

For the purposes of this analysis, landforms identified as having formed prior to the Holocene were considered to have *low sensitivity* for buried archaeological resources. Terrestrial landforms formed during the early Holocene were also considered to have *low sensitivity* for buried archaeological sites, while terrestrial landforms formed during the middle to late Holocene were considered to have *high sensitivity* for buried archaeological resources. Historic landforms formed within the past 150 years, including artificial fill, were also considered to have *moderate sensitivity* for buried archaeological sites.

The Project footprint extends across numerous geologic units that range in age from the Pleistocene to within the last 150 years. Additional information about these units, including their geologic abbreviations, age, and archaeological sensitivity are described in Appendix D, Attachment 2 Archaeological Background Materials.

Table 3.6-1 describes the relative proportion of each level of archaeological sensitivity within the Project Footprint. The majority of the Project Footprint (76.15-percent) was determined to have a high degree of sensitivity for containing buried archaeological resources. A portion of the Project footprint was excluded from these proportions as these areas are currently underwater.

**Table 3.6-1. Archaeological Sensitivity within the Project Footprint**

| Archaeological Sensitivity | Geologic Abbreviation[1] | Relative Proportion |
|---|---|---|
| High | **Qhfy, Qhly, Qhty, Qha, Qhf, Qhf1, Qhf2, Qhff, Qhl, Qht** | **76.15%** |
| Moderate | **ac, afbm, alf, Qhbm** | **7.72%** |
| Low | **Qhc, Qf, Ql, Qt, Qpt, br** | **16.13%** |

Knudsen, Keith L., Janet M. Sowers, Robert C. Witter, Cal M. Wentworth, and Edward J. Helley 2000

1 Abbreviations are defined in Appendix D, Attachment 2.

## Historic Map Review

ICF reviewed archival maps for the presence of historic-period buildings and/or structures within the Project Footprint to assess the potential for historic-period archaeological deposits (e.g., artifact-filled features such as wells or privies). Table 3.6-2 describes the historic maps reviewed.

**Table 3.6-2. Archival Map Review**

| Map | Results |
|---|---|
| 1870 GLO Plat Map Township 2 South, Range 3 West, Mount Diablo Meridian | This map depicts the Coast Subdivision within Rancho San Leandro, near the San Francisco Bay, on the south side of San Leandro Creek. |
| 1873 GLO Plat Map Township 5 South, Range 1 West, Mount Diablo Meridian | This map depicts the Coast Subdivision within "Lands of Ex Mission San Jose claimed with specific boundaries under Act of Congress approved March 3rd, 1865." |
| 1876 GLO Plat Map Township 3 South, Range 2 West, Mount Diablo Meridian | This map depicts the Coast Subdivision within Rancho San Lorenzo. |
| 1883 GLO Plat Map Township 4 South, Range 2 West, Mount Diablo Meridian | This map depicts the Coast Subdivision Niles/Oakland Subdivisions within Rancho Potrero de los Cerritos. |
| 1883 GLO Plat Map Township 5 South, Range 2 West, Mount Diablo Meridian | This map depicts Coast Subdivision within "Lands of Ex Mission San Jose claimed with specific boundaries under Act of Congress approved March 3rd, 1865." |
| 1890 Sanborn Fire Insurance Map, Alvarado, Alameda County. | This map depicts the Coast Subdivision as SPRR south of Smith Street and Granger's Road in Alvarado. A depot with a freight house and an office is depicted within the Project footprint. Granger's Stable and Warehouse, the Riverside Hotel, unnamed dwellings, and a horse shed are depicted in the vicinity. |
| 1899 *Hayward, Calif.* USGS topographic quadrangle (1:62,500) | This map depicts the Coast Subdivision as the SPRR running through San Leandro, San Lorenzo, and Arroyo de la Alameda. Roberts Landing and Mt Eden Station as well as unnamed buildings are depicted on the eastern and western side of the railroad tracks. |

**Table 3.6-2. Archival Map Review**

| Map | Results |
|---|---|
| 1908 Sanborn Fire Insurance Map, Alvarado, Alameda County. | No changes from the 1890 map are depicted within the Coast Subdivision. |
| 1908 Sanborn Fire Insurance Map, Newark, Alameda County. | This map depicts the Coast Subdivision as the SPRR Main Track. The Southern Pacific Company's Yard, which includes side tracks, a depot, warehouses, and storage buildings, is depicted within the Project footprint. An unnamed dwelling, a boarding and lodging house, and a residential building with rooms for boarders and lodgers are also depicted within the Project footprint. |
| 1915 *Hayward, Calif.* USGS topographic quadrangle (1:62,500) | No changes from the 1899 map are depicted within the Coast Subdivision. |
| 1925 Sanborn Fire Insurance Map, Oakland, Alameda County. | This map depicts the Coast Subdivision as the SPRR Main Track. The Nielson Packing Company is depicted adjacent to the Project footprint. |

GLO = General Land Office

A review of archival maps shows 19th century development of the area, generally indicating a potential for intact historic-period deposits (e.g., artifact-filled features, such as wells or privies). Development continued into the 20th century as more homes and businesses were constructed adjacent to the railroad tracks.

For the most part, the Project footprint exists within the alignment of historic railroad tracks and roads. However, some areas of the Project footprint exist outside of these historic alignments and overlap with historic structures that include:

- A railroad depot south of Smith Street and Granger's Road in Alvarado (Sanborn Map Company 1890).
- The Southern Pacific Company's Yard, including sidetracks, a depot, warehouses, and storage buildings, at the location of the Newark Railroad Complex, south of Thorton Avenue and north of Carter Avenue in Newark (Sanborn Map Company 1908).
- An unnamed dwelling, a boarding and lodging house, and a residential building with rooms for boarders and lodgers, south of Thorton Avenue and east of Ash Street (Sanborn Map Company 1908).

The majority of the Project footprint, however, was not detailed on the Sanborn maps, indicating that physical development at these locations was too sparse at the time to warrant inspection by the

insurance industry. Historic structures may exist in portions of the Project footprint that were not detailed on the Sanborn maps.

## Field Survey

### 2021 Field Survey

On September 17, 2021, a field survey was conducted by ICF archaeologist, Megan Watson, as part of identification efforts early in the Project design. Prior to the field survey, a desktop review was conducted to identify locations within the Project footprint that may have exposed ground surface suitable for pedestrian survey.

The majority of the Project footprint was located within railroad ROW and private property with limited public access; therefore, no field survey was conducted at these locations. A select few areas were both surveyable and accessible, and in these areas, all exposed soils were inspected for precontact archaeological materials (e.g., artifacts such as stone tools and lithic debitage, groundstone) historic-period artifacts (e.g., metal, glass, ceramics) and soil discoloration that might indicate the presence of archaeological deposits.

A few select areas within the Project footprint with exposed surface area and public access were targeted for pedestrian survey on September 17, 2021. However, even in these targeted areas ground surface visibility was poor, with 0-percent visibility due to the introduction of gravel. No archaeological resources were identified during the pedestrian survey.

### 2022 Field Survey (Proposed Ardenwood Station Location)

On October 28, 2022, due to the concerns expressed through a Tribal consultation meeting (see Section 3.19 Tribal Cultural Resources), ICF archaeologists completed further survey work.

All exposed soils were inspected for precontact archaeological materials (e.g., stone tools and lithic debitage, groundstone) historic-period artifacts (e.g., metal, glass, ceramics) and soils discoloration that might indicate the presence of archaeological deposits.

Ground visibility was moderate, with some gravel and vegetation obscuring the surface. No archaeological resources were identified during the pedestrian survey.

### 2023 Field Survey

On December 12, 2023, an ICF archaeologist conducted a field survey of previously recorded resources located within the Project footprint. During this survey, the following three previously recorded archaeological resources were revisited:

- CA-ALA-330/P-01-000106 (Shell Mound);
- CA-ALA-545H/P-01-000224 (Historic Artifact Scatter); and
- P-01-011558 (Oyster Midden).

The ground surface was carefully examined for evidence of precontact archaeological materials, historic-period artifacts, and soil discoloration that might indicate the presence of archaeological deposits at each of the three sites.

Surface evidence of archeological deposits was identified at the locations of two previously recorded resources during the survey, CA-ALA-330 (P-01-000106) and P-01-011558.

- **CA-ALA-330 (P-01-000106).** The survey identified surface evidence of cultural resources in the vicinity of the previously recorded resource boundary. Cultural materials observed include shells (California horn snail, oyster, and clam) west and south of the previously recorded site boundaries. Abalone shell fragments were identified north of the previously recorded site boundaries and indicate that the site extends north, south, and west of the previously recorded site boundaries.
- **CA-ALA-545H (P-01-000224).** This resource was located within the Project footprint but outside the UPRR property and could not be surveyed due to lack of access.
- **P-01-011558.** The survey identified surface evidence of cultural resources in the vicinity of the previously recorded resource boundary. Cultural materials observed include shells (oyster and clam) and a shard of milk glass.

### 3.6.3.4 CEQA Thresholds

To satisfy CEQA requirements, cultural resources impacts were analyzed in accordance with Appendix G of the CEQA Guidelines. According to the CEQA Guidelines, CCR, Title 14, Section 15002(g), "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in CEQA Guidelines Section 15064(b)(1), the significance of an activity may vary with the setting. The impact analysis identifies and analyzes construction (short-term) and operation (long-term) impacts, as well as direct and indirect impacts (see PRC Section 21065). The proposed Project would have significant cultural resources impacts under CEQA if it would:

a. Cause a substantial adverse change in the significance of a historical resource pursuant to CEQA Guidelines Section 15064.5;
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5: or
c. Disturb any human remains, including those interred outside of formal cemeteries.

## 3.6.4 Affected Environment

### 3.6.4.1 Environmental Setting

The Project alignments are within unsectioned lands of Townships 2 South, Range 3 West; 3 South, Range 2 West; 3 South, Range 3 West; 4 South, Range 1 West; 4 South, Range 2 West; 5 South, Range 1 West; and 5 South, Range 2 West Mount Diablo Base Line and Meridian, as depicted on the United States Geological Survey (USGS) *San Leandro, Hayward, Newark,* and *Niles, California* 7.5-minute topographic quadrangles. Freshwater sources within and adjacent to the proposed Project are discussed in the confidential Archaeological Resources Study Report.

The proposed Project is along the western margin of the Diablo Range of the Coast Ranges geomorphic province on a broad, gently sloping alluvial plain (California Geological Survey 2002; Dibblee and Minch 2005a, 2005b). The entirety of the proposed Project is landward of the pre-development bay shoreline. The Diablo range is primarily composed of uplifted, Mesozoic-aged (between 250 and 66 million years old) and Cenozoic-aged (less than 66 million years old)

sedimentary rock, while the alluvial plain was formed via the downslope movement of sediment during the Pleistocene and Holocene epochs (Dibblee and Minch 2005a, 2005b). In the present day, large portions of the proposed Project have been graded and paved.

The native vegetation consists of California coastal prairie scrub mosaic (Küchler 1977). The native plant community associated with the Coastal Prairie-Scrub Mosaic includes low to moderate-sized shrubs; common species include oatgrass (*Danthonia californica*), red fescue (*Festuca rubra*), tufted hairgrass (*Deschampsia cespitosa*), California brome (*Bromus carinatus carinatus),* meadow barley (*Hordeum brachyantherum*), and coyotebush (*Baccharis pilularis*). Seeds from some of these locally available grasses were collected and eaten for food, including barley hairgrass and brome, as evidenced by charred seeds collected from archaeological site CA-ALA-566 in Hayward and at other sites throughout Central California (Gmoser 1998; Wohlgemuth 1996, 2004).

Native vegetation communities of this region supported a variety of wildlife, including those of economic importance to the Ohlone (see Section 3.6.4.3, Ethnography), the native occupants of the area. Native fauna of the valley included Tule elk (*Cervus elaphus nannodes*), bobcat (*Lynx rufus*), black-tailed deer (*Odocoileus hemionus*), and grizzly bear (*Ursus horribilis*), as well as a myriad of small mammals, reptiles, amphibians, and birds.

### 3.6.4.2 Precontact Cultural Chronology[1]

In the San Francisco Bay Area region of central California, researchers have developed chronologies to describe the general evolution of precontact cultures through time. These chronologies include the Central California Taxonomic System, which identified three broad culture periods based on artifact variations associated with burials in the lower Sacramento Valley and the Archaic-Emergent temporal sequence developed by Fredrickson (1974), which identified four chronological periods based on technological, subsistence, economic, social, and political behavior. To account for advances in archaeological dating technology and archaeological field data regarding the nature of Native California occupation during the precontact period, these chronologies have been revised into an integrative scheme, which accounts for both a temporal and cultural sequence for the area (Milliken et al. 2007). This scheme, consists of an updated chronological sequence comprising six periods: the Early Holocene/Lower Archaic (8000–3500 cal B.C.), Early Period (3500–500 cal B.C.), Lower Middle Period (500 cal B.C.–A.D. cal 430), Upper Middle Period (cal A.D. 430–1050), Initial Late Period (cal A.D. 1050–1550), and Terminal (Phase 2) Late Period (cal. A.D. 1550–1850) (Milliken et al. 2007).[2]Refer to Attachment 2 of Appendix D Archaeological Background Materials for a detailed description of the each of the six periods.

### 3.6.4.3 Ethnography

The Project footprint is situated within the ancestral territory of the Ohlone, also referred to by ethnographers as Costanoan, derived from the Spanish word Costeños meaning coast people which was the name given by the Spanish when establishing Missions in Ohlone territory (Margolin 1978:1). Ohlone territory consists of the area from the southern edge of the Carquinez Strait to a portion of the Big Sur and Salinas Rivers south of Monterey Bay, to approximately 50 miles inland from the coast

[1] The term "precontact" as used here is synonymous with the term "prehistory," meaning the time prior to Euro-American contact with indigenous tribes of California. The term is exchanged to avoid pejorative implications that have previously been the subject of tribal concerns.

[2] These phases are academic constructs and do not necessarily reflect the views of Native American tribes.

(Levy 1978). Refer to Attachment 2 of Appendix D, Archaeological Background Materials for further ethnohistoric information for the region.

At least two rancheria communities existed late the 19th and early 20th centuries near the current Project footprint in San Leandro/San Lorenzo and El Molino in Niles. The San Lorenzo Rancheria was located south of Rancho San Leandro, on the north bank of San Lorenzo Creek. A concentration of mineral springs flowed down from the hills to the east, toward San Lorenzo Creek. This area has been referred to as the Diramaderos or "overflow of the springs," likely derived from the Spanish word *derramadero*, which translates to spillway (Grossinger and Brewster 2003). It has been suggested that 150 people may have lived on the north bank of the creek among the groves of willow trees (Grossinger and Brewster 2003: 11). A survey map created in 1855 for a series of court cases depicts what may be the San Lorenzo Rancheria. The map indicates that in 1841 and 1842, the people living on the north bank of the creek had a corral and were cultivating fields of wheat, melons, corn, and beans (Gray 1855).

*El molino* translates to "the mill," and the El Molino rancheria may have been associated with the milling industry for which the Niles area was known. In 1904, it was estimated that about 50 people were living at the El Molino Rancheria (Country Club of Washington Township 1904: 35). A previously recorded informal resource located in Fremont, C-1520 is thought to be associated with this rancheria (Anastasio et. al 1987).

### 3.6.4.4 History

Refer to Appendix D Attachment 2 Archaeological Background Materials for a detailed history on Fremont/Niles, Hayward, Union City, Newark, and San Leandro.

### 3.6.4.5 Summary of Known CEQA Historical Resources and Unevaluated Resources

#### Built Environment

A total of 42 historic-period resources were found in the Project Study Area. Refer to Appendix D Attachment 1 Historical Resources for the detailed findings and conclusions of the historical resources evaluation. Table 3.6-3 summarizes those resources that are CRHR-eligible historical resources that have been identified within the RSA, as discussed below.

**Table 3.6-3. Summary of Built Environment Historical Resources within the RSA**

| Map ID# | Property/ Resource Identifier | Address/ Property Name or Description | Location | Period of Significance | NRHP/ CRHR Eligibility Criteria |
|---|---|---|---|---|---|
| P-01-010742 | San Lorenzo Village Historic District | Grant Avenue at Railroad Avenue | San Lorenzo | 1944–1958 | A/1, B/2, C/3 |

**Table 3.6-3. Summary of Built Environment Historical Resources within the RSA**

| Map ID# | Property/ Resource Identifier | Address/ Property Name or Description | Location | Period of Significance | NRHP/ CRHR Eligibility Criteria |
|---|---|---|---|---|---|
| P-01-010620 | Hetch Hetchy Aqueduct Bay Division Pipelines 1 and 2 | Sub-surface water conveyance system | Newark | 1934–Present | A/1, C/3 |
| P-01-011827 | Alameda Creek | Natural water feature | Fremont/ Union City/ Ardenwood | N/A | A/1 |
| P-01-003309 | George Washington Patterson House (Ardenwood) | 34600 Ardenwood Boulevard | Ardenwood | 1856–1914 | A/1, C/3 |

Sources: Survey results quantifications generated from historic resources surveys and evaluation conducted from 2021–2023.

- San Lorenzo Village Historic District (P-01-010742). See **Error! Reference source not found.**.
    - Eligible under NRHP/CRHR Criteria A/1, B/2, and C/3 on August 22, 2016, by the Federal Communications Commission (FCC) via the Section 106 process.
    - Period of significance: 1944–1958.
    - Boundary: UPRR tracks of the Coast Subdivision on the west, San Lorenzo Creek on the north, the Niles Subdivision railroad tracks east of I-880 on the east, and an irregular southern border following the northern limit of the City of Hayward along Hacienda Avenue, Clubhouse Drive, and a stairstep pattern along the greenbelt north of the Hayward Executive Airport to east of the Coast Subdivision.
    - Character-defining features include the development's spatial layout of approximately 6,000 buildings, 97 percent of which are modestly sized single-family residences alongside its apartment buildings, eight churches, eight public schools, and 60 commercial buildings with community service buildings like a movie theater, community center, library, post office, and fire station. Curving roads and cul-de-sacs with minimal through streets curb access to residential streets to only the main roads. Hesperian Boulevard as the main thoroughfare. Mountable curbs and sidewalks are adjacent to the curb. Western residential neighborhoods have conventional curbs. There are a few mature trees along the western border with mature trees along the eastern half of the development.
- Hetch Hetchy Aqueduct Bay Division Pipelines 1 and 2 (P-01-010620). See **Error! Reference source not found.**.
    - Eligible under NRHP/CRHR Criteria A/1 and C/3.

  - Period of significance: 1934–Present.
  - Boundary: Bay Division Pipeline 1 and 2 occupy the same ROW from Irvington Portal in Alameda County to Pulgas Tunnel in San Mateo County.
  - Character-defining features include:
    - Contributing part to the original Hetch Hetchy system as designed by John R. Freeman, an expert hydraulic engineer.
    - The Pipelines' original ROW alignment.
    - Bay Division Pipeline 1's 21-mile, 60-inch-diameter cast iron pipe; Bay Division Pipeline 2's variable 60- to 66-inch-diameter pipes.

- George Washington Patterson Home (Ardenwood) (P-01-003309).
  - Listed in the NRHP and CRHR under Criteria A/1 and C/3 in 1985 (1S) and 1988 (3S).
  - Period of significance: 1856–1914.
  - Boundary: The middle portion of the extant Ardenwood Historic Farm focused on and around the footprint of the George W. Patterson House, including the footprints of six adjacent outbuildings (see character-defining features). Excludes the heavily altered eastern portion of the property.
  - Character-defining features include the George W. Patterson House and its adjacent, contributing outbuildings:
    - c. 1850s Milk House.
    - c. 1910 Cook House.
    - c. 1850s Bean Barn.
    - c. 1850s Milk Barn/Equipment Shed.
    - 1910 Hay Barn.
    - 1901 Garage.
    - Landscaping features include the eucalyptus groves across the property as well as one dawn redwood tree and the ¼-mile-long driveway featuring original black walnut and oak trees.

- Alameda Creek (P-01-011827).
  - Listed under NRHP/CRHR Criteria A/1 as a Primary Historic Resource on the City of Fremont Register in 1967.
  - Period of significance: N/A.
  - Boundary: Extant alignment of Alameda Creek from the Sunol and Livermore Valleys through Niles Canyon, Niles, and Union City to the San Francisco Bay.

- Character-defining features include its existing alignment within Niles Canyon, along the southern border of Niles, forming the city boundary between Union City and Fremont, and emptying into the San Francisco Bay.

## Archaeological Resources

Record searches identified seven previously recorded archaeological resources within the Project footprint. During the 2022 and 2023 pedestrian surveys, ICF archaeologists revisited the locations of the previously recorded resources identified during the records searches. Surface evidence of three archaeological resources were identified during the survey.

**Table 3.6-4. Previously Recorded Archaeological Resources within the Project Footprint**

| Resource Identifier | Resource Type | Evaluation Status |
|---|---|---|
| CA-ALA-000020/P-01-000040 | Precontact site | No California Historical Resources Status Code (CHRSC) has been assigned to this resource, indicating that it has not been evaluated for the NRHP or the CRHR. |
| CA-ALA-330/P-01-000106 | Precontact site | No CHRSC has been assigned to this resource, indicating that it has not been evaluated for the NRHP or the CRHR. |
| CA-ALA-545H/ P-01-000224 | Historic-period site | In 1994, this resource was evaluated and assigned a CHRSC of 6Y: *Determined ineligible for NR by consensus through Section 106 process – Not evaluated for CR of local listing* (OHP 2012). |
| CA-ALA-549H/ P-01-000228<br>Roberts Landing Site | Historic-period site | On March 19, 1970, this resource was listed as a California Point of Historical Interest #162.<br>In 1994, this resource was evaluated and assigned a CHRSC of 6Y: *Determined ineligible for NR by consensus through Section 106 process – Not evaluated for CR of local listing* (OHP 2012). |
| P-01-003613 | Historic-period site | This resource was assigned a CHRSC of *7N: Needs to be reevaluated - formerly coded as may become NR eligible with specific conditions*. This resource is listed in *Five Views: A History of Japanese Americans in California*. |
| P-01-003614 | Historic-period site | No CHRSC has been assigned to this resource, indicating that it has not been evaluated for the NRHP or the CRHR. |
| P-01-011558 | Precontact site | No CHRSC has been assigned to this resource, indicating that it has not been evaluated for the NRHP or the CRHR. |

## 3.6.5 Best Management Practices

As noted in Chapter 2, Project Alternatives, CCJPA would incorporate a range of BMPs to avoid and minimize adverse effects on the environment that could result from implementation of the proposed Project. BMPs are included in the proposed Project description, and the impact analyses were conducted assuming application of these practices. The BMPs relevant to cultural resources are listed below. Full descriptions of the BMPs are provided in Chapter 2, Project Alternatives.

**BMP CUL-1 Conduct Cultural Resources Awareness Training Prior to Project-Related Ground Disturbance.**

**BMP CUL-2 Stop Work if Archaeological Deposits and/or Human Remains are Encountered During Ground-Disturbing Activities**

## 3.6.6 Environmental Impacts

This section describes the potential environmental impacts on cultural resources as a result of implementation of the proposed Project. Lettering shown within title for each environmental factor below correlates with CEQA Statute and Guidelines, Appendix G table lettering and numbering.

### 3.6.6.1 a) Cause a Substantial Adverse Change in the Significance of a Historical Resource Pursuant to Section 15064.5

#### No Project Alternative

The No Project Alternative would not impact any historical resources because the No Project Alternative would not change any character-defining features of any historical resources. Under the No Project Alternative, the railroad would be used in the current manner, which would not result in any new impacts.

#### Proposed Project

##### Built Environment Resources

***Construction.***

**Less than Significant Impact**. The construction of the proposed Project would directly affect four built-environment historical resources: San Lorenzo Village Historic District, Hetch Hetchy Aqueduct Bay Division Pipelines 1 and 2, George Washington Patterson Ranch (Ardenwood), and Alameda Creek. These resources are described in Section 3.6.4.5 above.

The proposed Project features in the vicinity of the San Lorenzo Village Historic District include ADA sidewalk improvements and signal modifications to an existing, at-grade crossing just within the boundaries of the historic district. While the district's character-defining features include mountable curbs and sidewalks adjacent to the curb and conventional curbs (in the western residential neighborhoods), this area of the historical resource does not have curbs at all. The proposed Project would not impact any character-defining features of the historical resource and so would not impact the resource's integrity of materials, workmanship, or design. The proposed Project modifies existing features within the vicinity of the district and would not add new types of features. The proposed Project would cause a less than significant impact on the resource's integrity of location,

setting, feeling, or association. As such, the proposed Project would cause a less than significant impact on the San Lorenzo Village Historic District.

The proposed Project features in the vicinity of George Washington Patterson Ranch (Ardenwood) include temporary staging, which occurs in already-paved roadway and parking areas adjacent to Newark Boulevard. Temporary staging on the existing pavement has no potential to impact George Washington Patterson Ranch. A driveway around the George Washington Patterson Ranch property encroaches onto the railroad parcels at the western end of the historic resource's boundary. Currently, the driveway is located east of the railroad, running parallel to the railroad. However, before 1980, the driveway was located west of the railroad and parallel to the railroad. The current driveway configuration does not date to the period of significance. The proposed Project also calls for the removal of non-character-defining trees that post-date 1993. While the proposed Project would impact the George Washington Patterson Ranch, the impact would be less than significant.

The proposed Project features in the vicinity of the Hetch Hetchy Aqueduct Bay Division Pipelines 1 and 2 include proposed railroad track upgrades. All of the historical resource's character-defining features in the vicinity of the proposed Project are below grade and include the below-grade alignment ROW and pipes. The proposed Project would not impact any of the resource's aspects of integrity. As such, the proposed Project would not impact the Hetch Hetchy Aqueduct Bay Division Pipelines 1 and 2.

The proposed Project features in the vicinity of Alameda Creek include a new, approximately 750-linear-foot, two-track bridge to replace the existing single-track bridge across Alameda Creek. The structure cannot be a clear span and will require piers in the channel. The resource's character-defining features are limited to its alignment, and no aspects of integrity were identified in the local designation of the creek as a historical resource; based on the character-defining features, it appears that the only key aspect of integrity of the resource is its location. The addition of transportation infrastructure would not impact any aspects of Alameda Creek's integrity. As such, the proposed Project would not impact Alameda Creek.

The proposed Project would have a less than significant impact on built-environment historical resources.

***Operations.***

**No Impact**. The proposed Project does not include any increase in the number of daily Capitol Corridor passenger trains or the frequency of service to San Jose. The proposed Project would facilitate shifting Capitol Corridor passenger service between Oakland and Newark from the current Niles Subdivision to the shorter, more direct route on the Coast Subdivision. No changes in freight rail services are anticipated as a result of the Project. The operational component of the proposed Project is consistent within the current operational use of the overall railroad network and no increase in train frequency is proposed.

As such, the operation of the proposed Project has no potential to impact built-environment historical resources.

### Archaeological Resources

***Construction.***

**Less than Significant Impact with Mitigation Incorporated**. The NWIC records searches identified seven previously recorded archaeological sites, three precontact and four historic-period sites that have not been evaluated for the CRHR and may qualify as historical resources under CEQA (State CEQA Guidelines Section 15064.5(c)(1). For the purposes of the CEQA analysis, these resources are assumed eligible. Proposed Project impacts are described in Table 3.6-5. For the purposes of the CEQA analysis, these resources are assumed eligible.

**Table 3.6-5. Previously Recorded Archaeological Sites and Project Construction Components with the Potential to Cause Impacts**

| Identifier | Resource Type | Project Construction Components |
|---|---|---|
| CA-ALA-000020/P-01-000040 | Precontact site | Grading to a depth of 1 foot for rail modifications and trenching with a Ditch Witch for signal installation. |
| CA-ALA-330/ P-01-000106 | Precontact site | Excavation to approximately 3 feet below the bottom of the channel and soldier pile or shaft walls drilled to 10–20 feet. |
| CA-ALA-545H/P-01-000224 | Historic-period site | Excavation to approximately 5 feet below the surface for rail modifications/new rail installation and excavation for new bridge pilings will be 50 to 80 feet below ground surface. |
| CA-ALA-549H/P-01-000228 | Historic-period site | Excavation to approximately 5 feet below the surface for rail modifications/new rail installation and trenching with a Ditch Witch for signal installation. |
| P-01-003613 | Historic-period site | Excavation to approximately 5 feet below the surface for rail modifications/new rail installation and trenching with a Ditch Witch for signal installation |
| P-01-003614 | Historic-period site | Excavation to approximately 5 feet below the surface for rail modifications/new rail installation and trenching with a Ditch Witch for signal installation. Relocation of a sewer line at this location will require excavation to a depth of approximately 10 to 20 feet. |
| P-01-011558 | Precontact site | Temporary Construction Easement for staging at this location would require grading to a depth of 6 inches. |

A review of geologic maps to assess the proposed Project's potential for containing as-yet undocumented buried archaeological resources indicates the proposed Project extends across numerous geologic units with varying degrees of archaeological sensitivity that range from high, to

moderate, and low; however, the majority has a high degree of sensitivity for containing buried archaeological resources.

A review of archival maps to assess the potential for intact historic-period deposits indicated that, by the late 19th century, the proposed Project consisted of railroad tracks and adjacent buildings. The majority of the proposed Project exists within the alignment of historic railroad tracks and roads. However, some construction areas exist outside of these historic alignments and overlap with historic buildings and structures. Although these areas have undergone residential and commercial development throughout the mid to late 20th century, intact deposits associated with these buildings and structures from the late-19th and early 20th century may still exist subsurface.

The proposed Project includes implementation of **BMP CUL-1: Conduct Resource Awareness Training Prior to Project-Related Disturbance** and **BMP CUL-2: Stop Work if Archaeological Deposits and/or Human Remains are Encountered During Ground-Disturbing Activities**. BMP CUL-1 would require that all construction workers receive training by a registered professional archaeologist to ensure that contractors can recognize archaeological resources in the event that any are discovered during construction. BMP CUL-2 would require work in the area to stop immediately and procedures outlined in the Archaeological Monitoring, Avoidance, and Treatment Plan (AMATP) to be implemented in the event that archaeological deposits are encountered during Project-related ground disturbance.

Based on the records search results and the desktop archaeological sensitivity assessment, implementation of the proposed Project would result in substantial adverse changes to archaeological deposits that qualify as historical resources. However, due to constraints posed by property access and urban overlay of the proposed Project, the full nature, type, and extent of buried archaeological deposits and features are unknown and have not been evaluated for the CRHR; therefore, a phased identification and evaluation of archeological sites for the CRHR will be established at least at a 30-percent level of design and prior to the start of construction. The implementation of mitigation measures MM CUL-1, MM CUL-2, MM CUL-3, and MM CUL 4 would reduce potential impacts on archaeological resources to a less than significant level.

***Operations.***

**No Impact**. The proposed Project does not include any increase in the number of daily Capitol Corridor passenger trains or the frequency of service to San Jose. The proposed Project would facilitate shifting Capitol Corridor passenger service between Oakland and Newark from the current Niles Subdivision to the shorter, more direct route on the Coast Subdivision. No changes in freight rail services are anticipated as a result of the proposed Project. The operational component of the proposed Project is consistent within the current operational use of the overall railroad network and no increase in train frequency is proposed. As such, the operation of the proposed Project has no potential to impact historical archaeological resources.

### 3.6.6.2 b) Cause a Substantial Adverse Change in the Significance of an Archaeological Resource Pursuant to Section 15064.5

#### Construction and Operations.

**Less than Significant Impact with Mitigation Incorporated**. Per the State CEQA Guidelines, "When a project will impact an archaeological site, a lead agency shall first determine whether the site is an historical resource" (State CEQA Guidelines Section 15064.5(c)(1)). Those archaeological

sites that do not qualify as historical resources shall be assessed to determine if these qualify as "unique archaeological resources" (California PRC Section 21083.2; State CEQA Guidelines Section 15064.5(c)(3)).

The proposed Project includes implementation of **BMP CUL-1: Conduct Resource Awareness Training Prior to Project-Related Disturbance** and **BMP CUL-2: Stop Work if Archaeological Deposits and/or Human Remains are Encountered During Ground-Disturbing Activities**. BMP CUL-1 would require that all construction workers receive training by a registered professional archaeologist to ensure that contractors can recognize archaeological resources in the event that any are discovered during construction. BMP CUL-2 would require work in the area to stop immediately and procedures outlined in the AMATP to be implemented in the event that archaeological deposits are encountered during Project-related ground disturbance.

Based on the records search results and the desktop archaeological sensitivity assessment, implementation of the proposed Project would result in substantial adverse changes to archaeological deposits that qualify a qualify as "unique archaeological resources". However, as discussed above, due to constraints posed by property access and urban overlay of the proposed Project, the full nature, type, and extent of buried archaeological deposits and features are unknown and have not been assessed. However, implementation of mitigation measures MM CUL-1, MM CUL-2, MM CUL-3, and MM-CUL 4, would reduce potential impacts on archaeological resources to a less than significant level.

### 3.6.6.3 c) Disturb Any Human Remains, Including Those Interred Outside of Formal Cemeteries

#### Construction.

**Less than Significant Impact with Mitigation Incorporated**. Based on the records search results and the desktop archaeological sensitivity assessment, implementation of the proposed Project could result in substantial adverse changes to archaeological deposits that may contain human remains. However, as discussed above, due to constraints posed by property access and urban overlay of the proposed Project, the full nature, type, and extent of buried archaeological deposits and features has not been assessed, including the presence of human remains.

The proposed Project includes implementation of **BMP CUL-1: Conduct Resource Awareness Training Prior to Project-Related Disturbance** and **BMP CUL-2: Stop Work if Archaeological Deposits and/or Human Remains are Encountered During Ground-Disturbing Activities**. BMP CUL-1 would require that all construction workers receive training by a registered professional archaeologist to ensure that contractors can recognize archaeological resources in the event that any are discovered during construction. BMP CUL-2 would require work in the area to stop immediately and procedures outlined in the AMATP to be implemented in the event that archaeological deposits are encountered during Project-related ground disturbance.

In the event that human remains are identified during Project activities, these remains would be required to be treated in accordance with Section 7050.5 of the California Health and Safety Code and Section 5097.98 of the PRC, as appropriate. Section 7050.5 of the California Health and Safety Code states that, in the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in

which the remains are discovered has determined whether or not the remains are subject to the coroner's authority. If the human remains are of Native American origin, the coroner must notify the NAHC within 24 hours of this identification. The NAHC will identify a Native American MLD to inspect the site and provide recommendations for the proper treatment of the remains and associated grave goods. Compliance with the California Health and Safety Code and implementation of mitigation measures MM CUL-1, MM CUL-2, MM CUL-3, MM CUL-4, and MM CUL-5 would reduce potential impacts on human remains to a less than significant level.

### Operations.

**No Impact**. The proposed Project does not include any increase in the number of daily Capitol Corridor passenger trains or the frequency of service to San Jose. The Project would facilitate the movement of Capitol Corridor trains on a more direct route between Oakland and Newark on the UPRR Coast Subdivision from its existing route along the UPRR Niles Subdivision. The operational component of the proposed Project is consistent within the overall railroad system and no overall increase in capacity is proposed. As such, the operation of the proposed Project has no potential to impact historical resources or archaeological resources.

## 3.6.7 Mitigation Measures

The following mitigation measures for cultural resources are required for the proposed Project.

**MM CUL-1 Temporary Construction Easement Review and Installation of a Horizontal and Vertical Environmentally Sensitive Area for P-01-011558, as appropriate.**

At the 25- and 30- percent rail design phase, the need for the Temporary Construction Easement (TCE) at the location of P-01-11558 will be reviewed and if no longer needed, the TCE will be removed from the construction plans. If the TCE is still needed in the vicinity of P-01-011558, a horizontal and vertical ESA will be established to exclude project construction activities from the vicinity of P-01-011558. The method of ESA installation will be determined during the design phase and will be indicated on all plans, specifications, and estimates. The ESA will be monitored by a qualified archaeologist (meeting the minimum professional qualifications standards (PQS) set forth by the Secretary of the Interior (SOI) (codified in 36 CFR Part 61; 48 FR 44739) during any ground disturbing preconstruction or construction work in the boundaries of the TCE.

**MM CUL-2 Implement Archaeological Testing and Evaluation Plan.**

Once the Project footprint reaches a 30 percent level of rail design and prior to the start of construction, an Archaeological Testing and Evaluation Plan (ATEP) will be implemented by a qualified archaeologist in consultation with CCJPA to support the evaluation of cultural resources.

The ATEP should consist of a site-specific context, research design, and field methods to evaluate known resources, and identify resource types that may be encountered within areas of high sensitivity and deep ground disturbance. This plan should include, but not be limited to:

- Background and anticipated resource types;

- Research questions that can be addressed by the collection of data from the defined resource types;
- Field methods and procedures including:
    - Procedures to determine whether a buried component of a known site extends horizontally into the Project footprint;
    - Geoarchaeological trenching or coring; and
    - Cataloging and laboratory analysis.

The ATEP will be submitted to CCJPA and the local consulting tribal representatives for review prior to implementation. The results of the ATEP will be summarized in a technical document that will determine whether further study is necessary. The technical document will also determine whether additional mitigation will be needed. The technical document will be provided to CCJPA for review and approval and submitted to the Northwest Information Center (NWIC).

**MM CUL-3 Installation of a Horizontal and Vertical Environmentally Sensitive Area for previously recorded and newly identified archaeological sites as appropriate.**

At the 25- and 30- percent rail design phases, the Project plans will be reviewed to determine if the refinements in the project design allow for avoidance of previously recorded and additional sites identified during the archeological testing conducted for the project. If the sites can be avoided, a horizontal and vertical ESA will be established at designated locations to exclude project construction activities from the vicinity of these sites. The method of ESA installation will be determined during design phase and will be indicated on all plans, specifications and estimates. The ESA will be monitored by an archaeologist during any ground-disturbing preconstruction or construction work in the vicinity of the ESA.

**MM CUL-4 Draft and Implement Archaeological Monitoring, Avoidance, and Treatment Plan.**

Upon completion of the archaeological testing and evaluation, and prior to the start of construction, an AMATP will be developed by a registered professional archaeologist in consultation with CCJPA and local tribal representatives. Monitoring will be required at all recorded site locations, including those proposed to be avoided by Project construction.

The AMATP will include protocols that outline archaeological roles and monitoring best practices, anticipated resource types and an Unanticipated Discovery Protocol. The Unanticipated Discovery Protocol will describe steps to follow if unanticipated archaeological discoveries are made during Project work and identify a chain of contact.

The AMATP will be submitted to consulting tribal representatives and CCJPA for review prior to implementation. Following the completion of ground disturbance associated with Project construction, the results of the archeological monitoring and avoidance pursuant to the AMATP will be summarized in a technical document. The technical document will be provided to CCJPA for review and approval and submitted to the NWIC.

**MM CUL-5 Tribal Monitoring.**

Tribal monitoring will be required during construction activities at all recorded precontact archaeological site locations, including those proposed to be avoided by Project construction. Tribal monitors will be provided a minimum of one week's notice prior to the commencement of ground-disturbing or construction work.

## 3.6.8 Cumulative Impact Analysis

The cumulative impact study area for cultural resources is the same as the CEQA study area (see Appendix D, *Historical Resource Inventory and Evaluation Report Capitol Corridor Joint Powers Authority (CCJPA) Capitol Corridor South Bay Connect Project*).

As provided in Section 3.1, the cumulative project list includes multiple past, present, and reasonably foreseeable projects that were considered for the purpose of this cumulative impact analysis.[3] These cumulative projects include infrastructure projects, transportation and transit projects, recreational and community facility projects, and other private development projects within the proposed Project's built-environment resources study area. Based on a review of environmental documents available for these cumulative projects, no projects identify significant impacts on built-environment historical resources. The construction of planned projects identified in the cumulative project list does not significantly impact any aspects of integrity for built-environment historical resources. Furthermore, the current Project does not cause a significant impact on any aspects of integrity of the built-environment historical resources in the study area. Therefore, no cumulative impacts on built-environment historical resources were identified.

Operation of cumulative rail and other regional transportation projects would not impact built-environment historical resources within the study area. Operation of the proposed cumulative infrastructure projects could increase population or noise within the Project Study Area, but those increases have no potential to impair built-environment historical resources.

The archaeological resources study identified seven previously recorded archaeological sites within the Project footprint that have not been evaluated for the CRHR and that are assumed eligible for the purposes of environmental review. Implementation of the proposed Project may cause potentially significant impacts to these known resources. Impacts related to archaeological resources that qualify as historical resources or unique archaeological resources under CEQA are site-specific because they occur on a project level as a result of a project's ground-disturbing activities and, as such, are assessed on a project-by-project basis. One of the seven archaeological sites identified within the Project footprint has been analyzed for cumulative projects, Historic-period archaeological site P-01-003613, the Leslie Salt Company, is within the study area analyzed for the Cargill, Incorporated Solar Sea Salt System Maintenance and Operations Activities, but no impacts were identified in the Environmental Assessment prepared for that project. Other current and future development not on the cumulative project list could impact known archaeological resources. However, due to the developed nature of the Project Corridor, the potential of such projects to encounter and cause, in conjunction with the Project, a significant cumulative impact on archaeological resources is limited. The implementation of mitigation measures MM CUL-1, MM CUL-2, MM CUL-3, MM CUL 4, and MM -CUL-5 would ensure that the Project's contribution would

[3] Attachment D includes a Cumulative Project List and Cumulative Project Map that were compiled to identify other current and reasonably foreseeable future actions to be considered in the cumulative impact analysis.

not be cumulatively considerable by requiring the establishment of environmentally sensitive areas, implementation of a phased archaeological testing and evaluation plan, and preparation and implementation of an AMATP.

In addition, implementation of the Project and of cumulative projects may cause potentially significant impacts to previously unknown archeological resources or human remains. The potential for an individual project to encounter archaeological resources or human remains is unknown. Impacts to cultural resources are site-specific and, as such, are not expected to combine with the development of other projects to cumulatively increase the risk of impacting unknown archaeological resources or human remains. Potential impacts would be mitigated on a case-by-case basis. The proposed Project includes implementation of BMP CUL-1 and BMP CUL-2, which would require cultural resource awareness training for all construction personnel and stop work in the event that archaeological deposits and/or human remains are encountered during ground-disturbing activities to allow for implementation of the AMATP. Implementation of these best management practices and mitigation measures would offset the Project's contribution. Therefore, the Project's contribution to cumulative impacts on archaeological historical resources, unique archaeological sites, and human remains would not be cumulatively considerable, and cumulative impacts would be less than significant.

Operation of cumulative rail and other regional transportation projects would not impact built-environment or archaeological historical resources, unique archaeological sites, or human remains within the study area. Operation of the proposed cumulative infrastructure projects could increase population or noise within the Project Study Area, but those increases have no potential to impact built-environment or archaeological historical resources, unique archaeological sites, or human remains.

## 3.6.9 CEQA Impact Summary Table

Table 3.6-6 summarizes the cultural resources impacts of the proposed Project.

**Table 3.6-6. Cultural Resources Impacts Summary**

| Impact | Level of Significance Before Mitigation | Incremental Project Contribution to Cumulative Impacts | Mitigation | Level of Significance with Mitigation Incorporated | Incremental Project Cumulative Impact after Mitigation |
|---|---|---|---|---|---|
| **Cause a substantial adverse change in the significance of a historical resource pursuant to CEQA Guidelines Section 15064.5** | SI | | MM CUL-1<br>MM CUL-2<br>MM CUL-3<br>MM CUL-4<br>MM CUL-5<br>MM CUL-6 | S/M | |
| **Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5** | SI | | MM CUL-1<br>MM CUL-2<br>MM CUL-3<br>MM CUL -4<br>MM CUL-5<br>MM CUL-6 | S/M | |
| **Disturb any human remains, including those interred outside of formal cemeteries** | SI | | MM CUL-1<br>MM CUL-2<br>MM CUL-3<br>MM CUL-4<br>MM CUL-5<br>MM CUL-6 | S/M | |

Notes: LTS = Less than Significant Impact, NI = No Impact, N/A = Not Applicable, SI = Significant Impact, S/M = Significant Impact but Mitigable to a Less than Significant Level, CC = Cumulatively Considerable, NCC = Not Cumulatively Considerable.

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# 3.7 Energy

## 3.7.1 Introduction

This section describes the regulatory setting and affected environment for energy resources that are known to occur or have the potential to occur in the energy RSA, and describes the potential impacts on those resources during construction and operation of the proposed Project. This section also identifies the potential for cumulative impacts of the proposed Project on energy resources when considered in combination with other relevant projects.

## 3.7.2 Regulatory Setting

This section identifies the federal, state, regional, and local laws, regulations, and orders that are relevant to the analysis of energy consumption. This section also addresses the proposed Project's consistency with the regulations described herein.

### 3.7.2.1 Federal

#### Energy Policy Act of 1992

The Energy Policy Act of 1992 (Public Law 102-486) included measures to lessen the nation's dependence on imported energy, provided incentives for clean and renewable energy, and promoted energy conservation in buildings. One goal was to cut petroleum use in the U.S. by 2.5 billion gallons per year by 2020.

#### Energy Policy Act of 2005

The Energy Policy Act of 2005 (Public Law 109-58) focused on energy production, energy efficiency, and tax incentives. To reduce national energy consumption, this act directed the National Highway Traffic Safety Administration (NHTSA) within the U.S. Department of Transportation to establish the Corporate Average Fuel Economy (CAFE) Program. This allowed NHTSA to enforce average fuel economy standards for passenger cars and light trucks sold in the U.S.

#### Energy Independence and Security Act of 2007

The Energy Independence and Security Act of 2007 included goals to increase U.S. energy security, develop renewable fuel production, and improve vehicle fuel economy. This act amended the Energy Policy Act of 2005 with more aggressive CAFE and federal energy efficiency standards for appliances and lighting.

### 3.7.2.2 State

#### California Environmental Quality Act Guidelines Section 15126.2(b)

CEQA Guidelines Section 15126.2(b) requires an analysis of a project's energy consumption to determine if the project may result in significant environmental effects due to wasteful, inefficient,

or unnecessary use of energy, or wasteful use of energy resources. An energy analysis is required for all EIR-level CEQA documents.

### California Green Building Standards

The California Green Building Standards, also referred to as CALGreen standards, require sustainable building design of residential and nonresidential buildings. CALGreen standards include sustainable construction practices, energy efficiency, water efficiency, material conservation, resource efficiency, and environmental quality. CALGreen mandates new residential and nonresidential building construction and demolition recycle and/or salvage for reuse a minimum of 65 percent of the nonhazardous construction and demolition debris generated during a project.

### California Code of Regulations Title 24

New buildings must comply with California Code of Regulations Title 24 Energy Conservation Standards. These standards require buildings and their components to conserve energy. The standards are updated periodically to allow for consideration of new energy efficiency technologies. Specifically, Title 24 Part 11 (CALGreen standards) establishes mandatory standards for sustainable site development, energy efficiency, water conservation, and material conservation.

### Executive Order N-79-20

Executive Order N-79-20 requires all new cars and passenger trucks sold in California be zero-emission vehicles by 2035. The order directs state agencies to develop strategies for an integrated, statewide rail and transit network, and incorporate infrastructure into projects to support bicycle and pedestrian options. These strategies are particularly focused in low-income and disadvantaged communities.

## 3.7.2.3 Local

Multiple cities are located within the RSA. Each city's general plan was reviewed for pertinent policies to energy consumption (City of Oakland 1996; City of San Leandro 2016, City of Hayward 2014, City of Fremont 2011, City of Newark 2013, and Union City 2019). Each general plan included sustainability and conservation measures that directly (or indirectly) related to energy consumption. City polices generally supported mode shift from motor vehicles to transit and/or active transportation (biking/walking). City polices also focused on constructing energy efficient residential, commercial, and public buildings (or retrofitting existing buildings). Cities generally promoted the use of renewable energy sources. Each city had policies for the minimization of solid waste through recycling and reuse. Multiple cities had specific policies requiring the use of energy efficient lighting technology for streets and public facilities.

The City of Fremont's General Plan (2011) is presented here, specifically, due to the location of the proposed Ardenwood Station.

### City of Fremont General Plan

The City of Fremont's General Plan (2011) includes a conservation element that focuses on the use of renewable fuels and energy efficiency. The City has building standards to promote energy efficient design and landscaping. Fremont's general plan notes the high energy consumption

associated with automobile transportation and includes goals/polices to promote development near transit to reduce dependence on automobile transportation.

Mandatory statewide requirements established within CALGreen standards allow cities to modify building codes to add more restrictive provisions. Modifications must be cost-effective with benefits that outweigh costs. Local modifications to CALGreen are known as "reach codes." City of Fremont reach codes include measures for residential and nonresidential building construction, outdoor lighting, and construction and demolition debris recycling/salvage. For example, as a reach code the City requires 100 percent recycle or reuse of asphalt, concrete, and plant/tree debris (versus 65 percent required by CALGreen).

### 3.7.2.4 Consistency with Plan, Policies, and Regulations

An energy analysis for the proposed Project was prepared to evaluate both construction-related and operational energy consumption. This evaluation fulfills the requirements under CEQA, which requires a project to consider its potential effects on energy resources.

The proposed Project would reduce passenger rail travel time between Oakland and San Jose, facilitating more auto competitive travel times for intercity passenger rail trips throughout Northern California and reducing regional VMT. Decreasing rail travel times, decreasing VMT, and increasing rail/transit ridership would reduce energy consumption within Northern California. Conserving energy would comply with federal, state, and local plans, policies, and regulations.

The proposed Project would create new connections to transbay transit services and destinations on the San Francisco Peninsula, encouraging additional transit ridership. It would improve local pedestrian and bicyclist infrastructure, encouraging a mode shift from automobiles to energy-free modes of transportation. Conserving energy by expanding transit services and reducing the dependence on automobile transportation would be in line with federal, state, and local plans, policies, and regulations.

Green building standards would be followed for the construction of the proposed Ardenwood Station. This would be consistent with statewide and local standards, and it would result in energy savings.

## 3.7.3 Methods for Evaluating Environmental Impacts

This section defines the RSA for energy and describes the methods used to analyze impacts on energy resources within the RSA.

### 3.7.3.1 Resource Study Area

As defined in Section 3.1, Introduction, RSAs are the geographic boundaries within which the environmental investigations specific to each resource topic were conducted.

The energy RSA was comprised of the area affected by proposed Project construction and existing/ proposed operations (i.e., Project Footprint).

### 3.7.3.2 Data Sources

Direct energy includes energy consumed by vehicle propulsion. This is a function of traffic characteristics, including distance traveled and vehicle speed. Lighting, or other Project features requiring electricity, are also a source of direct energy consumption. In addition, the one-time energy expenditure to construct a project contributes to direct energy consumption.

For the proposed Project, direct energy consumption was evaluated through both quantitative and qualitative methods, as follows:

- Energy consumption related to the change in rail ridership was quantitatively estimated using the VMT model outputs for 2025 and 2040 (Fehr and Peers 2023). This model estimated the increased ridership associated with the proposed Project's improvements using data from three travel demand models. Forecasted VMT was used as an input in the California Air Resources Board (CARB) Emission Factor 2021 model to calculate fuel consumption under both the No Project Alternative and the Proposed Project. Fuel (gallons of gasoline, gallons of diesel fuel, and kilowatt hours [kWh] [electric vehicles]) was converted to energy equivalents to estimate energy consumption for both 2025 and 2040.

- Operational energy consumption for Capitol Corridor stations was quantitively evaluated. The existing Hayward Station would be closed under the proposed Project, and a new station would be constructed at Ardenwood. Electricity use in 2019 for the Hayward Station was compared to the forecasted electricity needs for the Ardenwood Station.

- Operational energy consumption associated with changes to freight train and passenger rail operations was qualitatively assessed. It was generally assumed that the following could result in decreased fuel consumption (and therefore decreased energy consumption): shorter train travel times, decreased train acceleration times, and decreased train idling times. In contrast, the following were assumed to increase fuel consumption: longer train travel distances, increased train speed, and increased train acceleration times.

- During construction, fuel (gasoline, diesel, and electricity) would be consumed to produce and transport construction materials, operate construction equipment, and transport workers to/from the proposed Project. This energy consumption would be temporary in nature and would cease at the completion of construction. Construction-related energy consumption was quantitively calculated for the proposed Project. Fuel would be consumed by off-road vehicles, haul trucks, grading and earth moving equipment, and paving equipment. Off-road vehicle fuel consumption was estimated using CalEEMod, while on-road vehicle fuel consumption was estimated using the CARB Emission Factor.

Indirect energy consumption was assessed qualitatively. Indirect energy includes fuel consumed for the periodic maintenance of project elements and the life cycle energy consumption associated with the proposed Project (e.g., refining the raw materials used during construction). Both the long-term maintenance and operation of the proposed Project were considered.

### 3.7.3.3 CEQA Thresholds

To satisfy CEQA requirements, energy impacts were analyzed in accordance with Appendix G of the CEQA Guidelines. According to the CEQA Guidelines, CCR, Title 14, Section 15002(g), "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in CEQA Guidelines Section 15064(b)(1), the significance of an activity may vary with the setting. The impact analysis identifies and analyzes construction (short-term) and operation (long-term) impacts, as well as direct and indirect impacts (see PRC Section 21065). The proposed Project would have significant energy impacts under CEQA if it would:

a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation; or

b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

## 3.7.4 Affected Environment

### 3.7.4.1 Environmental Setting

#### Regional Setting

According to the U.S. Energy Information Administration (EIA 2019), the transportation sector in California consumed more energy than any other sector (residential, commercial, and industrial), representing nearly 40 percent of the total statewide energy consumed (Table 3.7-1). Automobiles, airports, and public transportation were key consumers of energy within this sector, with automobiles listed as the leading contributor. This is due, in part, to the total number of automobiles statewide. Per the Federal Highway Administration, California leads the nation in the number of motor vehicles. In addition, several of the state's major metropolitan areas (including the San Francisco Bay Area) experience long commutes and/or delays associated with traffic congestion, resulting in increased energy consumption.

**Table 3.7-1. California Energy Consumption by End-Use Sector**

| End-Use Sector | Energy (Trillion Btu[1]) | Percent of Total Energy Consumption |
|---|---|---|
| Residential | 1,455.7 | 18.67 |
| Commercial | 1,468.1 | 18.83 |
| Industrial | 1,805.2 | 23.15 |
| Transportation | 3,068.8 | 39.35 |
| **TOTAL** | **7,797.8** | **100.00** |

***Source: EIA 2019***
***1. Btu = British thermal unit***

Gasoline consumed by automobiles was the dominant energy source used by the transportation sector, representing over 55 percent of the energy consumed by this sector (Table 3.7-2) (EIA 2019). When compared to all energy sectors, gasoline represented nearly a quarter (22 percent) of the total energy consumed statewide. Distillate fuel oil, which includes diesel fuel for trucks and railroad locomotives, represented approximately 15 percent of the energy consumed by the transportation sector. Together, these fuels total nearly three quarters (70 percent) of the transportation sector and 28 percent of the statewide energy consumption. Based on their large contribution to statewide energy consumption, it is important to understand how infrastructure projects would impact fuel and energy consumption.

**Table 3.7-2. Transportation Sector Energy Consumption in California**

| Fuel Type | Energy (Trillion Btu[1]) | Percent of Total Energy Consumption |
|---|---|---|
| Coal | 0.0 | 0.00 |
| Natural Gas | 48.9 | 1.59 |
| Aviation Gasoline | 2.5 | 0.08 |
| Distillate Fuel Oil | 478.7 | 15.60 |
| Propane | 0.5 | 0.02 |
| Jet Fuel | 602.2 | 19.62 |
| Lubricants | 12.8 | 0.42 |
| Motor Gasoline | 1,736.3 | 56.59 |
| Residual Fuel Oil | 184.3 | 6.00 |
| Electricity | 2.6 | 0.08 |
| **TOTAL** | **3,068.8** | **100.00** |

***Source: EIA 2019***
***1. Btu = British thermal unit***

## Local Setting

### Alameda County

Data on yearly energy consumption is not available for Alameda County. However, a Greenhouse Gas Emissions Analysis performed by Alameda County in 2008 (Alameda County 2008) considered

greenhouse gas emissions by end-use sector (Table 3.7-3). The transportation sector represented nearly half of total emissions (46 percent). While this information is dated, this suggests that the dominance of the transportation sector statewide likely applies at the county level.

Transportation sector energy consumption, previously noted as being largely driven by motor vehicles (Table 3.7-3), is especially high during peak travel times with heavy traffic congestion. Alternative modes of transportation to motor vehicles, such as rail transit, would help reduce the transportation sector's consumption of energy.

**Table 3.7-3. Greenhouse Gas Emissions by End-Use Sector in Alameda County, California**

| End-Sector | Percent of Total GHG Emissions[1] |
|---|---|
| Residential | 26.77 |
| Commercial/Industrial | 23.02 |
| Transportation | 46.24 |
| Waste | 3.97 |
| **TOTAL** | **100.00** |

***Source: Alameda County 2008***
***1. GHG = greenhouse gas***

### Pacific Gas and Electric

The Pacific Gas and Electric Company (PG&E) provides electricity for approximately 5.5 million customer accounts in its nearly 70,000 square mile service area in northern and central California (PG&E 2022). Its service area extends between Eureka and Bakersfield (north to south) and the Pacific Ocean to the Sierra Nevada (west to east). PG&E operates nearly 107,000 circuit miles of electric distribution lines and approximately 18,000 circuit miles of interconnected transmission lines. PG&E's total electricity production in 2019 was 33,849 gigawatt hours (PG&E 2023), equating to approximately 115 trillion Btu/year.

## 3.7.5 Best Management Practices

As noted in Chapter 2, Project Alternatives, CCJPA would incorporate a range of BMPs to avoid and minimize adverse effects on the environment that could result from implementation of the proposed Project. BMPs are included in the proposed Project description, and the impact analyses were conducted assuming application of these practices.

No BMPs for energy are included in the proposed Project.

## 3.7.6 Environmental Impacts

This section describes the potential environmental impacts on energy as a result of implementation of the proposed Project. Lettering shown within title for each environmental factor below correlates with CEQA Statute and Guidelines, Appendix G table lettering and numbering.

### 3.7.6.1 (a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation?

## No Project Alternative

**No Impact.** Under the No Project Alternative, the Capitol Corridor passenger rail service between Oakland and San Jose would not be relocated from the Niles Subdivision to the Coast Subdivision. Improvements associated with the proposed Project would not occur. Capitol Corridor passenger trains and UPRR freight trains would continue to operate based on current routes with no changes to connectivity or rail efficiency. The operation of passenger and freight trains would continue to result in energy consumption. As this would match existing conditions, the No Project Alternative would not result in the wasteful, inefficient, or unnecessary consumption of energy resources. No impact would occur.

## Proposed Project

### Construction

**No Impact**. The proposed Project's construction-related energy consumption (direct and indirect) is discussed below.

#### *Direct Construction-related Energy Consumption*

Construction-related energy consumption would be temporary in nature. Gasoline, diesel, and electricity would be consumed to produce and transport construction materials, operate construction equipment, and transport workers to/from the Project Study Area. Construction-related energy consumption was estimated for the proposed Project during its proposed construction periods (Table 3.7-4). Total construction-related energy consumption for the proposed Project was estimated at 109,532,900,000 Btu (Table 3.7-4).

When compared with the operational energy savings from decreased VMT, construction would negate between 4 years of the proposed Project's operational energy savings. However, because construction represents a one-time energy expenditure, all subsequent years would represent an energy savings for the region and state.

**Table 3.7-4. Construction-Related Energy Consumption Associated with the Proposed Project**

| Metric | Proposed Project |
|---|---|
| *2027 Fuel and Energy Consumption* | |
| Diesel Fuel (gallons/year) | 329,360 |
| Diesel Energy (100,000 Btu/year) | 452,478 |
| Gasoline fuel (gallons/year) | 15,350 |

**Table 3.7-4. Construction-Related Energy Consumption Associated with the Proposed Project**

| Metric | Proposed Project |
|---|---|
| Gasoline Energy (100,000 Btu/year) | 18,464 |
| Electricity (kilowatt hours/year) | 2,425 |
| Electricity Energy (Btu/year) | 83 |
| **Total Energy (100,000 Btu/year)** | **471,025** |
| *2028 Fuel and Energy Consumption* | |
| Diesel Fuel (gallons/year) | 370,328 |
| Diesel Energy (100,000 Btu/year) | 508,760 |
| Gasoline fuel (gallon/year) | 21,437 |
| Gasoline Energy (100,000 Btu/year) | 25,786 |
| Electricity (kilowatt hours/year) | 3,200 |
| Electricity Energy (Btu/year) | 109 |
| **Total Energy (100,000 Btu/year)** | 534,655 |
| *2029 Fuel and Energy Consumption* | |
| Diesel Fuel (gallons/year) | 64,332 |
| Diesel Energy (100,000 Btu/year) | 88,380 |
| Gasoline fuel (gallon/year) | 1,030 |
| Gasoline Energy (100,000 Btu/year) | 1,239 |
| Electricity (kilowatt hours/year) | 877 |
| Electricity Energy (Btu/year) | 30 |

**Table 3.7-4. Construction-Related Energy Consumption Associated with the Proposed Project**

| Metric | Proposed Project |
|---|---|
| Total Energy (100,000 Btu/year) | 89,649 |
| **TOTAL PROJECT ENERGY CONSUMPTION (100,000 Btu)** | **1,095,329** |

***Indirect Construction-related Energy Consumption***

Indirect construction-related energy consumption would include the manufacturing and transport of raw materials used for construction. This energy expenditure would be temporary in nature and end at the completion of construction. As noted above, direct construction-related energy consumption would be overcome by operational energy savings (associated with decreased VMT) within 4 years of the proposed Project's operation. Even if, as a conservative estimate, indirect energy consumption equaled direct consumption during construction, their combined energy consumption would be overcome during the first 8 years of the proposed Project's operation.

After considering potential indirect construction-related energy consumption, the proposed Project would not represent a wasteful, inefficient, or unnecessary consumption of energy resources during construction. No impacts would occur.

### Operation

**No Impact**. The proposed Project's operational energy consumption (direct and indirect) is discussed below.

***Vehicle Miles Traveled/Rail Ridership***

The proposed Project would add approximately 500 Capitol Corridor systemwide riders per day in 2025, and approximately 1,000 systemwide riders per day by 2040 (Fehr and Peers 2023). Forecasts for VMT were used to estimate motor vehicle fuel consumption for the proposed Project's opening year (2025) and horizon year (2040). Energy consumption from gasoline, diesel, and electricity (electric vehicles) were all evaluated (Table 3.7-5).

A decrease in VMT would occur as a result of the proposed Project, in part due to more auto-competitive travel times for intercity passenger rail trips throughout the area. This would result in reduced motor vehicle use, reduced traffic congestion, and reduced energy consumption. For the proposed Project, in both 2025 and 2040, decreased VMT would result in a reduction in energy consumption of 0.01 percent as compared to the No Project Alternative (Table 3.7-5). The resulting energy savings associated with the proposed Project would equate to 27,357,900,000 Btu/year in 2025, and to 36,311,200,000 Btu/year in 2040.

The proposed Project's energy savings were compared to the transportation sector's annual energy consumption in California (3,036.8 trillion Btu/year). Increased rail ridership and decreased VMT, as a result of the proposed Project, would represent a statewide energy savings of approximately 0.001 percent in both 2025 and 2040. As a result, no impacts to energy resources would result from changes in VMT.

**Table 3.7-5. Estimated Energy Consumption based on Forecast Vehicle Miles Traveled**

| Year | Alternative | Gasoline Fuel | | Diesel Fuel | | Electric Vehicles | Total Energy (100,000 Btu/ year) | Net Reduction from No-Build (100,000 Btu/year) | Net Reduction from No-Build (%) |
|---|---|---|---|---|---|---|---|---|---|
| | | Gallons/year | Energy (100,000 Btu/year) | Gallons/ year | Energy (100,000 Btu/year) | Energy (100,000 Btu/year) | | | |
| **2025** | No Project | 2,067,788,482 | 2,487,260,053 | 4,767,908 | 6,550,200 | 95,502,434 | 2,589,312,688 | N/A | N/A |
| **2025** | Proposed Project | 2,067,570,006 | 2,486,997,257 | 4,767,404 | 6,549,508 | 95,492,344 | 2,589,039,108 | 273,579 | 0.01 |
| **2040** | No Project | 2,220,307,781 | 2,670,719,418 | 5,379,594 | 7,390,541 | 143,046,461 | 2,821,156,419 | N/A | N/A |
| **2040** | Proposed Project | 2,220,022,005 | 2,670,375,669 | 5,378,902 | 7,389,589 | 143,028,049 | 2,820,793,308 | 363,112 | 0.01 |

*Notes:*
*EIA 2020 conversion rates: 1 gallon gasoline = 120,286 Btu and 1 gallon diesel= 137,381 Btu*

***Stations***

Operational energy consumption was evaluated for the proposed Project's changes to Capitol Corridor stations. For the existing Hayward Station, which would be closed as a result of the proposed Project, electricity usage from 2019 was provided by CCJPA (Table 3.7-6). These data were compared to the estimated electricity consumption for the proposed Ardenwood Station. Existing and estimated energy consumption included electrical needs for each station's parking lot (lighting). From an operational perspective, the proposed Project would result in an increase in annual station energy consumption by approximately 329,000,000 Btu/year. When compared to PG&E's annual output of 260.0 trillion Btu/year, this would represent an increase of approximately 0.0001 percent; therefore, it was not considered to be a substantial change from existing conditions.

It was assumed that the existing and proposed stations would have similar annual energy consumption. However, the proposed Ardenwood Station would provide nearly three times more parking than the existing Hayward Station (Table 3.7-6). The larger parking facility at the Ardenwood Station would have higher energy needs for lighting than the smaller parking lot at the existing Hayward Station. This ratio appears to correlate with energy consumption, which would be approximately three times higher for the Ardenwood Station. Therefore, increased energy consumption is directly related to the larger facility provided by the proposed Project.

The increase in operational energy consumption for stations was compared to the operational energy savings associated with decreased VMT (Table 3.7-7). In both 2025 and 2040, additional station energy consumption represented approximately 1.2 percent to 0.9 percent (respectively) of the proposed energy savings associated with decreased VMT. Because the proposed Project reflected a net energy savings, no impact to energy resources is anticipated from proposed station changes.

**Table 3.7-6. Comparison of Capitol Corridor Station Energy Consumption**

| Metric | Existing Station (Hayward) | Proposed Station (Ardenwood)[1] | Net Increase |
|---|---|---|---|
| **Parking Lot Capacity (number of spaces)** | 70 | 200 | 130 |
| **Station Electricity Consumption[2] (kilowatt-hours/year)** | 50,000 | 146,423 | 96,423 |
| **Station Electricity Consumption[2] (100,000 Btu/year)** | 1,706 | 4,996 | 3,290 |

***Notes:***

1. ***Does not include data associated with the existing Ardenwood Park and Ride facility, which provides an additional 350 parking spaces***
2. ***Includes electrical needs for the station and the parking lot.***

**Table 3.7-7. Net Operational Energy Savings**

| Metric | 100,000 Btu/year | Net Energy Savings in 2025 (%) | Net Energy Savings in 2040 (%) |
|---|---|---|---|
| **2025 Energy Savings** | 273,579 | N/A | N/A |
| **2040 Energy Savings** | 363,112 | N/A | N/A |
| **Ardenwood Station Net Energy Increase** | 3,290 | 98.8 | 99.1 |

***Passenger Rail and Freight Service***

Changes in Capitol Corridor rail service would be expected to result in a net reduction in locomotive fuel consumption (and therefore energy consumption) as follows:

- The proposed Project would create a more direct passenger rail route and reduce overall rail travel time between Oakland and San Jose. Existing passenger trains currently use a longer route along the Niles Subdivision. The reduced travel distance and time for passenger rail would correlate to decreased fuel consumption.
- The proposed Coast Subdivision route would only have one station to stop at, compared to two stations on the Niles Subdivision. As a result, the proposed Project would require less locomotive acceleration time, correlating to less energy consumption.
- The proposed Project would install new track to allow train passing on the Coast Subdivision, thereby reducing train idling times and associated energy consumption.

Track upgrades along the Coast Subdivision could contribute to higher speeds. Higher locomotive speeds would result in greater fuel consumption. Conservatively, the net changes to Capitol Corridor service would equate to no energy savings, although it is likely there would still be a minor net reduction in energy consumption. No changes in freight train routing are expected under the proposed Project; thus, no change in energy consumption is expected.

No impacts to energy resources would be anticipated for operation of passenger rail or freight trains.

***Multimodal Improvements***

The proposed Project would connect to transbay transit services and destinations on the San Francisco Peninsula via the proposed Ardenwood Station. It would connect Capitol Corridor service to the existing Ardenwood Park and Ride facility, which provides 350 parking spaces and connectivity to transbay bus and shuttle routes (AC Transit, Dumbarton Express, Stanford Marguerite, and private shuttles). Improved access to these transit services would encourage further mode shift from single-occupant vehicle travel, thereby reducing fuel (and associated energy) consumption.

As part of the proposed Project, pedestrian and bicycle infrastructure improvements would be constructed for at-grade rail crossings. Sidewalk improvements would comply with the ADA. All improvements would maintain or enhance existing infrastructure for pedestrians and bicyclists. In some locations, improvements would reduce existing conflicts between trains, bicyclists, and pedestrians. Removing (or minimizing) barriers to walking/biking would encourage a mode shift from motor vehicles to walking/biking, which are forms of transportation that do not require fossil fuels.

Improved multimodal connectivity and additional potential mode shift would result in no operational impacts to energy resources.

#### *Rail Crossing Technology*

As part of the proposed Project, new railway signal technology and crossing equipment (gates, arms, signal boxes, etc.) would be installed. More energy efficient technology/equipment, such as the use of light-emitting diode (LED) lighting at rail crossings, would replace existing technology that is less energy efficient, resulting in operational energy savings. No impact to energy resources would be anticipated as a result of this technology.

#### *Indirect Operational Energy Consumption*

Indirect operational energy consumption was assumed to be the same between the No Project Alternative and the proposed Project. Indirect energy consumption would be fuel consumed for the periodic maintenance of either existing facilities or the proposed Project elements. All three rail subdivisions (Coast, Niles, and Oakland) would continue to be used by trains multiple times per day and would require periodic maintenance. While the Hayward Station would be closed and not require future maintenance, the proposed Ardenwood Station would have new maintenance needs. No impact to energy resources would occur as a result of the proposed Project.

## 3.7.6.2 (b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

### No Project Alternative

**No Impact**. Under the No Project Alternative, the Capitol Corridor passenger rail service between Oakland and San Jose would not be relocated from the Niles Subdivision to the Coast Subdivision. Improvements associated with the proposed Project would not occur. Capitol Corridor passenger trains and UPRR freight trains would continue to operate based on current routes with no changes to connectivity or rail efficiency. The operation of passenger and freight trains would continue to result in energy consumption. The No Project Alternative would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. No impact would occur.

### Proposed Project

#### Construction and Operations

**No impact**. The proposed Project would result in a net energy savings, and it would not obstruct a state or local plan for either renewable energy or energy efficiency. The proposed Project would promote the use of transit and decrease dependency on motor vehicles. Both outcomes are in line

with the general plans for the cities within the energy RSA. The proposed Project also would comply with state and local CALGreen requirements for the proposed Ardenwood Station. Therefore, no impact would occur.

## 3.7.7 Mitigation Measures

No mitigation measures for energy are required for the proposed Project.

## 3.7.8 Cumulative Impact Analysis

### Resource Study Area

The cumulative RSA for the analysis of energy-related impacts was Alameda County. CEQA guidelines require EIR-level documents to include a discussion of potential energy impacts. Based on this, all projects within Alameda County without an EIR were excluded from consideration for potential cumulative impacts. All past, present, and reasonably foreseeable projects with an EIR were considered for potential cumulative impacts to energy. Table 3.1-1 in Section 3.1, Introduction, identifies and summarizes the list of cumulative projects.

### Cumulative Condition and Contribution of the Proposed Project

None of the cumulative projects identified in Table 3.1-1 had potential energy-related impacts that warranted consideration for cumulative impacts with the proposed Project. However, as outlined in Section 3.7.6, the proposed Project would have no impact to energy resources. Because of this, there is no potential for cumulative impacts to occur when considered with other reasonably foreseeable past, current, or future projects.

### Conclusion

Implementation of the proposed Project, combined with other foreseeable projects in the surrounding area, is not expected to result in significant cumulative impacts on energy resources.

## 3.7.9 CEQA Significance Findings Table

Table 3.7-8 summarizes the energy resources impacts of the proposed Project.

**Table 3.7-8. Energy Resources Impacts Summary**

| Impact | Level of Significance Before Mitigation | Incremental Project Contribution to Cumulative Impacts | Mitigation | Level of Significance with Mitigation Incorporated | Incremental Project Cumulative Impact after Mitigation |
|---|---|---|---|---|---|
| **(a) Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation?** | NI | NCC | N/A | NI | NCC |
| **(b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?** | NI | NCC | N/A | NI | NCC |

Notes: LTS = Less than Significant Impact, NI = No Impact, N/A = Not Applicable, SI = Significant Impact, S/M = Significant Impact but Mitigable to a Less than Significant Level, CC = Cumulatively Considerable, NCC = Not Cumulatively Considerable.

## 3.7.10 References

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# 3.8 Geology, Soils, and Paleontological Resources

## 3.8.1 Introduction

This section describes the regulatory setting and affected environment related to geology, soils, seismicity, and paleontological resources. This section addresses the geology, soils, seismicity, and paleontological resources that are known to occur or have the potential to occur in the geology, soils, seismicity, and paleontological resources RSA and describes the potential impacts on those resources during construction and operation of the proposed Project. This section also identifies the cumulative impacts of the proposed Project on geology, soils, seismicity, and paleontological resources when considered in combination with other relevant projects.

## 3.8.2 Regulatory Setting

This section identifies the applicable federal, state, regional, and local laws, regulations, and orders that are relevant to the analysis of geology, soils, seismicity, and paleontological resources. This section also addresses the proposed Project's consistency with the regulations described herein.

### 3.8.2.1 Federal

#### National Earthquake Hazards Reduction Program

The National Earthquake Hazards Reduction Program (NEHRP) was established by the United States (U.S.) Congress when it passed the Earthquake Hazards Reduction Act of 1977. In establishing NEHRP, Congress recognized that earthquake-related losses could be reduced through improved design and construction methods and practices, land use and redevelopment controls, prediction techniques and early-warning systems, coordinated emergency preparedness plans, and public education and involvement programs.

The four basic NEHRP goals are:

- Develop effective practices and policies for earthquake loss reduction and accelerate their implementation;
- Improve techniques for reducing earthquake vulnerabilities of facilities and systems;
- Improve earthquake hazards identification and risk assessment methods, and their use; and
- Improve the understanding of earthquakes and their effects.

Several key federal agencies contribute to earthquake mitigation efforts. The four primary NEHRP agencies are:

- National Institute of Standards and Technology;
- National Science Foundation;
- U.S. Geological Survey (USGS); and
- Federal Emergency Management Agency (FEMA).

Implementation of NEHRP priorities is accomplished primarily through original research, publications, and recommendations to assist and guide state, regional, and local agencies in the development of plans and policies to promote safety and emergency planning.

## National Engineering Handbook

The National Engineering Handbook was prepared by the United States Department of Agriculture (USDA) in 1983. Chapter 3 (Erosion) of Section 3 (Sedimentation) states that in planning programs, to reduce erosion and sediment yield, it is most important that the various types of erosion be thoroughly investigated as sources of sediment. Proper conservation practices and land stabilization measures can then be planned and applied.

## Federal Soil Protection Act

The purpose of the Federal Soil Protection Act is to protect or restore the functions of the soil on a permanent and sustainable basis. Protection and restoration activities include prevention of harmful soil changes, rehabilitation of the soil of contaminated sites and of water contaminated by such sites, and precautions against negative soil impacts. If impacts are made on the soil, disruptions of its natural functions and of its function as an archive of natural and cultural history should be avoided, as far as practicable.

## United States Geological Survey (USGS) Landslide Hazard Program

The USGS created the Landslide Hazard Program in the mid-1970s. According to the USGS, the primary objective of the Landslide Hazards Program is to reduce long-term losses from landslide hazards by improving understanding of the causes of ground failure and suggesting mitigation strategies. The federal government takes the lead role in funding and conducting this research, whereas the reduction of losses due to geologic hazards is primarily a state and local responsibility.

## Clean Water Act

According to the Environmental Protection Agency (EPA), the Clean Water Act (CWA 1972) establishes the basic structure for regulating discharges of pollutants into the waters of the U.S. and regulating quality standards for surface waters. The basis of the CWA was enacted in 1948 and was called the Federal Water Pollution Control Act, but the Act was significantly reorganized and expanded in 1972. “Clean Water Act” became the Act’s common name with amendments in 1972. Under the CWA, the EPA has implemented pollution control programs such as setting wastewater standards for industry. EPA has also developed national water quality criteria recommendations for pollutants in surface waters. The CWA made it unlawful to discharge any pollutant from a point source into navigable waters unless a permit was obtained. EPA’s National Pollution Discharge Elimination System (NPDES) permit program controls discharges. Point sources are discrete conveyances such as pipes or man-made ditches. Individual homes that are connected to a municipal system, use a septic system, or do not have a surface discharge do not need an NPDES permit; however, industrial, municipal, and other facilities must obtain permits if their discharges go directly to surface waters. In addition, the requirements of the NPDES permit provide guidance for protection of geologic and soil resources by requiring site operators to have proper stormwater controls in place which help reduce sedimentation and erosion at construction sites.

### Preservation of American Antiques (43 Code of Federal Regulations [CFR] 3)

CFR Title 43, Part 3 originally contained the regulations to implement the Antiquities Act of 1906. The Antiquities Act was recodified in 2014 by the National Park Service (NPS) and Related Programs (54 United States Code [USC] 320301 – 320303. CFR Title 43, Part 3 has been revised to contain the regulations that implement 54 USC 320301 – 320303. CFR Title 43, Part 3 requires the Secretary of Agriculture, Secretary of the Army, or the Secretary of Interior over lands within their jurisdiction to grant a permit for the examination of ruins, excavation of archeological sites and removal of objects of antiquity to reputable museums, universities, colleges, or other recognized scientific or educational institutions, or to their duly authorized agents. CFR Title 43, Part 3 "objects of antiquity" has been interpreted to include fossils by the Bureau of Land Management (BLM), the NPS, the United States Forest Service (USFS), and other federal agencies.

## 3.8.2.2 State

Paleontological resources must be considered under CEQA. Appendix G of the CEQA Guidelines provides guidance relative to significant impacts on paleontological resources, indicating that a project would have a significant impact on paleontological resources if it disturbs or destroys a unique paleontological resource or site or unique geologic feature.

### General Permit for Construction Activities

The CGP (NPDES No. CAS000002, SWRCB Order No. 2022-0057-DWQ) was adopted on September 8, 2022, and went into effect on September 1, 2023. The CGP regulates construction site stormwater management. Dischargers whose projects disturb 1 or more acres of land area, or whose projects disturb less than 1 acre but are part of a larger common plan of development that in total disturbs 1 or more acres, are required to obtain coverage under the general permit for discharges of stormwater associated with construction activity. Permit applicants are required to submit a Notice of Intent to the SWRCB and to prepare a SWPPP. The SWPPP identifies BMPs that must be implemented to reduce construction effects on receiving water quality based on pollutants. The BMPs identified are directed at implementing both sediment and erosion control measures and other measures to control chemical contaminants.

### California Building Standards Code

According to the Department of General Services, the California Building Standards Code is a compilation of three types of building standards from three different origins: 1) Building standards that have been adopted by state agencies without change from building standards contained in national model codes; 2) Building standards that have been adopted and adapted from national model codes to address California's ever-changing conditions; and 3) Building standards, authorized by the California legislature, that constitute amendments not covered by national model codes, that have been created and adopted to address particular California concerns. All occupancies in California are subject to national model codes adopted into Title 24, and occupancies are further subject to amendments adopted by state agencies and ordinances implemented by local jurisdictions' governing bodies. The 2019 California Building Code (CBC), California Code of Regulations, Title 24 was published July 1, 2019, with an effective date of January 1, 2020.

## California Public Resources Code

State requirements for paleontological resource management are included in Public Resources Code (PRC) Section 5097.5 and Section 30244. These statutes prohibit the removal of any paleontological site or feature from public lands without permission of the jurisdictional agency, define the removal of paleontological sites or features as a misdemeanor, and require reasonable mitigation of adverse impacts to paleontological resources from developments on public (state, county, city, district) lands.

Section 5097.5 of the California Public Resources Code specifies that any unauthorized removal of paleontological remains is a misdemeanor. Further, California Penal Code Section 622.5 sets the penalties for damage or removal of paleontological resources.

## California Stormwater Best Management Practices Handbook and Stormwater Multiple Application and Report Tracking System

The California Stormwater Quality Association develops four Best Management Practices Handbooks, construction, industrial and commercial, municipal, and new development and redevelopments. These are generally matched to the three National Pollutant Discharge Elimination System (NPDES) permit types, municipal separate storm sewer systems, construction activities, and industrial activities, and offer stormwater runoff management support. The California State Water Resources Control Board Stormwater Multiple Application and Report Tracking System is compliant with NPDES and provides a platform where dischargers, regulators, and the public can enter, manage, and view storm water data including permit registration documents, compliance, and monitoring data associated with California's Storm Water General Permits.

## Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act (SHMA 1990) directs the Department of Conservation, California Geologic Survey (CGS) to identify and map areas prone to earthquake hazards of liquefaction, earthquake-induced landslides and amplified ground shaking. The purpose of the SHMA is to reduce the threat to public safety and to minimize the loss of life and property by identifying and mitigating these seismic hazards. The SHMA was passed by the legislature following the 1989 Loma Prieta earthquake.

The SHMA requires the State Geologist to establish regulatory zones (Zones of Required Investigation) and to issue appropriate maps (Seismic Hazard Zone maps). These maps are distributed to all affected cities, counties, and state agencies for their use in planning and controlling construction and development. Single-family frame dwellings up to two stories which are also not part of a development of four or more units are exempt from the state requirements. However, local agencies can be more restrictive than state law requires.

## Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act was enacted as the Special Studies Zones Act in 1971 to prevent land development and construction of structures for human occupancy directly across the trace of active faults.

The law requires the State Geologist to delineate approximately one quarter mile-wide zones (earthquake fault zones) along surface traces of active faults. The act defines an active fault as one

that has ruptured the ground surface within the past 11,000 years. Prior to approving construction of structures for human occupancy within an earthquake fault zone, permit authorities must require a project's applicant to submit a fault investigation report for review and approval by the local jurisdiction. Although the Alquist-Priolo Act does not regulate transit or transportation projects, it provides relevant information about areas that would be susceptible to ground rupture from an earthquake.

#### Natural Hazard Disclosure Act

The Natural Hazards Disclosure Act came into effect on June 1, 1998, and requires sellers and their listing agents to provide prospective buyers with a Natural Hazards Disclosure statement that designates whether the home they are selling is located in a hazard area. Hazard areas include flood, fire, earthquake fault, and seismic hazard zones.

### 3.8.2.3 Local

#### General Plans required by California Government Code

The California Government Code (Section 65300-65303.4) requires the planning agencies of all cities and counties to prepare comprehensive, long-term general plans for the physical development, including projects, within their jurisdictions that provide objectives and policies addressing public health and safety, including protection against the impacts of seismic ground motions, fault ruptures, and other geologic and soils hazards. The legislative bodies of all California cities and counties must adopt General Plans that include, among other elements, a Conservation Element and Safety Element.

The Conservation Element is required to address at least:

- Reclamation of land and waters,
- Prevention, control, and correction of the erosion of soils, and
- Location, quantity and quality of rock, sand, and gravel resources.

The Safety Element must address the protection of the community from any unreasonable risks associated with the effects of:

- Seismically induced surface rupture (fault displacements),
- Ground shaking,
- Ground failure,
- Slope instability leading to mudslides and landslides,
- Subsidence (due to fluid or gas withdrawal),
- Liquefaction,
- Other seismic hazards identified pursuant to Chapter 7.8 (commencing with Section 2690) of Division 2 of the PRC, and
- Other geologic hazards known to the legislative body.

The Safety Element is required to include mapping of known seismic and other geologic hazards.

The proposed Project would be built within Alameda County and the following cities:

- Fremont,
- Newark,
- Union City,
- Hayward,
- Castro Valley,
- San Leandro, and
- Oakland.

Unincorporated portions of Alameda County that the proposed Project would encompass includes San Lorenzo.

The general plans for these jurisdictions were reviewed for policies relevant to paleontological resources.

**Oakland:** The Open Space, Conservation, and Recreation Element of the Oakland General Plan addresses paleontological resources with the following text: "Some of Oakland's most important natural assets are 'earth resources' including soils and minerals, archaeologic and fossil remains, and the geologic formations that define the city's topography" (City of Oakland 1996, page 3.2). But the General Plan does not explicitly address paleontological resources in any policies, goals, or objectives.

**San Leandro:** The San Leandro General Plan contains no requirements, policies, goals, or objectives relevant to the paleontological resources (City of San Leandro 2016).

**Hayward:** The Natural Resource Element of the Hayward General Plan has the following policies regarding paleontological resources (City of Hayward 2014):

Natural Resources (NR)-7: Identify, honor, and protect historically significant paleontological resources so they can be scientifically studied and preserved for current and future generations.

- NR-7.1: Paleontological Resource Protection: The City shall prohibit any new public or private development that damages or destroys a historically - or prehistorically - significant fossil, ruin, or monument, or any object of antiquity.
- NR-7.2: Paleontological Resource Mitigation: The City shall develop or ensure compliance with protocols that protect or mitigate impacts to paleontological resources, including requiring grading and construction projects to cease activity when a paleontological resource is discovered so it can be safely removed.

**Union City:** Union City General Plan has the following provision for the protection of paleontological resources (Union City 2019):

Resource Conservation (RC)-4.8. Protection of Paleontological Resources: The City shall require avoidance and/or mitigation for potential impacts to paleontological resources for any development in Union City that occurs within high sensitivity geologic units, whether they are mapped at the surface or occur at the subsurface. High sensitivity geology units include Great Valley Sequence (Panoche and Knoxville Formations), Monterey Group (Claremont Shale and Hambre Sandstone), Briones Formation, Orinda Formation, and Pleistocene age alluvial fan and fluvial deposits. When

paleontological resources are uncovered during site excavation, grading, or construction activities, work on the site will be suspended until the significance of the fossils can be determined by a qualified paleontologist. If significant resources are determined to exist, the paleontologist shall make recommendations for protection or recovery of the resource.

The City shall require the following specific requirements for projects that could disturb geologic units with high paleontological sensitivity:

Retain a Qualified Paleontologist to Prepare a Paleontological Mitigation and Monitoring Program (PMMP). Prior to initial ground disturbance in previously undisturbed strata of geologic units with high sensitivity, the project applicant shall retain a Qualified Paleontologist, as defined by the SVP (2010), to direct all mitigation measures related to paleontological resources and design a PMMP for the project. The PMMP should include measures for a preconstruction survey, a training program for construction personnel, paleontological monitoring, fossil salvage, curation, and final reporting, as applicable.

**Fremont:** The Fremont General Plan contains no requirements, policies, goals, or objectives relevant to the paleontological resources (City of Fremont 2011).

**Newark:** The Newark General Plan contains no requirements, policies, goals, or objectives relevant to the paleontological resources (City of Newark 2013).

**Alameda County:** Castro Valley and San Lorenzo are unincorporated communities in Alameda County. The Alameda County plans listed below were reviewed. No provisions were found pertaining to paleontological resources:

- Countywide plan (Alameda County 1994)
- Castro Valley General Plan (Alameda County 2012)
- San Lorenzo Specific Plan (Alameda County 2004)

### 3.8.2.4 Other Guidance- Industry Design Standards and Guidelines

The design and construction of the proposed Project would conform to industry-wide engineering design guidelines and standards. These guidelines and standards define the parameters for the design and construction of facilities that protect the users of the facilities and others that may be affected by public use of the facility. Each improvement associated with the proposed Project would be designed to handle normal operating loads from the weight of the structure or train, as well as loads from environmental conditions, such as seismic shaking and wind forces. At locations where geologic conditions present a hazard, the guidelines and standards identify minimum requirements for characterizing the geologic conditions and then addressing the design issue, such as the stability of slopes, the corrosion of materials, and BMPs for water and wind erosion, stream sedimentation, or dust control. These guidelines and standards provide requirements for evaluating soil conditions, defining seismic loads, and evaluating the response of the foundation systems. Minimum performance requirements are also provided. The guidelines and standards also provide direction when minimum performance requirements are not met. Engineering geologists and geotechnical engineers who assist in the design of the proposed Project are obligated to use these guidelines and standards. To meet professional licensing requirements, contract design documents would have to be signed and stamped by engineering geologists, civil engineers, and geotechnical engineers registered in California, certifying that the designs have been completed in a manner that meets minimum standards and is protective of the public. Primary guidelines and standards that would be

incorporated as part of the proposed Project to reduce risks associated with geology, soils, and seismicity are highlighted in this section.

### 2012 American Association of State Highway and Transportation Officials Load and Resistance Factor Design Bridge Design Specifications (6th Edition) and the 2011 American Association of State Highway and Transportation Officials Guide Specifications for Load and Resistance Factor Seismic Bridge Design

These American Association of State Highway and Transportation Officials (AASHTO) documents provide guidance for characterization of soils, as well as methods to be used in the design of bridge foundations and structures, retained cuts and retained fills, at-grade segments, and buried structures. These design specifications would provide minimum specifications for evaluating the seismic response of soil and structures.

### American Railroad Engineering and Maintenance-of-Way Association Manual

The American Railroad Engineering and Maintenance-of-Way Association (AREMA) guidelines deal with rail systems. Although these guidelines cover many of the same general topics as the AASHTO, they are more focused on best practices for rail systems. The manual includes principles, data, specifications, plans, and economics pertaining to the engineering, design, and construction of railways.

### Union Pacific Railroad Design and Construction Standards

These guidelines are specific to any work that will take place within or affect facilities owned and operated by Union Pacific Railroad (UPRR). In general, UPRR relies on the current guidance provided by the most recent version of AREMA, while applying its own criteria to its assets as it deems necessary. Where a conflict between the current UPRR criteria and the AREMA guidelines arises, the UPRR criteria will govern for facilities or resources within its right-of-way (ROW).

### California Department of Transportation Design Standards

The California Department of Transportation (Caltrans) has specific minimum design and construction standards for all aspects of transportation system design, ranging from geotechnical explorations to construction practices. Caltrans design standards include state-specific amendments to the AASHTO Load and Resistance Factor Design (LRFD) Bridge Design Specifications and Guide Specifications for LRFD Seismic Bridge Design. These amendments provide specific guidance for the design of deep foundations used to support elevated structures, for design of mechanically stabilized earth walls used for retained fills, and for design of various types of cantilever (e.g., soldier pile, secant pile, and tangent pile) and tie-back walls used for retained cuts. Caltrans standards would only apply within Caltrans ROW.

### American Society for Testing and Materials International

American Society for Testing and Materials (ASTM) International has developed standards and guidelines for all types of material testing, from soil classifications to pile load testing or compaction testing through to concrete strength testing. The ASTM standards also include minimum performance requirements for materials. Most of the guidelines and standards cited in the preceding sections use ASTM or a corresponding series of standards from AASHTO to achieve the required and intended quality in the constructed project.

### Society of Vertebrate Paleontology

The Society of Vertebrate Paleontologists (SVP) is a professional and academic organization that establishes guidelines for paleontological resource assessments, monitoring and mitigation, fossil recovery, sampling procedures, specimen preparation, and museum curation (SVP 1995, 1996, 2010). SVP guidelines are the standard against which many paleontological mitigation programs are judged. Most professional paleontologists in California adhere closely to the SVP guidelines for assessment, mitigation, and monitoring. Many regulatory agencies have formally or informally adopted the SVP guidelines.

### 3.8.2.5 Consistency with Plans, Policies, and Regulations

The proposed Project is consistent plans, policies, and regulations listed above. The proposed Project complies with the measures listed above for resources with high geology, soils, seismicity and paleontological potential.

## 3.8.3 Methods for Evaluating Environmental Impacts

### 3.8.3.1 Resource Study Area

As defined in Section 3.1, Introduction, RSAs are the geographic boundaries within which the environmental investigations specific to each resource topic were conducted.

For geology, soils, and seismicity, the RSA extends beyond the Project footprint and includes the subsurface below the footprint. The RSA for geology, soils, and seismicity is defined as the Project footprint plus a buffer of 0.25 miles. The seismic RSA includes active faults within 60 miles of the Project.

For paleontology, the RSA also extends beyond the Project footprint by 0.25 miles in each direction. It also includes the subsurface beneath the Project footprint.

### 3.8.3.2 Data Sources

The methodology used to evaluate the potential impacts upon the geology, soils, and seismicity of the proposed Project included a review of published maps, professional publications, reports, and databases pertaining to the geology, soils, and seismicity of the Project vicinity, including:

- USGS topographic maps;
- USGS elevation data;
- USGS and CGS geologic maps and geographic information systems (GIS) data;
- USDA and Natural Resources Conservation Service (NRCS) soil maps and GIS data; and
- CGS Earthquake Zones of Required Investigation maps, Seismic Hazard Zone reports, and associated GIS data.

The geology, soils, and seismicity analysis focuses on the potential of the proposed Project to increase the risk of personal injury, loss of life, and damage to property as a result of Project effects on existing geologic conditions in the RSA.

This Project uses SVP standards and Caltrans Standard Environmental Reference (SER) methodology for paleontology (Caltrans 2014). Caltrans SER criteria are commonly used in transportation projects and are in accordance with SVP standards.

The paleontological analysis included the following steps:

- A geological inventory of the RSA was performed.
- Fossil locality searches were conducted within a minimum one-mile radius of the RSA. The following online databases were queried: Paleobiology Database (PBDB) and the University of California at Berkeley Museum of Paleontology (UCMP) (PBDB 2023; UCMP 2023). Print fossil catalogs were also queried (Hay 1927; Jefferson 1991a, 1991b; Parkman 2006; Savage 1951).
- A literature review was conducted to search for fossils not recorded in the databases or for more detailed descriptions of particular localities, geologic units, or for land use history. The following sources were consulted: peer-reviewed journals, scientific reports, dissertations, historical topographic maps, agency fact sheets, and news sources.
- An assessment of paleontological potential following Caltrans and SVP guidelines was performed. SVP and Caltrans guidelines are listed in Table 3.8-1.

**Table 3.8-1: Evaluation of Paleontological Sensitivity/Paleontological Potential**

| SVP Resource Potential | Caltrans Tripartite Scale | Geologic Unit Description |
|---|---|---|
| **None** | None | Geologic units of intrusive igneous origin, most extrusive igneous rocks, and medium- to high-grade metamorphic rocks are classified as having no potential for containing significant paleontological resources. |
| **Low** | Low | Geologic units that are potentially fossiliferous, based upon review of available literature and museum collections records, but have yielded few, if any, significant fossils in the past; or, have not yielded fossils, but possess a potential for containing fossil remains; or contain common and/or widespread invertebrate fossils (if the taxonomy, phylogeny, and ecology of the species are well understood). Geologic units of low potential also include those that yield fossils only on rare occasions or under unusual circumstances, eolian deposits, geologic units younger than 10,000 years, and deposits that exhibit a high degree of diagenetic alteration. |
| **Undetermined** | N/A | In some cases, available literature on a particular geologic unit is scarce and a determination of whether it is fossiliferous or potentially fossiliferous is difficult to make. Under these circumstances, the sensitivity is unknown and further study is needed to determine the unit's paleontological resource potential. |

| SVP Resource Potential | Caltrans Tripartite Scale | Geologic Unit Description |
|---|---|---|
| High | High | Geologic units with high potential for paleontological resources are those that, based on previous studies, have proven to yield vertebrate or significant invertebrate, plant, or trace fossils or are likely to contain new vertebrate materials, traces, or trackways. Geologic units with high potential also may include those that contain datable organic remains older than the late Holocene (e.g., animal nests or middens). These units include but are not limited to, sedimentary formations that contain significant nonrenewable paleontological resources anywhere within their geographical extent and sedimentary rock units temporally or lithologically suitable for the preservation of fossils. These units may also include some volcanic and low-grade metamorphic rock units. Fossiliferous deposits with very limited geographic extent or an uncommon origin (e.g., tar pits and caves) are given special consideration and ranked as highly sensitive. A unit with high sensitivity is susceptible to surface-disturbing activities and includes fossiliferous sedimentary deposits that are well exposed with little vegetative cover as well as those shallowly covered by soil, alluvium, or vegetation. |

Source: SVP, 2010; Caltrans, 2014.

### 3.8.3.3 CEQA Thresholds

To satisfy CEQA requirements, geology and soils impacts were analyzed in accordance with Appendix G of the CEQA Guidelines. According to the CEQA Guidelines, CCR, Title 14, Section 15002(g), "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in CEQA Guidelines Section 15064(b)(1), the significance of an activity may vary with the setting. The impact analysis identifies and analyzes construction (short-term) and operation (long-term) impacts, as well as direct and indirect impacts (see PRC Section 21065).

The proposed Project would have significant geology and soils impacts under CEQA if it would:

a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

    i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

    ii. Strong seismic ground shaking.

    iii. Seismic-related ground failure, including liquefaction.

    iv. Landslides.

b. Result in substantial soil erosion or the loss of topsoil.

c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.
d. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater; or
e. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

# 3.8.4 Affected Environment

This section describes the physical environmental conditions for geology, soils, seismicity, and paleontological resources within the RSA and provides the baseline physical conditions by which a determination can be made whether an impact of the proposed Project is significant.

## 3.8.4.1 Environmental Setting

### Topography and Drainage

The Project is located on the plain between the East Bay Hills and San Francisco Bay. The plain is generally flat to undulating with a general south-west aspect. The landscape has been greatly modified through development originally for agriculture, then urbanization, industrialization, and transportation infrastructure.

Drainages originate from the East Bay Hills flowing out onto the bay plain forming alluvial fans and washes. Natural drainages of the plain have been greatly modified through urbanization and infrastructure development where storm sewer systems flow into lined and unlined channels that are often bordered by artificial levees. Large areas of marshland bordering east San Francisco Bay have been converted to salt ponds or filled to create land for urban, industrial, or infrastructure purposes.

### Regional Geologic Setting

The Project lies in the seismically active Coastal Ranges Geomorphic Province which consists of sub-parallel north-west trending faults, mountain ranges, and valleys in west-central California at the eastern margin of the San Francisco Bay that characterize the province's topography (California Geological Survey 2002). The Coastal Ranges Geomorphic province is bounded to the west by the Pacific coast and to the east by the San Joaquin valley. Regional basement rocks (rocks below a cover of sedimentary rocks) consist of marine deposited Jurassic-Cretaceous (period from 206 million years ago to 66 million years ago) Franciscan Complex and granitic rocks. Younger volcanic and sedimentary rocks were deposited throughout the province during the development of the San Andreas Fault system. Characteristic components of the Franciscan Complex are mostly detrital sedimentary rocks (composed of rock fragments that have been weathered from pre-existing rocks) with basaltic volcanic rocks, metamorphic, and chert with minor limestone.

Extensive late Cretaceous period (99 million years ago to 66 million years ago) through early Tertiary period (66 million years ago to 38 million years ago) folding and thrust faulting created complex geologic structural conditions that underlie the highly varied topography of today. Furthermore, transform faulting (horizontal sliding) during the last 12 million years associated with the San Andreas fault system overprinted and offset (displacement between points on either side of

the fault) crustal fault structures and geologic units to create the modern distinctive north-west trending topography of today. Overprinting is a geological process that leaves marks altering the marks of an earlier process.

The San Francisco Bay occupies a depression in the Coast Ranges between the San Andreas Fault to the west and the Hayward Fault to the east. This depression is a structural trough in Franciscan Complex bedrock covered by a thick layer of sediment from the Pleistocene (2.6 million years ago to about 11,700 years ago) and Holocene (11,700 years ago to present) epochs (combined, these two epochs comprise the quaternary period).

Over the last few million years, sediment eroded from surrounding hills accumulated on the Bay coastal plain. As sea level has risen and fallen during glacial/interglacial cycles, parts of the Bay shoreline have been periodically submerged. These alternating wet and dry periods have resulted in alternating deposition of alluvium and mud. The last sea-level low stand was about 11,700 years ago at the Pleistocene/Holocene transition (Atwater, Hedel, and Helley 1977).

Valley bedrock is covered by Quaternary alluvium (sediments transported by creeks and rivers from local and more distant sources) and soils, varying in thickness from a few feet to several hundred feet where they have filled in previously eroded valleys. Bay Mud was deposited in the broad valley that formed the San Francisco Bay which has been submerged by a rising sea level during the past 5,000 years. Bay Mud thickness varies from several feet at the current bay margins to over 100 feet in central portions of the bay.

## Local Setting

The Project area cross gently sloping plains and alluvial flatlands of the East Bay coastal plain. The East Bay Hills rise steeply east of the coastal plain, reaching more than 1000 feet above sea level. The Coast Subdivision crosses lower-lying shoreline regions close to the bay, mainly 10 to 25 feet above sea level. Niles Subdivision crosses gently undulating lands closer to the hills, mainly 30 to 80 feet above sea level. The RSA crosses the following streams as well as smaller tributaries: San Leandro Creek, San Lorenzo Creek, Zeile Creek, Dry Creek, and Alameda Creek. The RSA is characterized by artificial fill, mud, and alluvial material, as is discussed below in more detail.

Most of the RSA is highly developed for residential, commercial, transportation, and industrial uses.

## Geologic Conditions

Geologic unit extents and descriptions for the RSA have been derived from Witter et al. (2006) and Graymer, et al. (1996). The great majority of the RSA is underlain by Quaternary sediments with only a very small section mapped to be underlain by Tertiary bedrock. Figure 3.8-1 through Figure 3.8-7 show the distribution of surface geologic units within the RSA. Table 3.8-2 lists the geologic units and the coverage of units in acres and percent located in the RSA.

**Table 3.8-2: Summary of Geologic Units and Coverage within the RSA**

| Unit | Name | Age | Area (acres) / Unit Percent within the RSA |
|---|---|---|---|
| **af** | artificial fill | historic | 115 / 1.5 |
| **afem** | artificial over estuarine mud | historic | 472 / 6.0 |
| **alf** | artificial levee fill | historic | 131 / 1.7 |
| **ac** | artificial channel | historic | 55 / 0.7 |
| **Qhc** | Stream channel deposits | historic | 3 / < 0.1 |
| **Qhfy** | Alluvial fans | Latest Holocene | 1505 / 19.2 |
| **Qhly** | Alluvial fan levees | Latest Holocene | 358 / 4.6 |
| **Qhbm** | San Francisco Bay mud | Holocene | 519 / 6.6 |
| **Qhf** | Alluvial fans | Holocene | 1590 / 20.3 |
| **Qhf1** | Younger alluvial fans | Holocene | 89 / 1.1 |
| **Qhf3** | Older alluvial fans | Holocene | 344 / 4.4 |
| **Qhff** | Alluvial fans, fine facies | Holocene | 1187 / 15.2 |
| **Qhl** | Alluvial fan levees | Holocene | 894 / 11.4 |
| **Qhl1** | Younger alluvial fan levees | Holocene | 278 / 3.6 |
| **Qhl3** | Older alluvial fans | Holocene | 289 / 3.7 |

Following is a description and brief discussion of the surface geologic units that are relevant to the proposed Project:

**af - Artificial fill, Historic**

Artificial fill can be engineered or non-engineered material and often underlies highway and railway embankments, and other developed areas.

**afem - Artificial over estuarine mud, Historic**

Unit afem is composed of artificial fill deposited over sediments along the margins of San Francisco Bay. Fill may be engineered and/or non-engineered material and each may occur within the same area. This artificial fill overlies estuarine sediment and was placed to form new land. The thickness of the fill overlying estuarine sediment is typically five to twenty feet.

This unit is present in a large part of the North Section of the RSA in the vicinity of Grant Avenue and Estudillo Canal. Groundwater is typically close to the surface. Liquefaction susceptibility of this unit is classed as very high based on the numerous past occurrences of liquefaction in this unit. Liquefaction is a phenomenon in which the strength and stiffness of a soil is reduced by earthquake shaking or other rapid loading.

**alf - Artificial levee fill, Historic**

Historic artificial fill is composed of constructed levees bordering rivers, streams, salt ponds, sloughs, and delta islands for the purpose of containing flood or tidal waters. More recently constructed levees are compacted and quite firm, but levees built before 1965 (enactment of the Uniform Building Code) are likely to be uncompacted and made of poor-quality fill.

This unit intersects the RSA in several locations such as bordering Estudillo Canal, San Lorenzo Creek, and Ward Creek, and Alameda Creek. Liquefaction susceptibility is estimated to be very high to moderate for all artificial levees, based on the abundance of older non-engineered levees, the nature of the fill materials, the susceptibility of the underlying deposit, the possible proximity of channel free faces (unsupported steep banks and earthen cuts) vulnerable to lateral spreading (movement of ground laterally after the loss of support due to liquefaction), and their likelihood of saturation. Additionally, levees often are placed in areas where the underlying substrate itself is highly susceptible to liquefaction.

**ac - Artificial channel, Historic**

Historic artificial channels are modified stream channels and include straightened or realigned channels, flood control channels, and concrete canals. Deposits within artificial channels can range from almost none in some concrete canals, to significant thicknesses of loose, unconsolidated sand, gravel and cobbles, similar to deposits of modern stream channel deposits (Qhc).

This unit is present in discreet parts of the RSA such as San Leandro, San Lorenzo, Sulphur, Alameda, and Ward Creeks. Liquefaction susceptibility is considered to be very high to low, varying with channel design and the bank material. Channels that contain loose, sandy sediments such as Alameda Creek, are highly susceptible to Liquefaction. Adjacent levees or banks may be subject to lateral spreading if not well engineered.

**Qhc - Stream channel deposits, Historic**

Stream channel deposits are fluvial deposits within active, natural stream channels. Materials consist of loose, unconsolidated, poorly to well sorted sand, gravel and cobbles, with minor silt and clay. These deposits are reworked by frequent flooding and exhibit no soil development.

The only occurrence of this unit within the RSA is located within the Alameda Creek channel. Liquefaction susceptibility is considered to be very high.

**Qhfy - Alluvial fans, Latest Holocene**

Sediments of Latest Holocene alluvial fans are moderately to poorly sorted (sediment of various sizes is mixed together) and poorly bedded (not deposited in layers), and may be composed of gravel, sand, silt and clay, with minimally developed soils. This unit comprises about half of the South Section of the Coast Subdivision. Liquefaction susceptibility is high due to the deposits being relatively young, loose, and generally lacking cohesion. Lateral spread has been reported from this

unit within the RSA in the vicinity the Ardenwood Park-and-Ride facility and south of Alameda Creek (CGS, 2003, Newark Quadrangle).

**Qhly - Alluvial fan levees, Latest Holocene**

Sediments of Latest Holocene alluvial fan levees may be composed of gravel, sand, silt, and clay. Within the RSA the unit is located adjacent to San Lorenzo Creek and the southern part of the Central Section of the Coast Subdivision.

Liquefaction susceptibility is considered very high because of the presence of very young, loose, likely saturated deposits.

**Qhbm - San Francisco Bay Mud, Holocene**

Holocene San Francisco Bay Mud was deposited at or near sea level in the San Francisco Bay estuary that is presently, or was historically tidal marsh, mud flat or bay bottom. Bay mud sediment typically has low bulk density (dry weight of soil divided by its volume) and includes silt, clay, peat, and fine sand. This unit was deposited when sea levels were rising relative to land and generally occupies the area between the modern shoreline and the historical limits of tidal marsh. The unit located parts of the North and South Sections of the Coast Subdivision within the vicinity of Ward Creek, and the general area of Grant Avenue.

Liquefaction susceptibility is considered moderate due to high groundwater levels (often tidally influenced) and the possible presence of sand lenses (areas of sand that in profile are thick in the middle and thin at the edges) within the mud and peat. The mud itself is unlikely to liquefy due to the abundance of clay. Estuarine sediment near the mouths of major streams, such as Alameda Creek, is probably the most susceptible to liquefaction because of large volumes of sand and silt. The presence of small marsh channels within the unit that likely contain sandy substrates is relevant to liquefaction potential.

**Qhf - Alluvial fans, Holocene**

Holocene alluvial fan sediments include sand, gravel, silt, and clay, and is moderately to poorly sorted, and moderately to poorly bedded to poorly sorted, and moderately to poorly bedded. The unit occupies large parts of the RSA except for the South Section of the Coast Subdivision.

Liquefaction susceptibility is moderate where groundwater is within fifteen feet of the surface. Deposits may be less susceptible where groundwater levels are considerably lower such as near alluvial fan apices and near the range front along the East Bay Hills. Susceptibility may be greater where small active channels pass through the unit.

**Qhf1 - Younger alluvial fans, Holocene**

This unit has the same description as Qhf except that it is considered the youngest sub-unit and possibly has a higher liquefaction susceptibility. The unit borders a small section between Thornton Avenue and the Ardenwood Park and Ride.

**Qhf3 - Older alluvial fans, Holocene**

This unit has the same description as Qhf except that it is considered the oldest sub-unit and possibly has a lower liquefaction susceptibility. The unit is located in the southern part of the South Section of the Coast Subdivision in the vicinity of Thornton Avenue and Central Avenue.

**Qhff - Alluvial fans, fine facies, Holocene**

The fine facies of Holocene alluvia fans are flood plain over-bank deposits (sediment deposited by waters that have broken through or overtopped the banks) laid down in very gently sloping portions of alluvial fans or valley floors. Slopes in these distant alluvial fan areas are generally less than or equal to 0.5 degrees, soils are clay rich, and ground water is within 3 meters of the surface. Deposits are dominated by clay and silt, with interbedded lobes of coarser alluvium (sand and occasional gravel). Deposits of coarse material within these fine-grained materials are elongated in the down fan or down valley direction. These lobes are potential conduits for ground water flow.

The unit occupies each section of the Coast Subdivision within the RSA. Liquefaction susceptibility is moderate based on shallow ground water and the presence of lenses of fine sand and silt.

**Qhl - Alluvial fan levees, Holocene**

Holocene alluvial fan levee deposits are loose, moderately to well sorted sand, silt, and clay. The unit occupies moderately large areas of the North and Central sections of the Coast Subdivision, . Liquefaction susceptibility is moderate because of the presence of unconsolidated, sandy materials adjacent to an active or formerly active stream channel. Where streams are incised and form a free face along the channel margin, these deposits may be susceptible to lateral spreading.

**Qhl1 - Younger alluvial fan levees, Holocene**

Younger alluvial fan levees have the same description as Qhl except that the unit may have a slightly higher liquefaction susceptibility due to the younger age and less consolidated sediments. The unit occupies an area between Thornton Avenue and SR 84 in the South Section of the Coast Subdivision.

**Qhl3 - Older alluvial fans, Holocene**

Older alluvial fan levees have the same description as Qhl except that the unit may have a slightly lower liquefaction susceptibility due to the older age and more consolidated sediments. The unit occupies an area between Thornton Avenue and Central Avenue in the South Section of the Coast Subdivision.

**Figure 3.8-1. Geology of the Project Area Map Extent 1.**

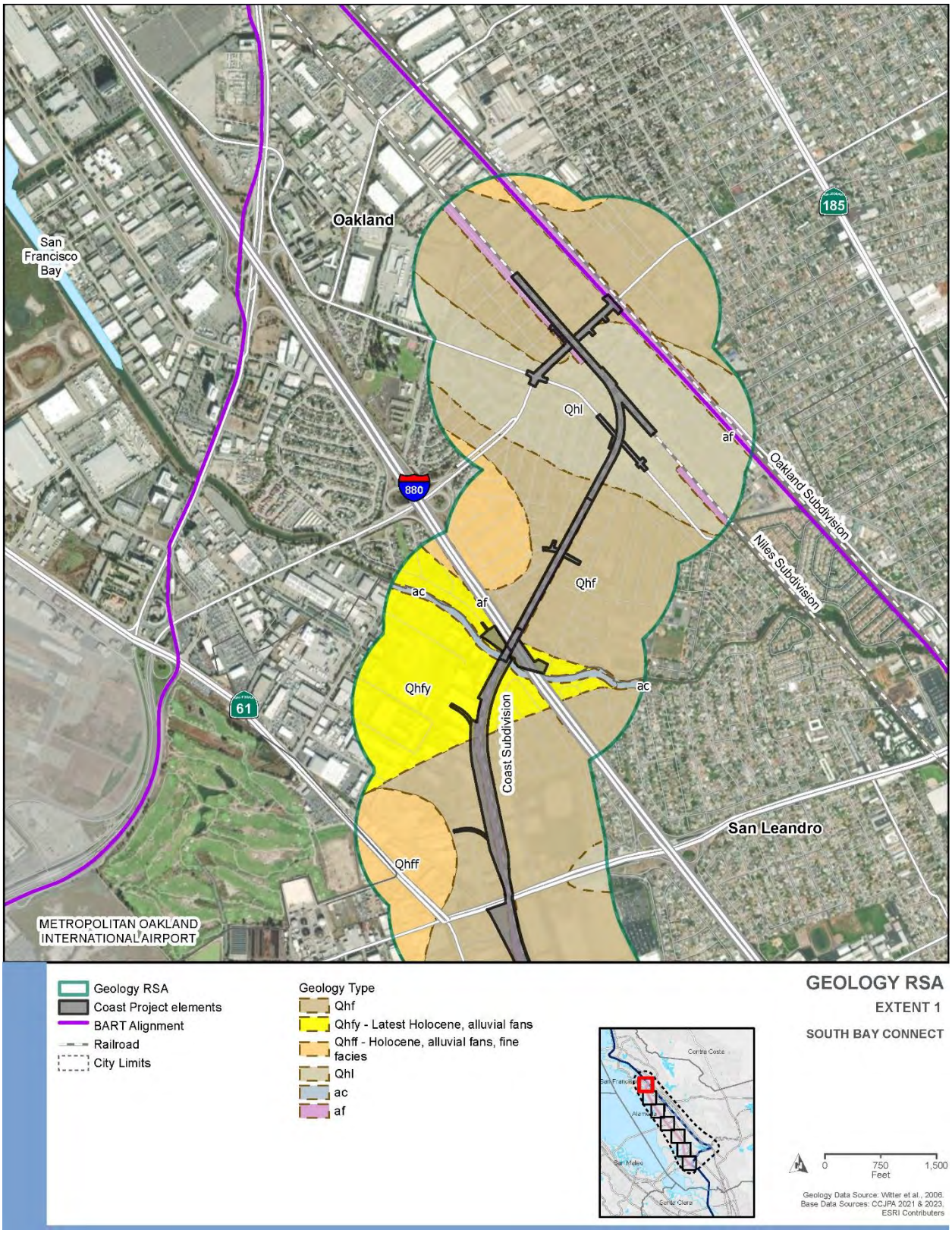


**Figure 3.8-2. Geology of the Project Area Map Extent 2.**

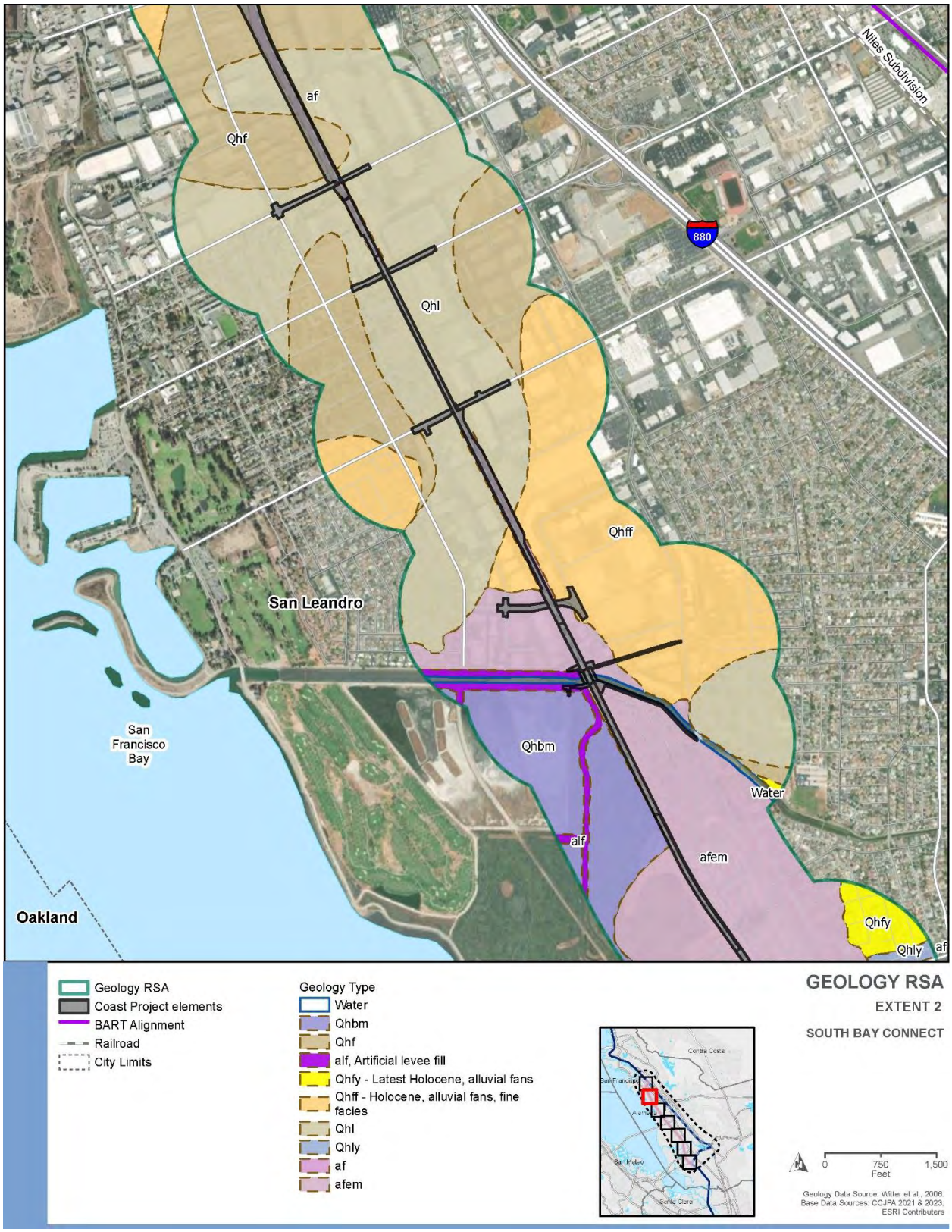


**Figure 3.8-3. Geology of the Project Area Map Extent 3.**

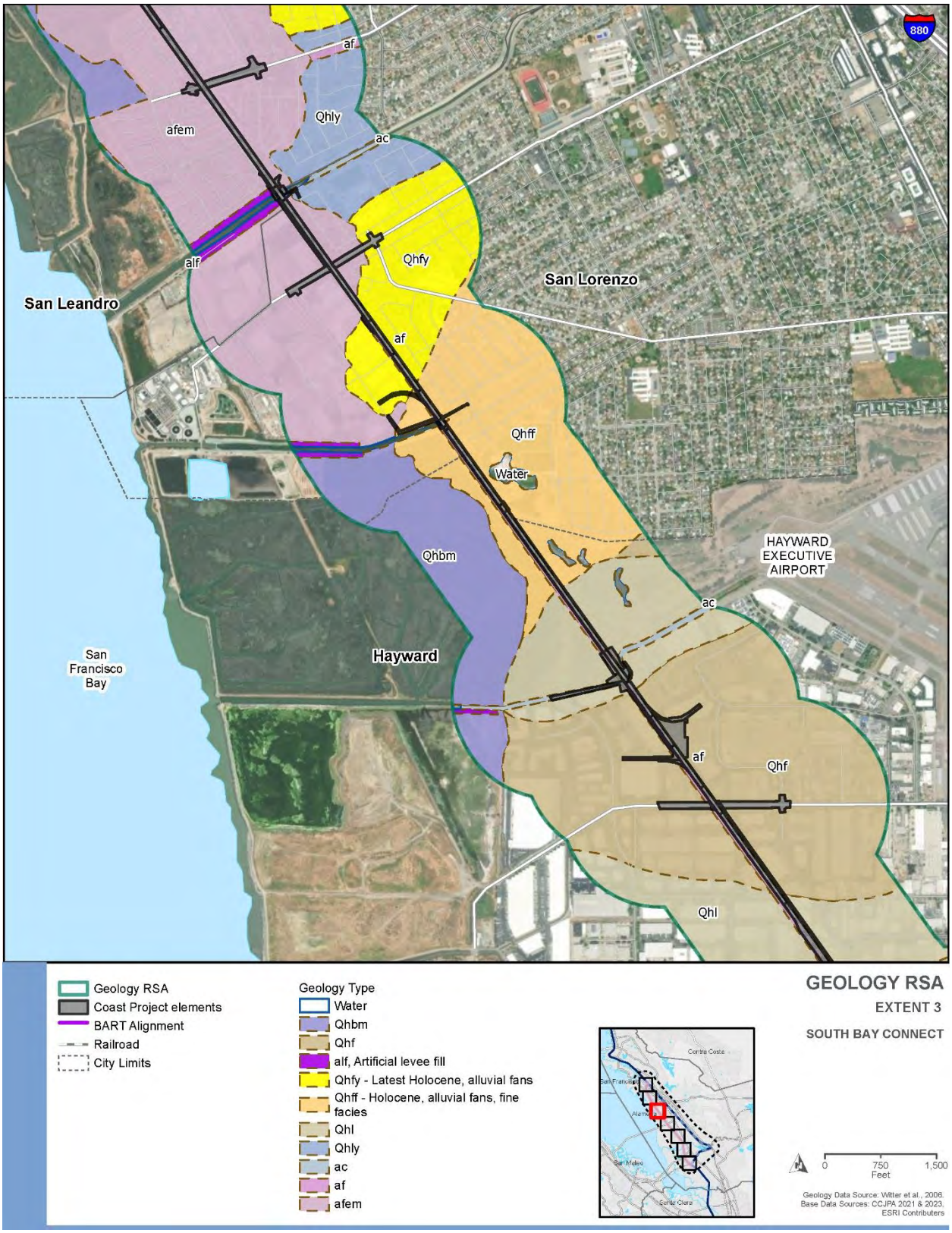


**Figure 3.8-4. Geology of the Project Area Map Extent 4.**

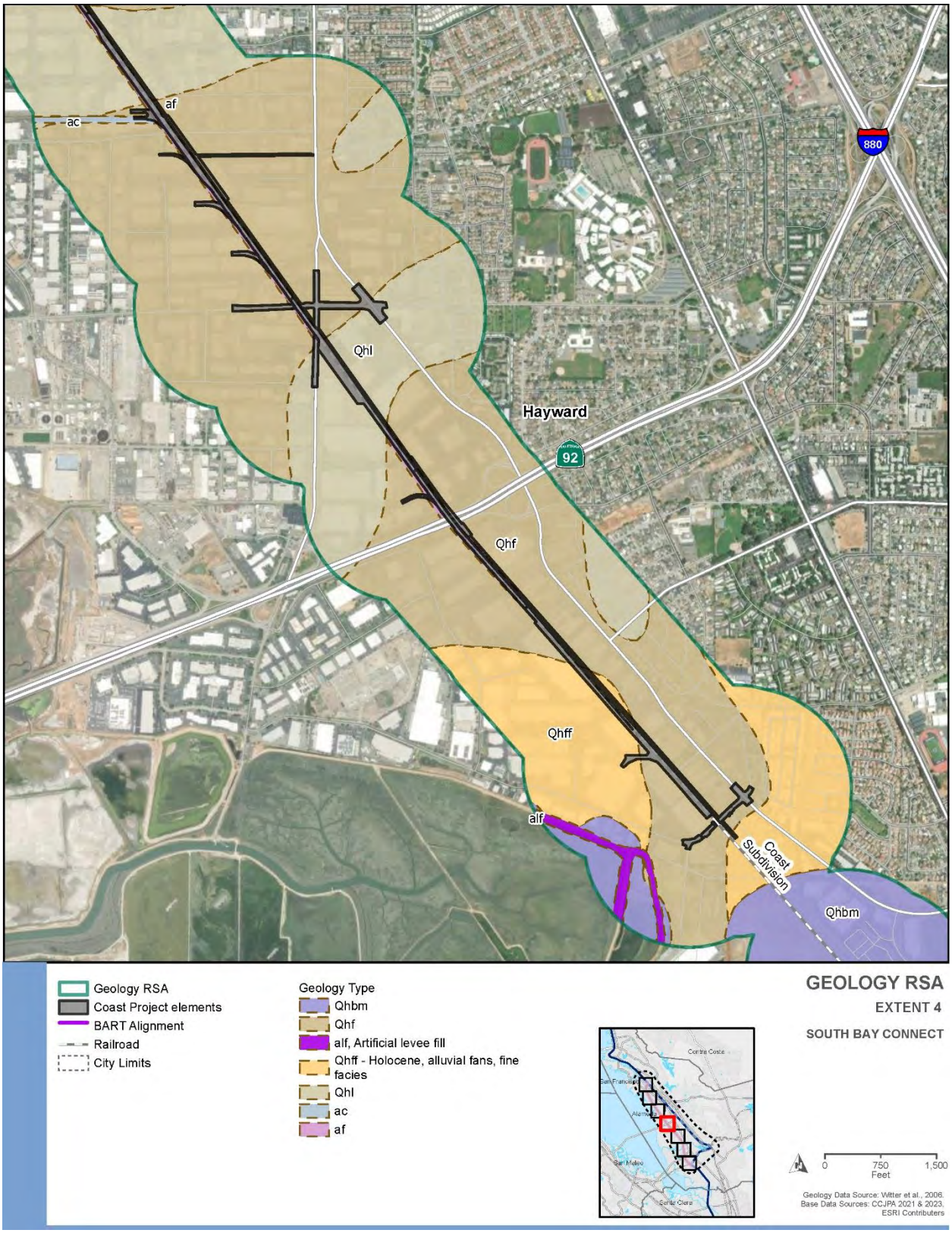


**Figure 3.8-5. Geology of the Project Area Map Extent 5.**

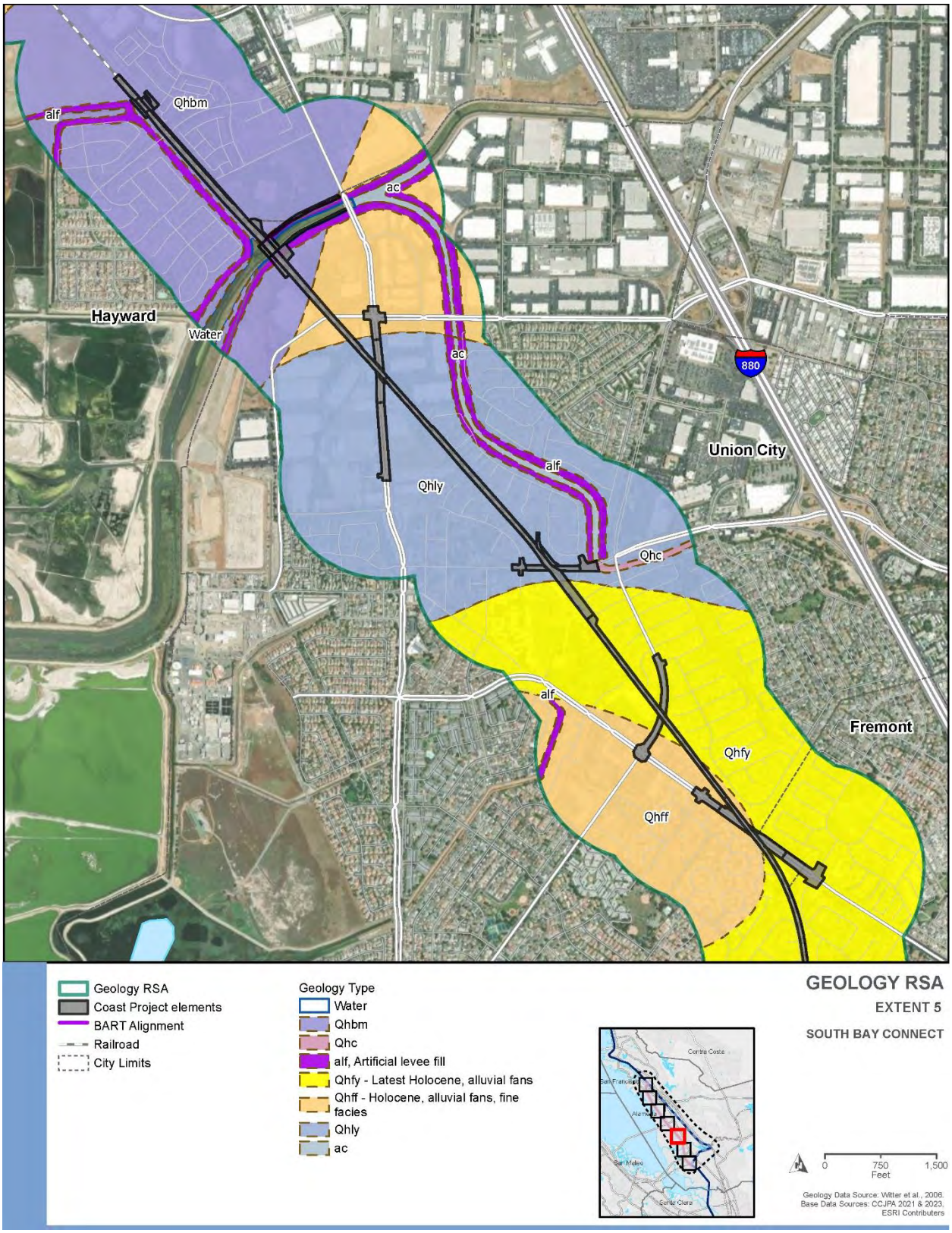


**Figure 3.8-6. Geology of the Project Area Map Extent 6.**

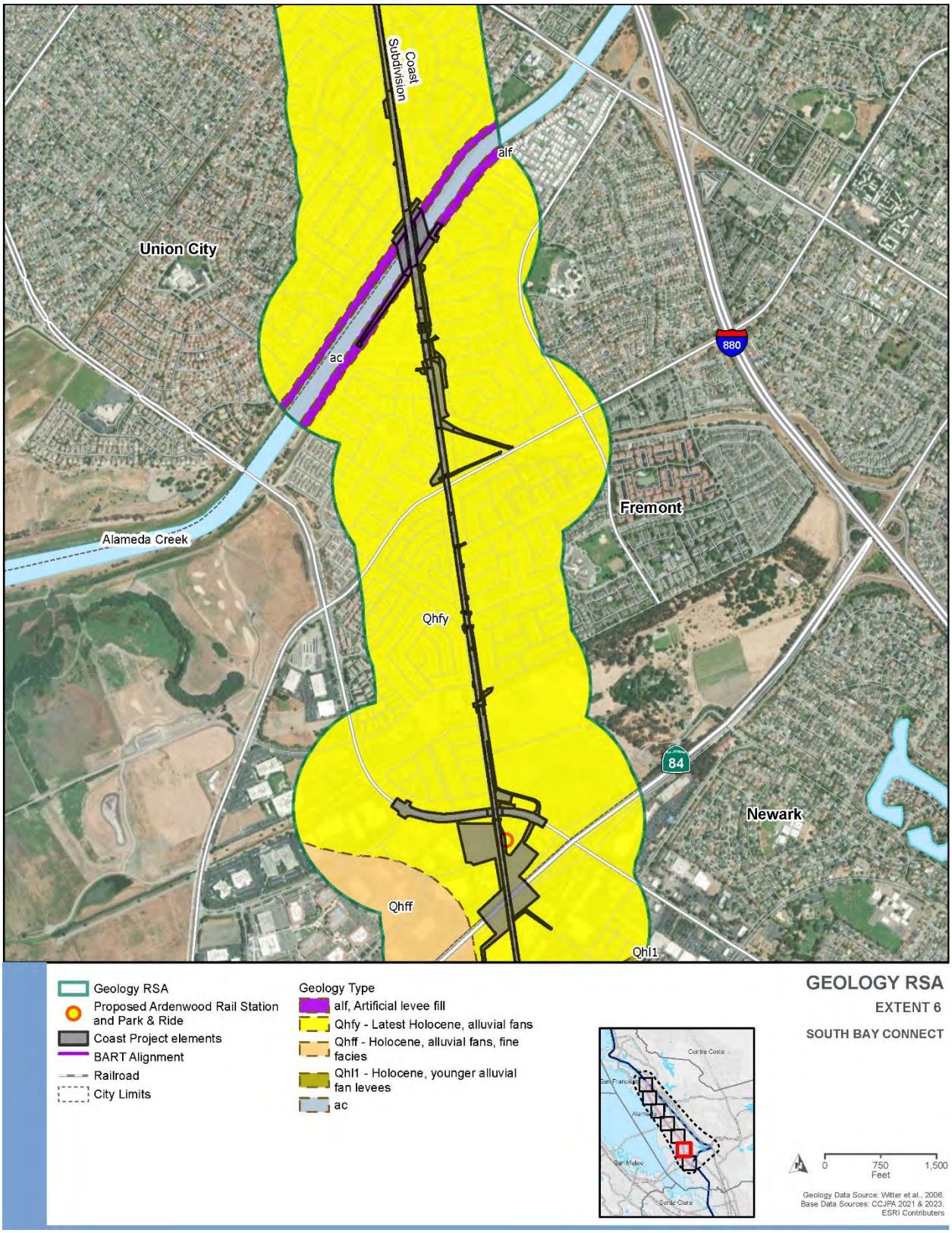
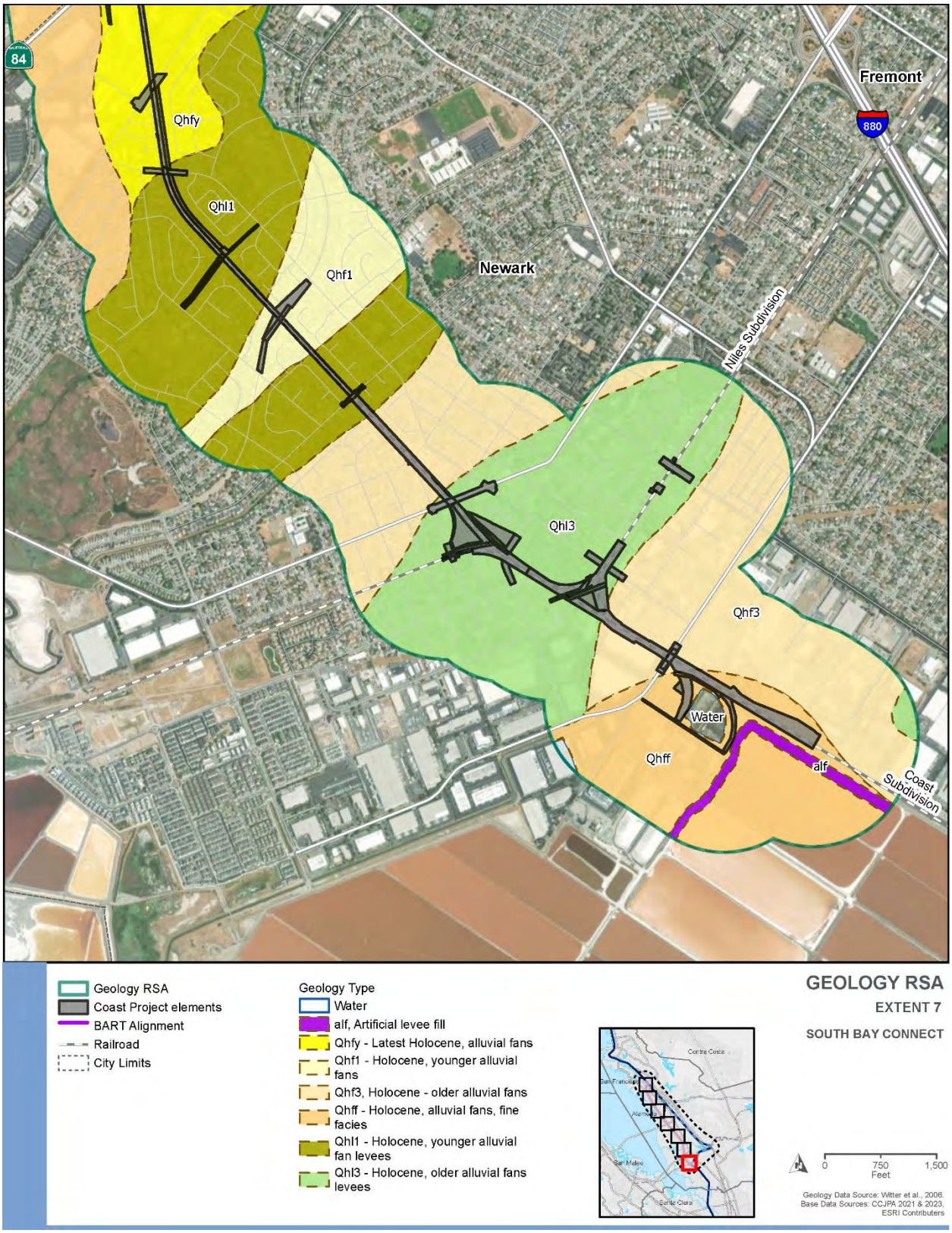


**Figure 3.8-7. Geology of the Project Area Map Extent 7.**



## Faulting and Seismicity

The seismic RSA is susceptible to strong ground shaking generated during earthquakes on nearby faults. The major fault zones of the San Andreas Fault System (including the Hayward, Concord, and Calaveras faults) have been earthquake sources and are expected to be sources of future earthquakes within the seismic RSA. The California Code of Regulations (Title 14, Division 2, Section 3601(a)) defines an "active fault" as a fault that has had surface displacement within Holocene time (about the last 11,000 years). Active faults within this Memo are defined as those that have shown displacement within the latest Quaternary (< 15,000 years). The difference in definitions is due to the USGS Fault and Fold Database not distinguishing between Holocene and latest Quaternary active faults. Figure 3.8-8 shows active faults within the seismic RSA and the period of the last surface displacement. Table 3.8-3 provides further details.

The closest active fault to the Project footprint is the Hayward fault which borders the western margin of the East Bay Hills and trends northwest approximately 72 miles from San Pablo Bay in the north to Shingle Valley in the south. The Hayward fault is part of the San Andreas fault system and is the primary fault in the eastern San Francisco Bay Area. The Hayward fault dips 90 degrees with right-lateral strike-slip motion and striking approximately at 325 degrees.

The Hayward fault has produced large earthquakes over the last two hundred years, including in 1868, when an estimated 7.0 magnitude (M) earthquake occurred on the southern segment of the fault near Ashland, located about 2.5 miles northeast of the Coast Subdivision. Other earthquakes of note on the Hayward fault occurred in 1870 (5.8 M), 1889 (5.6 M), and 1955 (5.5 M). According to the Uniform California Earthquake Rupture Forecast (UCERF3) Appendix H (Field et al., 2013), the estimated recurrence intervals for the Northern and Southern Hayward fault are 318 and 168 years, respectively.

The Working Group on California Earthquake Probabilities (Field et al., 2013) updated the 30-year earthquake forecast for California and concluded that there is a 72 percent probability (or likelihood) of at least one earthquake of magnitude 6.7 or greater striking somewhere in the San Francisco Bay region before 2043.

### Ground Shaking

Strong ground shaking occurs as energy is released during an earthquake. The intensity of ground shaking depends on the distance to the fault rupture, earthquake magnitude, and geologic conditions underlying and surrounding the site through which the seismic waves pass. Ground shaking induced by a seismic event is typically characterized by a value of horizontal peak ground acceleration (PGA) that is expressed as a percentage of the acceleration of gravity. Either deterministic or probabilistic methods are typically used to estimate the level of shaking that can be expected at a specific location. Given the proximity to active faults within the seismic RSA, including the Hayward fault, the PGA within the RSA is expected to be high.

The expected maximum credible earthquake on the Hayward fault would cause severe to violent ground shaking throughout the seismic RSA. The response of structures and physical elements of the Project to strong ground shaking would be dependent on foundation materials, structural design, and strength during shaking. The susceptibility of earth materials underlying the Project elements to failure is variable and would be determined during site specific geotechnical investigations.

**Figure 3.8-8. Regional Active Faults in the Seismic RSA.**

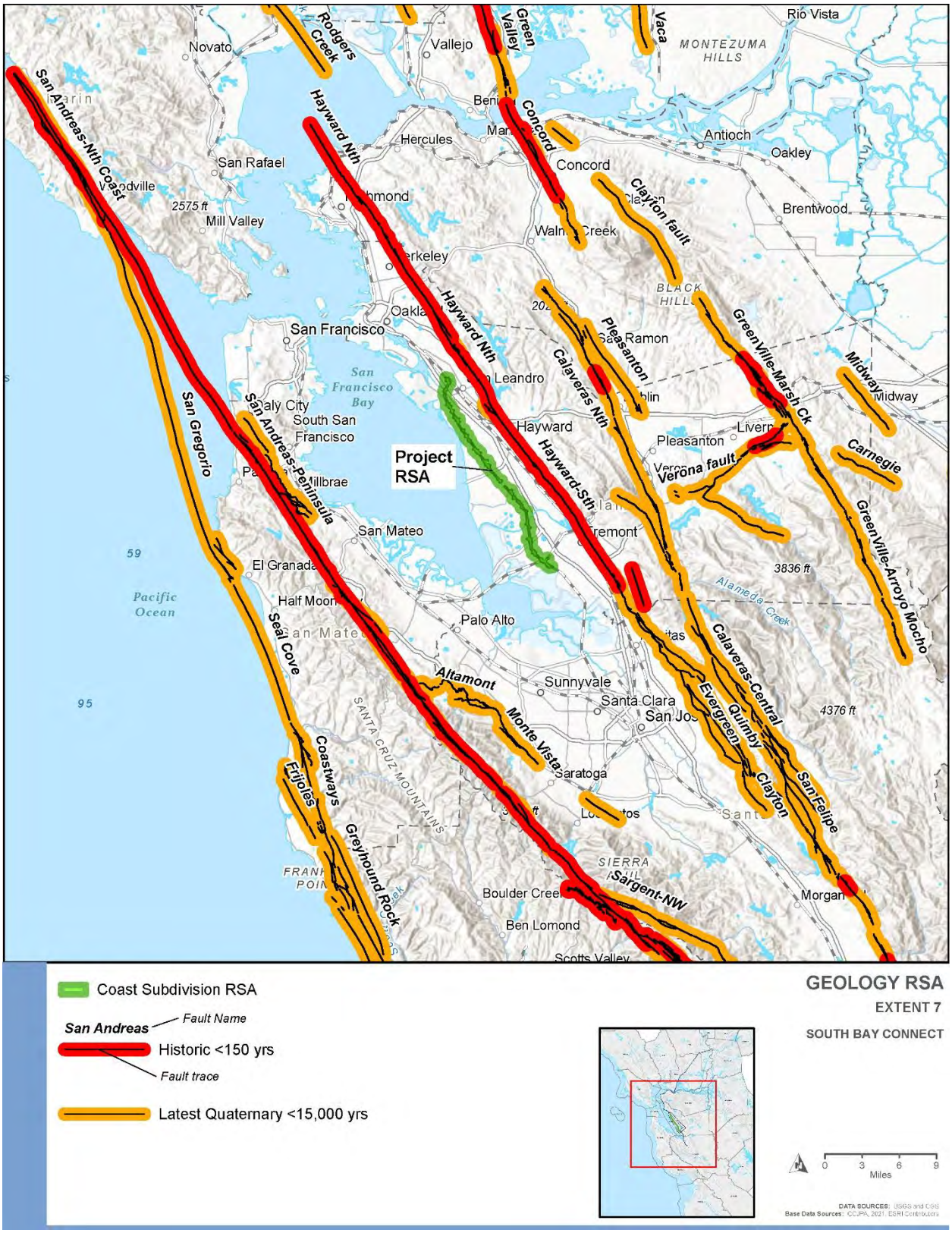


**Table 3.8-3: Active Faults in the Seismic RSA**

| Fault and Section | Fault Type | Max Magnitude, MMax(1) | Approx. Distance Rx(2)(miles) |
|---|---|---|---|
| Hayward, Southern | strike-slip | 7.3 | 0 |
| Hayward, Northern | strike-slip | 7.3 | 1.6 |
| Calaveras, Northern | strike-slip | 6.9 | 4.6 |
| Hayward, Southeast Extension | strike-slip | 6.7 | 7.6 |
| Pleasanton | strike-slip | 6.6 | 9.2 |
| Calaveras, Central | strike-slip | 6.9 | 9.5 |
| Monte Vista-Shannon | reverse | 6.4 | 11.6 |
| San Andreas, Peninsula | strike-slip | 8 | 13.5 |
| Concord, Ignacio Valley | strike-slip | 6.6 | 15 |
| Greenville, Marsh Creek | strike-slip | 6.9 | 16.7 |
| Concord | strike-slip | 6.6 | 17 |
| San Andreas, Santa Cruz Mountains | strike-slip | 8 | 17.3 |
| Concord, Avon | strike-slip | 6.6 | 18.5 |
| Greenville, Arroyo Mocho | strike-slip | 6.9 | 18.9 |
| Greenville, Clayton | strike-slip | 6.9 | 19 |
| San Gregorio | strike-slip | 7.4 | 21.1 |
| Green Valley | strike-slip | 6.8 | 23 |
| Sargent, Northwest | strike-slip | 7 | 26.4 |
| West Napa | strike-slip | 6.6 | 28.4 |
| San Andreas, North Coast | strike-slip | 8 | 28.9 |
| Rodgers Creek | strike-slip | 7.3 | 31 |

Notes:
(1) Magnitudes are derived from UCERF 3 (Field et al. 2013).
(2) Approximate fault distances were derived from the USGS Fault and Fold Database (2006). RX = Horizontal distance to the fault trace or surface projection of the rupture plane.

### Fault Creep

Evidence of fault creep has been observed along most of the Northern and Southern Hayward fault, including where the fault crosses the South Section of the Oakland Subdivision. Data from two fault creep meters located on either side of where the Hayward fault crosses Appian Way (approximately 4 miles north of the Coast Subdivision) and Gilbert Avenue (approximately 2.5 miles southwest of the Coast Subdivision) have average fault creep rates of 5.8 mm per year (Lienkaemper and USGS, 2006). Figure 3.8-8 shows the location of Hayward fault creep rates in the vicinity of the Coast Subdivision.

### Alquist-Priolo Earthquake Fault Zones

The Niles Earthquake Zones of Required Investigation map shows that parts of the South Section of the Oakland Subdivision are located in an Alquist-Priolo Earthquake Fault Zone. Figure 3.8-9 shows the location of Alquist-Priolo Earthquake Fault Zones and Seismic Hazard Zones in relation to the geologic RSA. Seismic Hazard Zones include Liquefaction Zones and Earthquake Induced Landslide Zones.

Alquist-Priolo Earthquake Fault Zones encompass active faults that constitute potential hazard to structures from surface faulting or fault creep such that avoidance as described in Public Resources Code Section 2621.5(a) would be required. Alquist-Priolo Earthquake Fault Zones and Seismic Hazard Zones are collectively referred to as Earthquake Zones of Required Investigation.

**Figure 3.8-9: Earthquake Zones of Required Investigation for the RSA.**

## Soils

Typical engineering properties of soils considered for design and construction include expansive potential, density, moisture content, shear strength, compressibility, erosion potential, cementation, and corrosion potential. Figure 3.8-10 through Figure 3.8-12 show the distribution of topsoils within the geologic RSA. Topsoils located within the geologic RSA were evaluated based on the USDA/NRCS Soil Survey Geographic Database (SSURGO). The SSURGO database contains information about soil as collected by the National Cooperative Soil Survey over the course of a century and is based on soil conditions within about five feet of the ground surface. Typical information contained in the database includes available water capacity, soil reaction, electrical conductivity, and frequency of flooding; yields for cropland, woodland, rangeland, and pastureland; and limitations affecting recreational development, building site development, and other engineering uses. The SSURGO data is generalized by area and should not be relied upon for site specific investigations.

The geologic RSA extends along parts of the eastern San Francisco Bay plain and consists alluvial fans, artificial and natural levees, tidal flats and estuaries that have been artificially filled.

Table 3.8-4 summarizes soil units and soil attributes that occur within the geologic RSA. The expansive potential, and corrosion potential of steel and concrete for each soil unit are discussed and shown in the Geologic Hazards discussion below.

**Table 3.8-4: Summary of Soil Units and Soil Attributes that Occur Within the Geologic RSA**

| Map Symbol | Soil Unit Name* | Area (acres) / Unit Percent within the RSA | Erosion Factor Kw | Corrosion Steel | Corrosion Concrete | Shrink-swell |
|---|---|---|---|---|---|---|
| **106** | Botella loam, 0 to 2% | 24 / 0.3 | 0.24 | low | moderate | low |
| **107** | Clear Lake clay, drained, 0 to 2% | 1622 / 20.8 | 0.17 | very high | moderate | very high |
| **111** | Danville silty clay loam, 0 to 2% | 1023 / 13.1 | 0.24 | high | low | high |
| **112** | Danville silty clay loam, 2 to 9% | 68/1.8 | 0.24 | high | low | high |
| **117** | Laugenour loam, drained | 337 / 4.3 | 0.43 | moderate | low | moderate |
| **125** | Marvin silt loam, saline-alkali | 662 / 8.5 | 0.49 | high | moderate | high |
| **131** | Omni silty clay loam, drained | 1070 / 13.7 | 0.24 | high | low | high |

| Map Symbol | Soil Unit Name* | Area (acres) / Unit Percent within the RSA | Erosion Factor Kw | Corrosion Steel | Corrosion Concrete | Shrink-swell |
|---|---|---|---|---|---|---|
| **132** | Omni silty clay loam, strongly saline | 132 / 2.1 | 0.24 | high | moderate | high |
| **133** | Pescadero clay, drained | 239 / 3.1 | 0.32 | moderate | high | moderate |
| **134** | Pescadero clay, ponded | 116 / 1.5 | 0.28 | moderate | high | moderate |
| **137** | Novato clay, tidally flooded | — | 0.2 | high | high | high |
| **138** | Novato clay, ponded | 30 / 0.4 | 0.24 | high | high | high |
| **139** | Reyes clay, 0 to 2% | 425 / 5.4 | 0.2 | moderate | high | moderate |
| **143** | Sycamore silt loam, drained, 0 to 2% | 1175 / 15.1 | 0.37 | low | low | low |
| **144** | Sycamore silt loam, clay substratum | 141 / 1.8 | 0.49 | moderate | low | moderate |
| **146** | Urban land | — | — | — | — | — |
| **148** | Urban land-Clear Lake complex | 77 / 1.0 | — | high | — | high |
| **154** | Willows clay, drained | 628/ 8.1 | 0.24 | high | moderate | high |
| **155** | Xerorthents, clayey | 64 / 0.8 | 0.15 | high | low | high |
| **161** | Yolo silt loam, 0 to 3%, dry | — | 0.43 | low | low | low |

**Figure 3.8-10: Topsoils Within the Geologic RSA for Map Extent 1.**

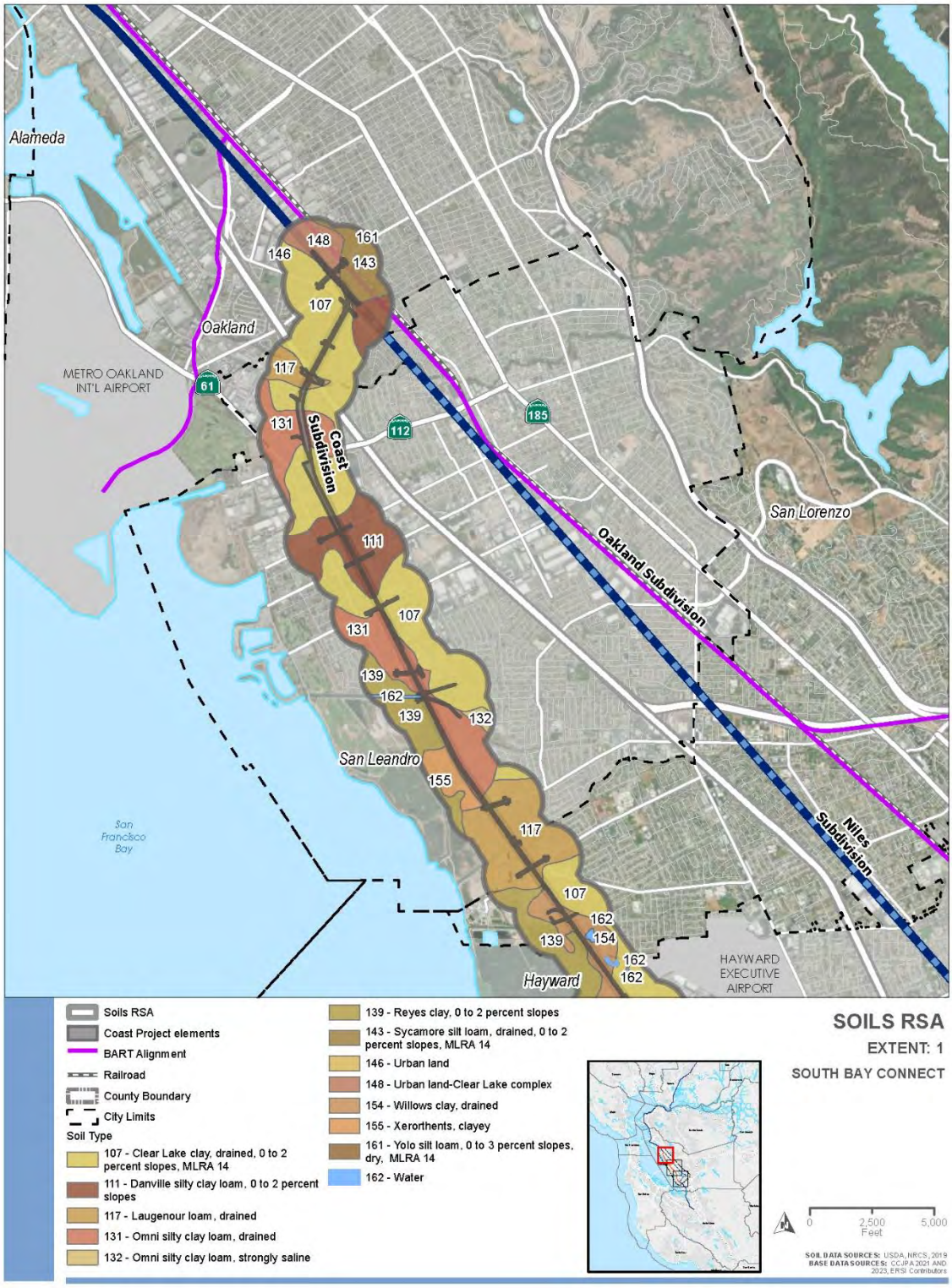


**Figure 3.8-11: Topsoils Within the Geologic RSA for Map Extent 2.**

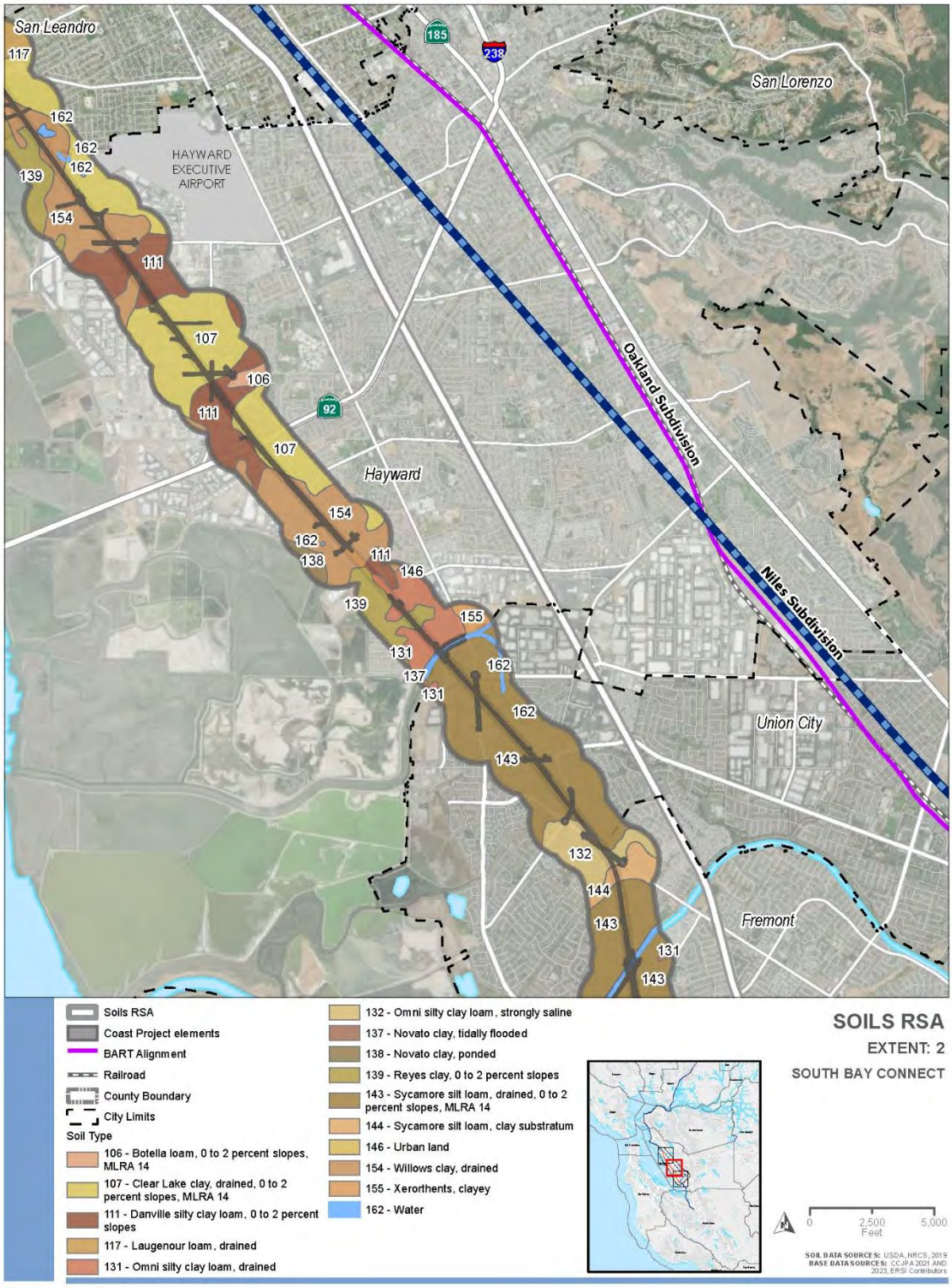
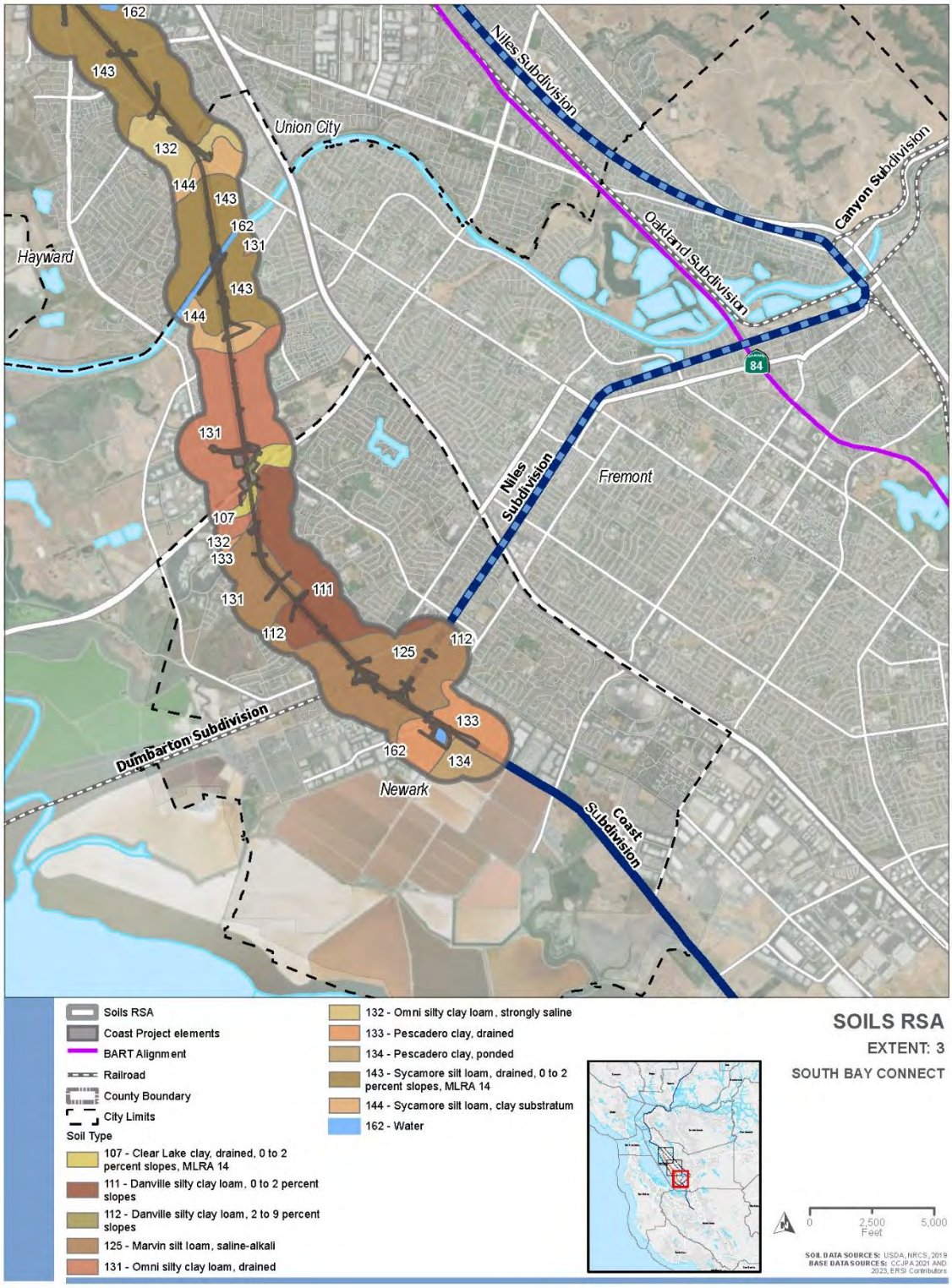


**Figure 3.8-12: Topsoils Within the Geologic RSA for Map Extent 3.**



## Geologic Hazards

### Landslides

Landslides and slope failure can occur when the force of gravity overcomes the strength of the soil or rock within a hillside or built embankment. The primary factors influencing the stability of a slope are the nature of the underlying soil or bedrock, slope geometry (height and steepness), rainfall, and groundwater. Excavation or erosion of material at the toe of a slope can destabilize the slope above. Slope failure can be initiated or exacerbated by seismic movements. Earthquake-induced ground-shaking can cause activation of new or previously existing landslides and other slope instabilities, especially during periods of high groundwater and rainfall.

Figure 3.8-9 shows Earthquake Induced Landslide Zones as shown on Earthquake Zones of Required Investigation maps (Niles, Newark, Redwood Point, Hayward, and San Leandro Quadrangles). These landslide zones represent areas where previous occurrence of landslide movement, or local topographic, geologic, geotechnical, and subsurface water conditions indicate a potential for permanent ground displacements such that mitigation as defined in PRC Section 2693(c) would be required. Only relatively small areas within the geologic RSA are shown as being susceptible to earthquake induced landslides such as in the South Section of the Oakland Subdivision along Alameda Creek and the adjacent lakes, as shown in Figure 3.8-9.

### Land Subsidence

Land subsidence is often attributed to over-extraction of groundwater, extraction of oil and gas, and seismic events. The State of California Department of Water Resources (2014), Summary of Recent, Historical, and Estimated Potential for Future Land Subsidence in California, indicates the geologic RSA is not subsiding as of 2014, and has a low potential for future land subsidence. Within the RSA, subsidence has not occurred due to oil and gas removal.

### Ground Subsidence

Ground subsidence is a form of ground settlement that usually results from change in fluid content within soil or rock. The volume change can result from localized dewatering of peat, organic soils, or soft silts and clay. This type of ground settlement is often associated with construction activities when groundwater is lowered to allow construction below the groundwater table. The other form of land subsidence is from a regional withdrawal of groundwater, petroleum, or geothermal resources. Regional subsidence can also result from vertical fault movement. Although the mechanism is different, another cause of land subsidence is the ongoing decomposition of organic-rich soils.

Ground subsidence contours created by Poland and Ireland (1988) suggest the southern-most section of the Coast Subdivision (South Section) has subsided about 1 foot and is likely due to groundwater extraction.

According to State of California Department of Water Resources (2014) Summary of Recent, Historical, and Estimated Potential for Future Land Subsidence in California, the area of the RSA has a low estimated potential for future land subsidence. There is, however, a moderate susceptibility of small, localized areas of subsidence, or settlement, from construction-related dewatering of excavations.

### Soil Erosion

Soil erosion is the action of surface processes, such as water flow and wind, that transport soil and rock particles from one location to another. Factors that affect soil erosion potential include soil type, soil moisture, rainfall, ground cover, slope, surface water flow, wind speed, and topography.

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation and the Revised Universal Soil Loss Equation to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. Estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and saturated hydraulic conductivity. As a general measure of erosion, values of K can range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion. The majority of soil units within the RSA have low to moderate K values with the highest being the Marvin silt loam and the Sycamore silt loam which have a K factor of 0.49. Together these units cover about 9.4 percent of the RSA area.

Table 3.8-4 lists erosion factor Kw for surface soil units within the RSA. Erosion factor Kw indicates the erodibility of the whole soil and is modified by the presence of rock fragments.

### Liquefaction

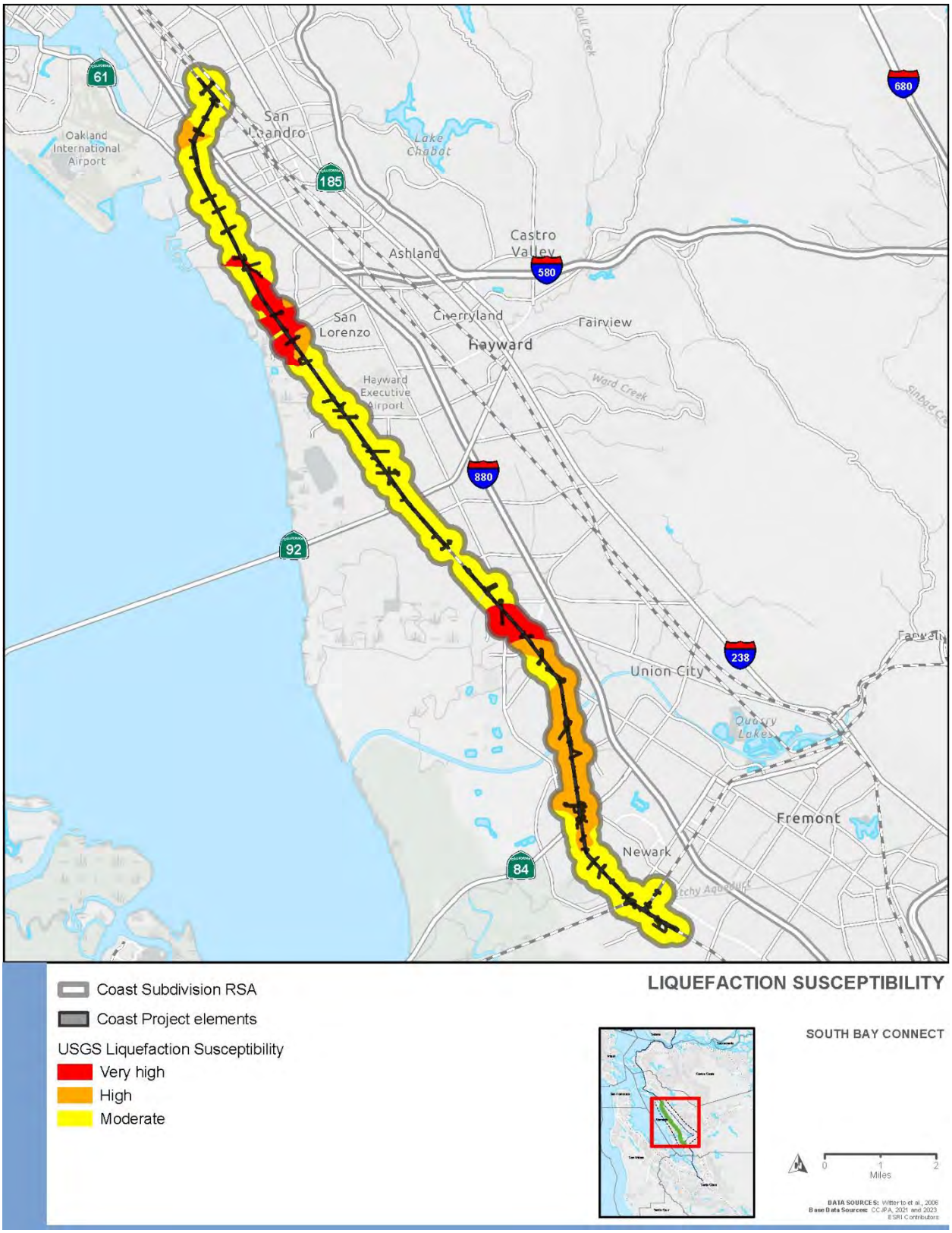
Liquefaction is a phenomenon in which the strength and stiffness of a soil is reduced by earthquake shaking or other rapid loading. Submerged cohesionless sands and silts of low relative density are the type of soils which usually are susceptible to liquefaction. Clays are generally not susceptible to liquefaction as clay soil particles adhere more strongly than for example, sandy soils.

Figure 3.8-13 shows the liquefaction susceptibility within the geologic RSA. Liquefaction data was derived from Witter et al. (2006). For a comprehensive description of the methodology for determining liquefaction susceptibility see Witter et al. (2006).

The majority of the geologic RSA has a moderate liquefaction susceptibility with smaller areas of high and very high susceptibility. Within the North Section and the northern part of the Central Section of the Coast Subdivision, very high liquefaction susceptibility appears to be mostly associated with the following geologic units - artificial fill over estuarine mud and smaller areas of the latest Holocene alluvial fans. Areas with a high liquefaction susceptibility within the Coast Subdivision correlate to the latest Holocene alluvial fans geologic unit (see Table 3.8 2: Summary of Geologic Units and Coverage within the RSA).

Figure 3.8-13 shows Liquefaction Seismic Hazard Zones as shown on Earthquake Zones of Required Investigation maps and GIS data (CGS 1980a; 1980b; 1980c; 1980d; 1980e; 2003a; 2003b; 2003c; 2004a; and 2018). These liquefaction zones represent areas where historical occurrence of liquefaction, or local geologic, geotechnical, and ground water conditions indicate a potential for permanent ground displacements such that mitigation as defined in PRC Section 2693(c) could be required.

**Figure 3.8-13: Liquefaction Susceptibility Within the Geologic RSA.**



### Lateral Spreading

A consequence of seismic liquefaction in sloping ground areas is lateral spreading, which refers to the movement of ground laterally after the loss of support due to liquefaction. For this to occur, the liquefied area must be relatively close to a free face (e.g., an unsupported vertical, or sloping face) such as a road cut or stream/riverbank. Locations within the geologic RSA and are adjacent to the Project footprint that contain free faces are listed in Table 3.8-5. Locations were selected based on the slope, the presence of a free face, and/or a high or very high liquefaction susceptibility. Figure 3.8-14 shows the locations of these areas. Site specific investigations will determine the specific properties of soils at these locations. USGS elevation data was used to identify areas with moderate slopes and compared with Google Earth imagery to determine if the slopes were lined or unlined. The liquefaction susceptibility shown in Table 3.8-5 corresponds to Figure 3.8-14. The identified locations that are considered to have a higher risk of lateral spread are generally discreet moderately sloping areas bordering creeks, canals, lakes, and ponds.

**Table 3.8-5: Locations Within the Geologic RSA That Have a Higher Risk of Lateral Spreading**

| Name | Section | Description | Geologic Units | Liquefaction Susceptibility |
|---|---|---|---|---|
| **San Leandro Creek** | North | un-lined creek banks | ac, af, Qhfy | high |
| **Farallon Drive, south** | North | un-lined creek banks | alf, afem, Qhbm | very high |
| **San Lorenzo Creek** | North | un-lined creek banks | alf & afem | very high |
| **Ora Loma Marsh** | Central | un-lined canal banks and levees | af, Qhbm, Qhff | moderate |
| **Sulphur Creek** | Central | un-lined creek banks | ac, af, Qhl | moderate |
| **Dunn Rd, west** | Central | un-lined canal banks | ac, Qhf | moderate |
| **Ward Creek** | Central | un-lined creek banks | alf, Qhbm | moderate |
| **Alameda Creek** | South | un-lined creek banks | ac, alf | high |
| **Crandall Creek** | South | un-lined creek banks | Qhfy | high |
| **Haley St** | South | un-lined canal banks | Qhfy, Qhl1 | high |
| **Newark Slough** | South | un-lined creek banks | Qhl1, Qhf3 | moderate |
| **Plummer Creek** | South | un-lined creek banks | Qhf3, Qhl3 | moderate |
| **salt evaporators** | South | un-lined canal banks and levees | alf, Qhff | moderate |

*Source: Witter, et al., 2006.*

**Figure 3.8-14: Locations Within the Geologic RSA With a Potential for Seismically Induced Lateral Spreading.**

### Tsunami

Tsunamis are large ocean waves which are generated by major seismic events. Several areas of the North and Central Sections of the Coast Subdivision are located in the Tsunami Hazard Area for Alameda County and are shown in Figure 3.8-15 through Figure 3.8-17. The tsunami area shown on these figures represents the only areas that intersect with either the geologic RSA or Project footprint.

The Tsunami Hazard Area represents an area that could be exposed to tsunami hazards during a tsunami event. It is primarily based on inundation limits corresponding to a 975-year average return period tsunami event model. These limits have been extended to reflect potential local tsunami sources not considered in probabilistic analysis and are also modified to reflect the practical need to define limits that coincide with geographic features or city streets.

### Groundwater

Groundwater data for the Project Study Area was derived from CGS Seismic Hazard Zone Reports (CGS 2003d; 2003e; 2003f; and 2004b) and is shown in Figure 3.8-18 through Figure 3.8-20. Depth to groundwater below surface for the Coast Subdivision varies between about five to ten feet. The relatively shallow groundwater of the Coast Subdivision is probably due to the low elevation and proximity to San Francisco Bay.

Note that groundwater levels shown here should not be used for design purposes; groundwater depths may vary seasonally due to anthropogenic and natural influences. Site specific groundwater investigations should be conducted during the design phases of the Project as groundwater directly influences geologic, soils, and seismic hazards such as shallow landslides and debris flow, slope stability, expansion and collapse potentials, and liquefaction.

**Figure 3.8-15: Tsunami Hazard Area.**

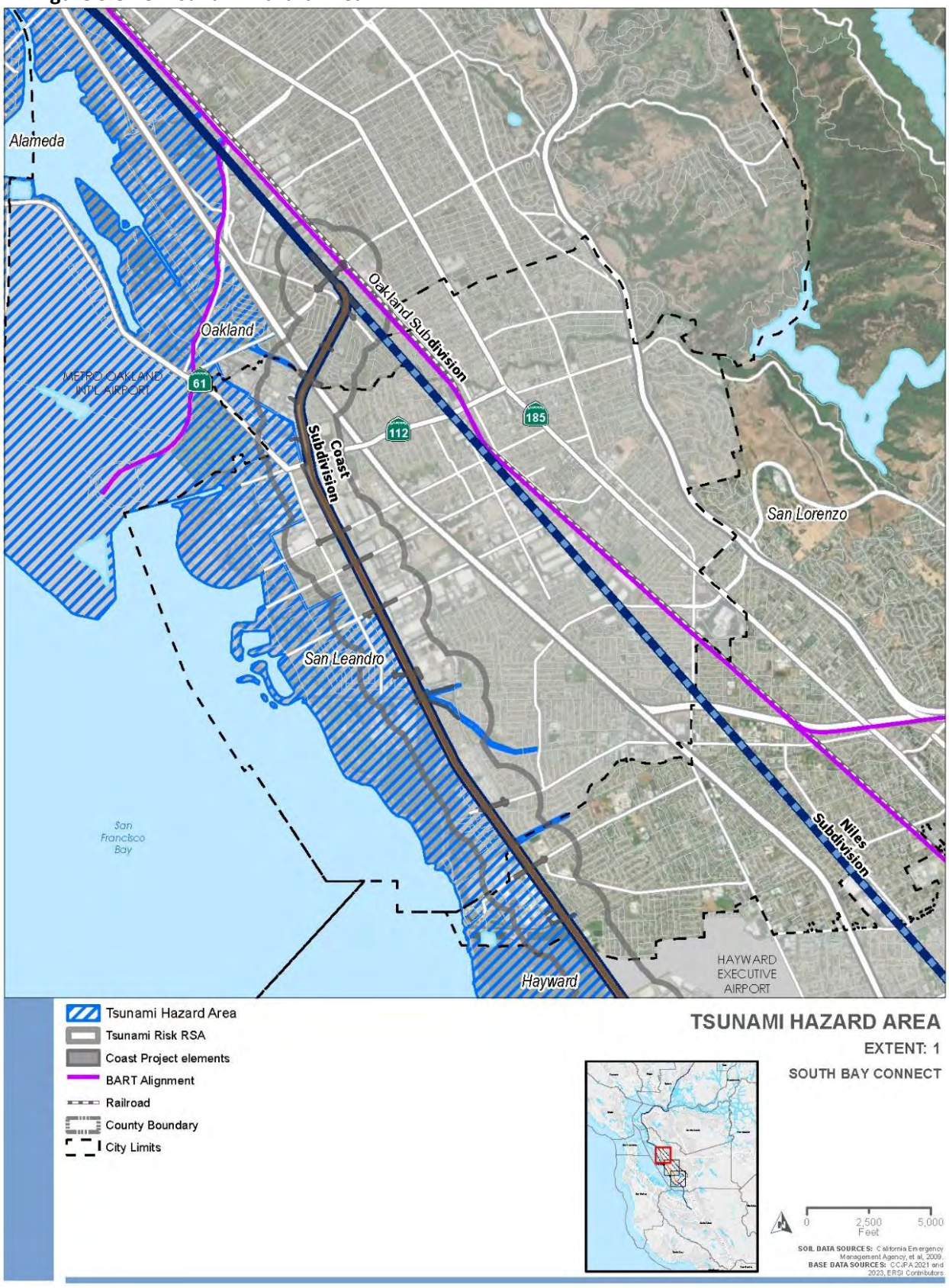


**Figure 3.8-16: Tsunami Hazard Area.**

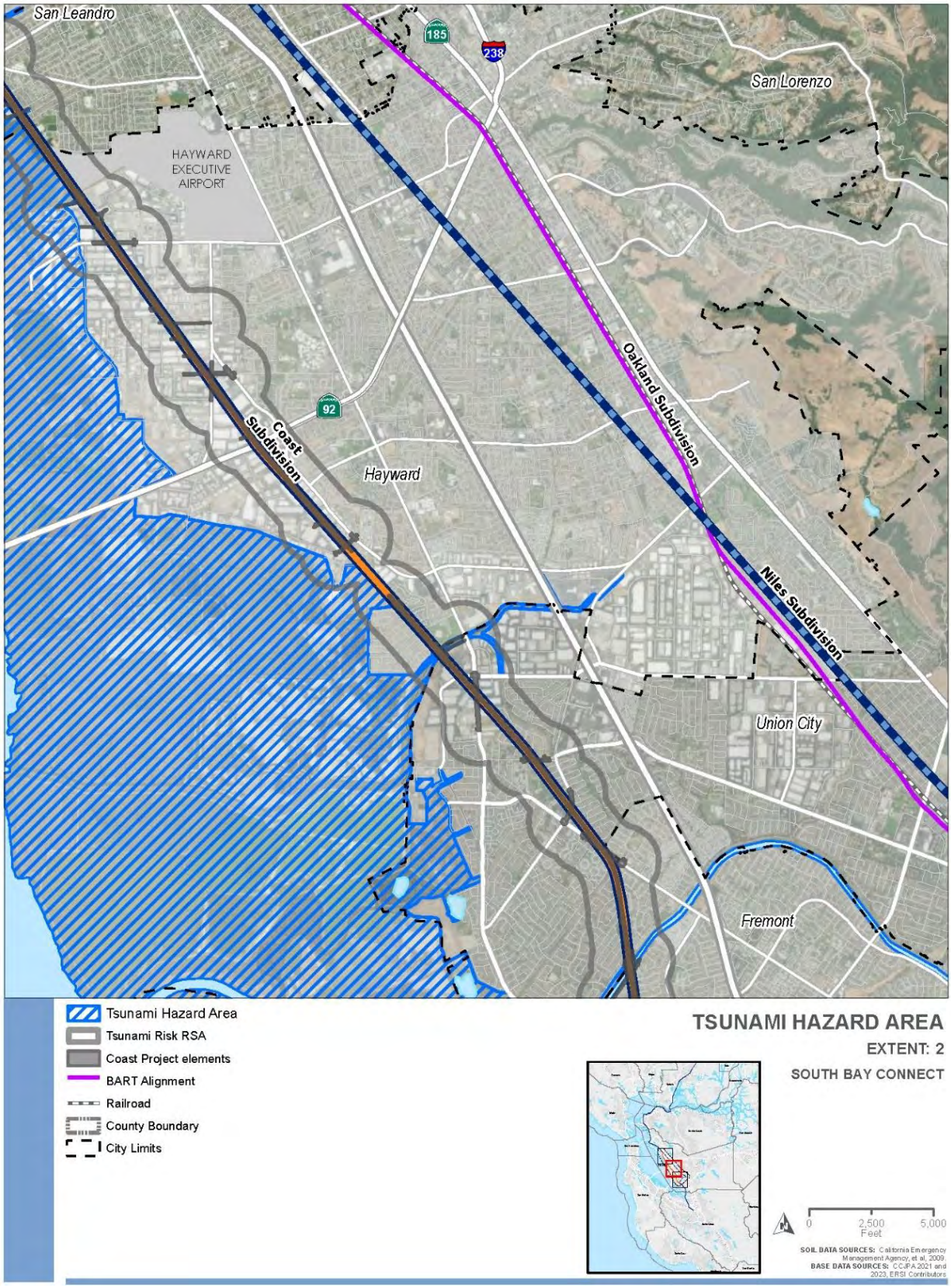


**Figure 3.8-17: Tsunami Hazard Area.**

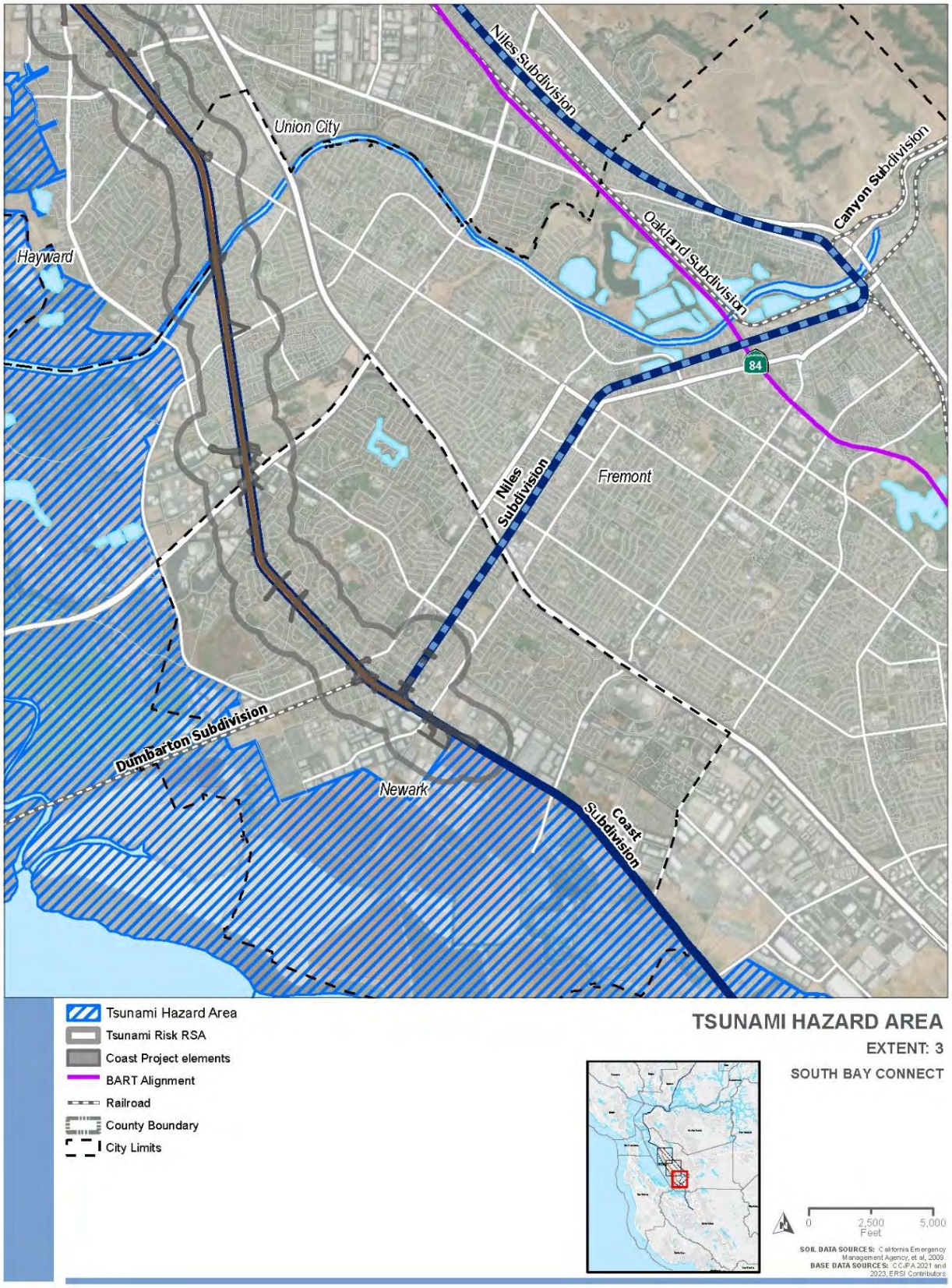


**Figure 3.8-18: Groundwater Levels Below Surface for Map Extent 1.**

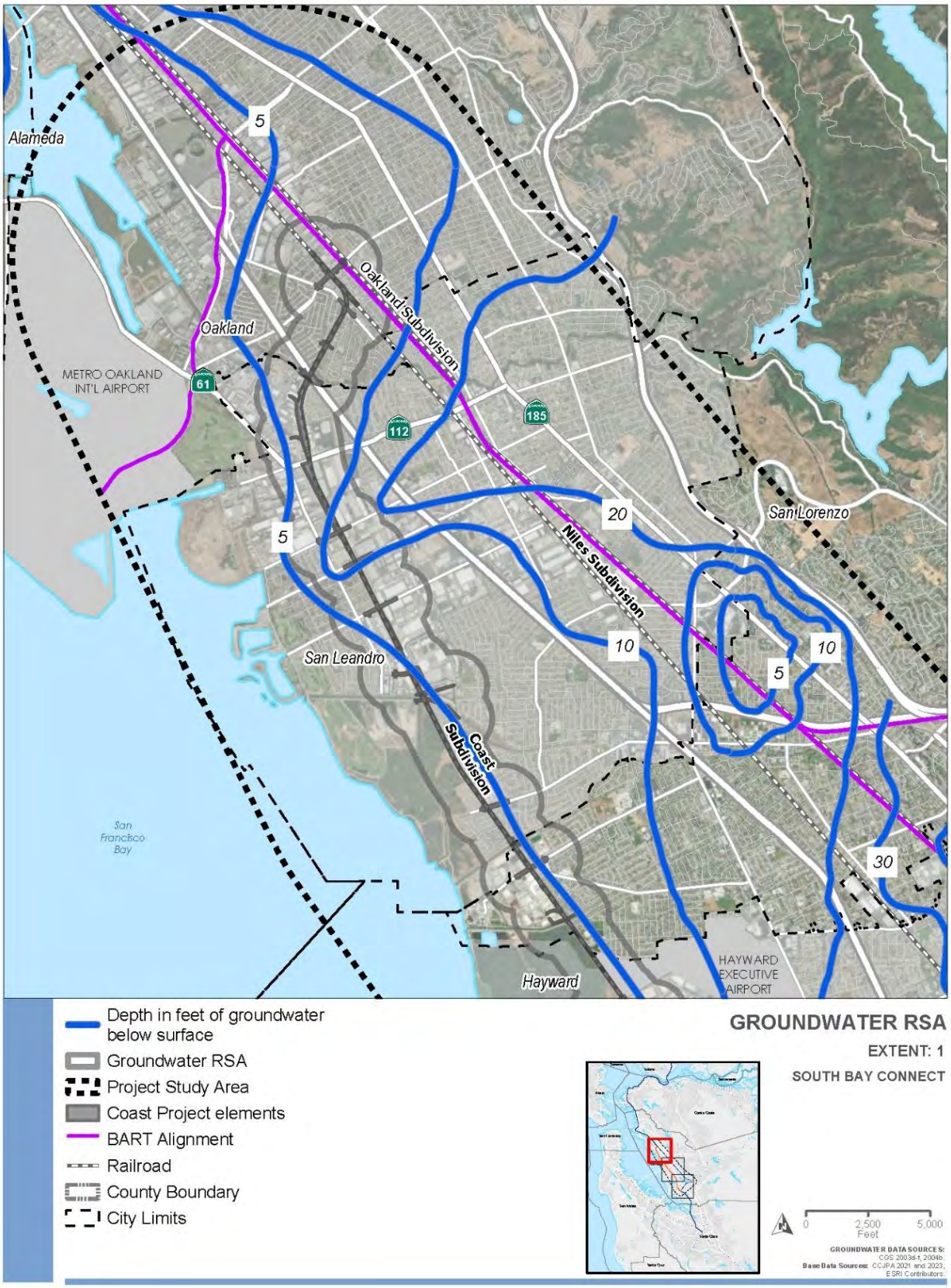


**Figure 3.8-19: Groundwater Levels Below Surface for Map Extent 2.**

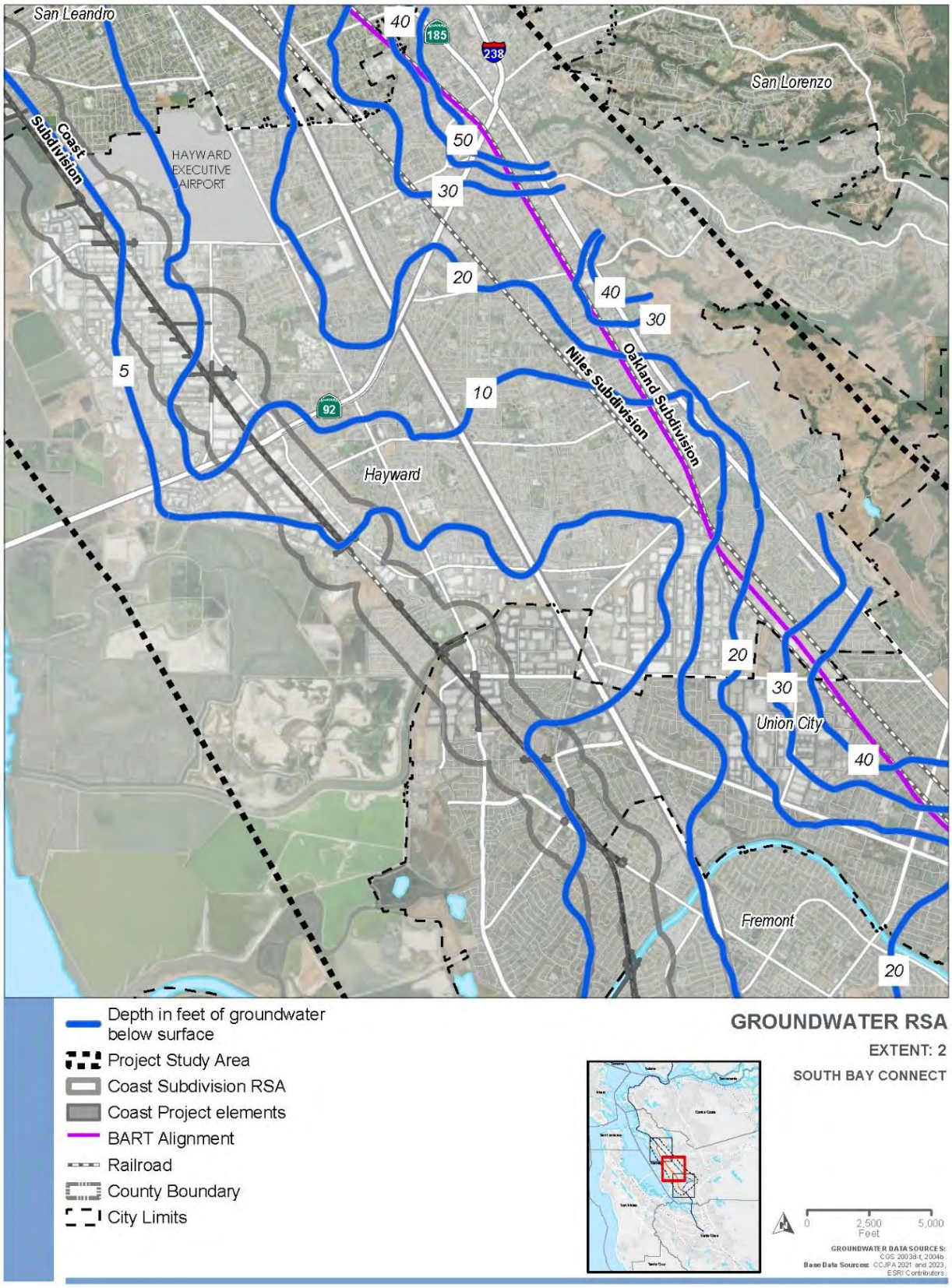
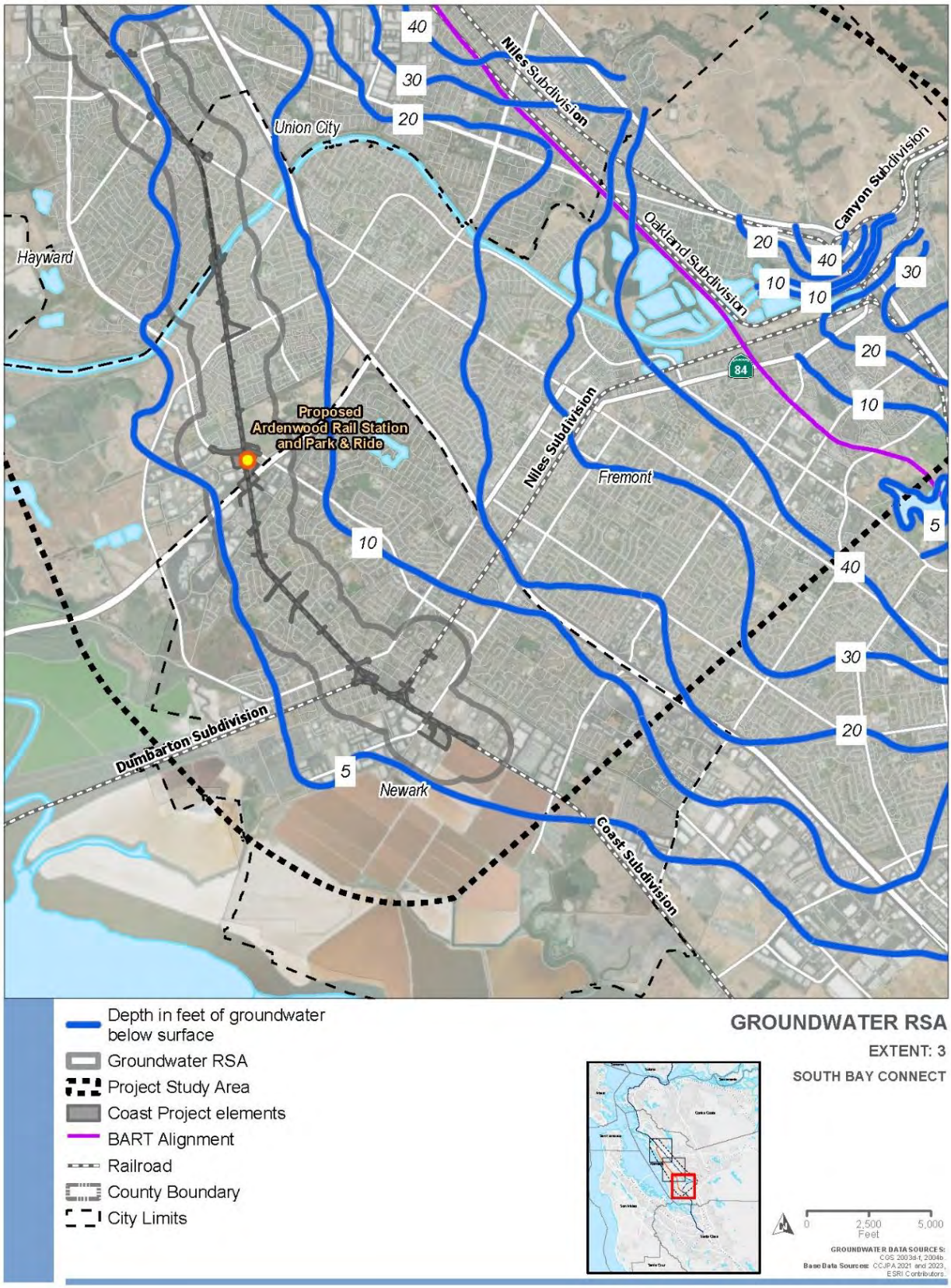


**Figure 3.8-20: Groundwater Levels Below Surface for Map Extent 3.**



### Collapsible Soil

Collapsible soils are soils that undergo volume reduction or settlement upon the addition of water, which weakens or destroys soil particle bonds of loosely packed structure, reducing the bearing capacity of the soil. Other mechanisms for soil collapse include the sudden closure of voids (air pockets) in a soil, whereby the sudden decrease in volume results in loss of the soil's internal structure, causing the soil to collapse. Collapsible soils are typically associated with arid and semi-arid regions. Specific soil types, such as loess and other fine-grained aeolian soils, are most susceptible to collapse, although certain coarser-grained, rapidly deposited alluvial soils can also be susceptible.

Some soils within the geologic RSA may fit criteria such as coarse grained rapidly deposited soils, however soil collapse potential is considered low within the geologic RSA. Isolated cases may occur at localized areas within the geologic RSA for example if pipe ruptures occur.

Note that laboratory testing during Project field investigations would be required to support Project design to definitively identify soils and characterize susceptible to collapse potential.

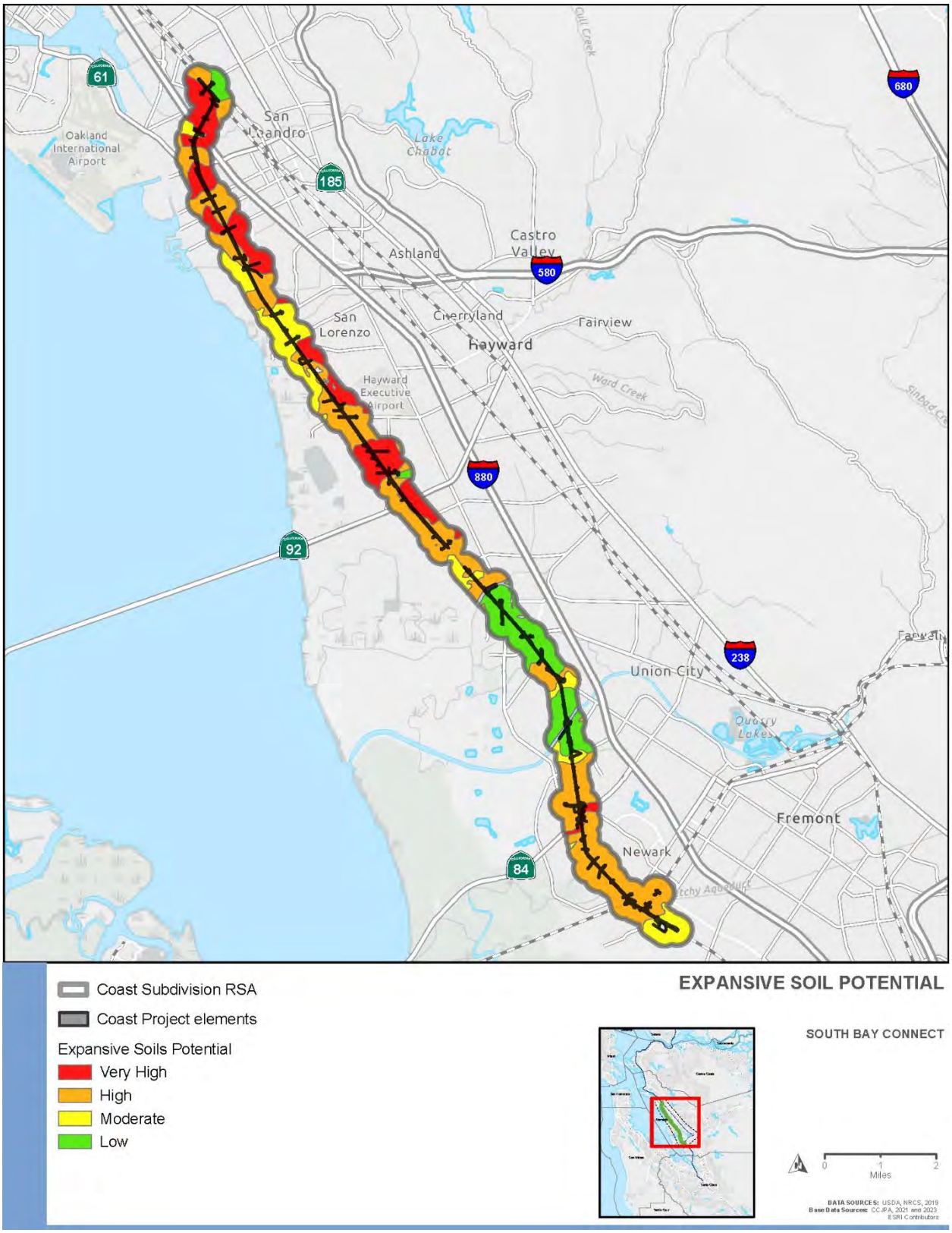
### Expansive Soil

Expansive soil potential is the ability of some soils with high clay content to change volume with moisture content. Expansive soils pose a less significant hazard where soil moisture is relatively constant (either always wet or always dry). Expansive soils pose a significant hazard to sites, which undergo seasonal variation in soil moisture content, such as on hillsides or flatlands with a seasonally fluctuating water table.

Figure 3.8-21 shows the expansive potential of soils within the geologic RSA and is derived from the USDA SSURGO database (2020). The expansive soil potential varies significantly within the RSA and along the Project footprint from low to very high.

Note that laboratory testing during Project field investigations would be required to positively identify and characterize expansive soils to support Project design.

**Figure 3.8-21: Expansive Soil Potential within the RSA.**



### Corrosive Soil

Soil corrosivity involves the measure of the potential of corrosion for steel and concrete caused by contact with some types of soil. Knowledge of potential soil corrosivity is often critical for the effective design of buried steel and concrete. Several factors (including soil composition, soil and pore water chemistry, moisture content, and pH) affect the response of steel and concrete to soil corrosion. Soils with high moisture content, high electrical conductivity, high acidity, and high dissolved salts content are most corrosive. In general, sandy soils have high resistivity and are the least corrosive. Clayey soils, including those that contain salt water, can be highly corrosive(see Table 3.8 4: Summary of Soil Units and Soil Attributes that Occur Within the Geologic RSA).

Figure 3.8-22 shows the risk of corrosion to uncoated steel for soils within the geologic RSA and was derived from the USDA SSURGO database (2020). The majority of the Coast and Niles Subdivisions appear to contain soils that have a high risk of corrosion to uncoated steel with smaller areas of low to moderate risk.

Figure 3.8-23 shows the risk of corrosion to concrete for soils within the RSA and was derived from the USDA Soil Survey Geographic (SSURGO) Database. The majority of the areas within the RSA are classed as having either a low or moderate risk of corrosion to concrete. Within the Coast Subdivision, the smaller areas of high corrosion risk appear to show a general correlation to geologic units San Francisco Bay Mud (Qhbm) and artificial fill over estuarine mud (afem). The very southern part of the Coast Subdivision with a high risk is associated with alluvial fans (Qhf3 and Qhff) and older alluvial fan levees (Qhl3).

**Figure 3.8-22: Risk of Corrosion to Uncoated Steel for Soils Within the Geologic RSA.**

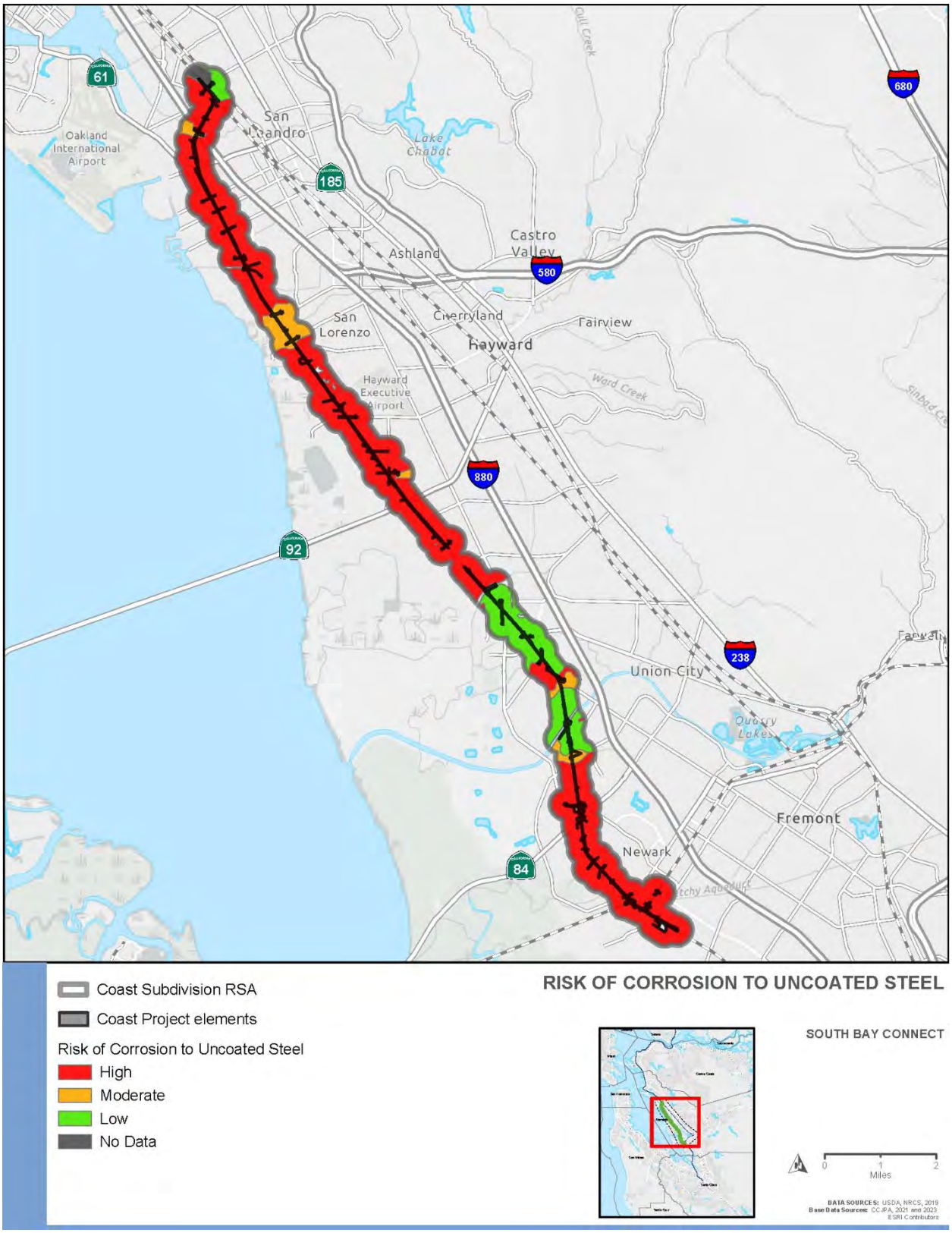
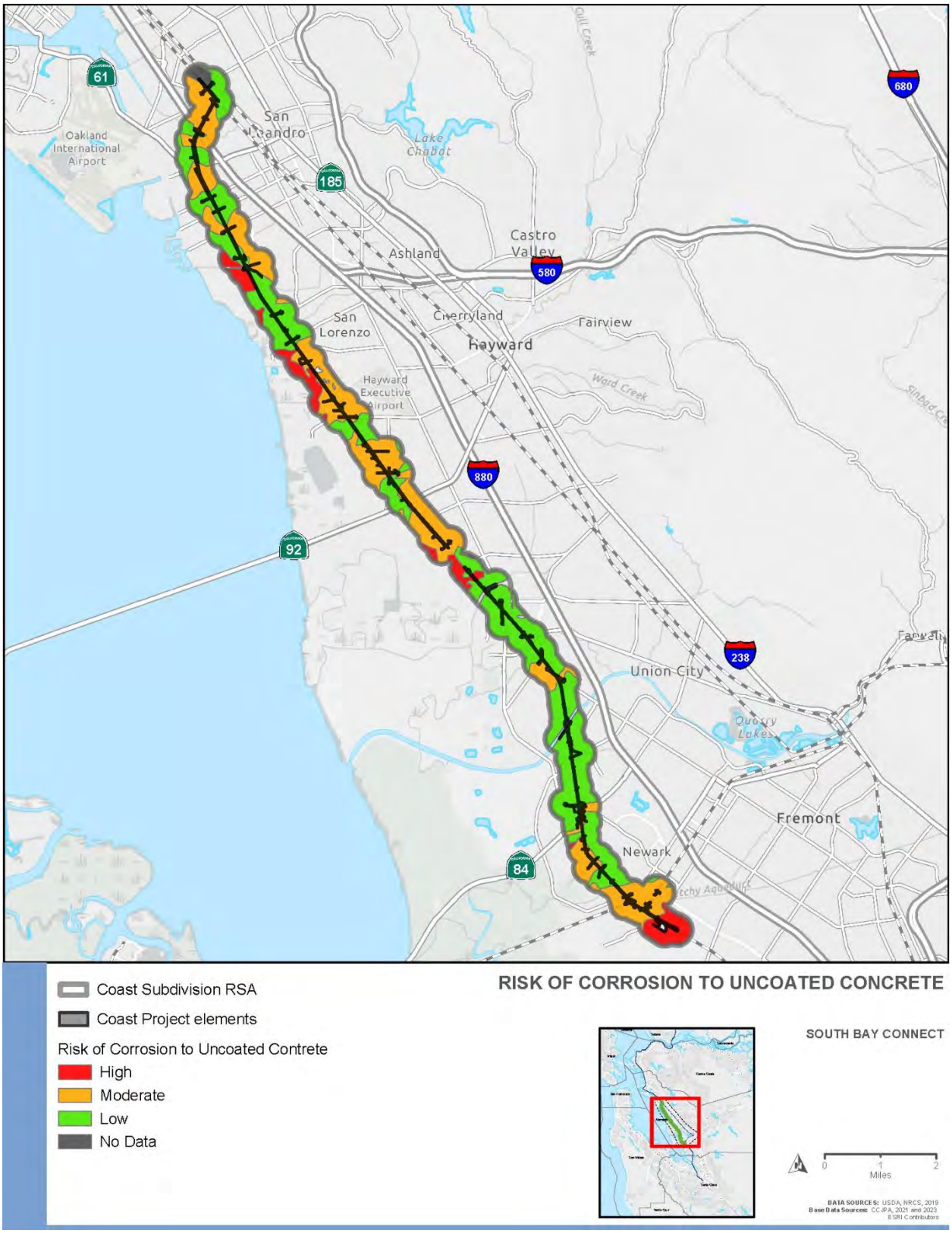


**Figure 3.8-23: Risk of Corrosion to Concrete for Soils Within the Geologic RSA.**



### Paleontological Context

Fossil localities across the East Bay coastal plain were evaluated for this analysis and listed in Table 3.8-6 by distance from the RSA.

The RSA is generally within a mile or two of the wetlands at the edge of the bay. Three fossil localities are within a mile and a half of the Project footprint: 81st Street in Oakland, the Coliseum, and Newark. At these localities, mammoth and sloth specimens were identified. The next closest fossil localities to the RSA are within 2 to 3 miles of the Project footprint.

**Table 3.8-6: East Bay Coastal Plain Fossil Localities Closest to the RSA**

| Locality Name | Location | ID | Miles from RSA | Taxon | Common Name | Other Information |
|---|---|---|---|---|---|---|
| 81st Avenue | Oakland | V4045 | <1 | Mammuthus | mammoth | Excavation at Sunshine Bisquit Co. |
| Oakland Coliseum | Oakland | V6420 | <1.5 | Mammuthus, Glossotherium | mammoth, sloth | Construction of sports arena |
| Newark | Newark | V69195 | <1.5 | unidentified mammal | unidentified mammal | N/A |
| Hayward Freeway | Hayward | V5258 | ~2.5 | Bison | bison | I-238 construction |
| San Lorenzo Creek | Hayward | unknown | ~2.5 | Equidae | horse | N/A |
| Hayward Gravel Pit | Hayward | V5928 | ~3 | Equidae | horse | gravel pit |
| Centerville Gravel Pit | Centerville | V5370 | ~3 | Mammuthus, Bison, Camelops, Odocoileus | mammoth, bison, camel, deer relative | N/A |
| Centerville | Centerville | unknown | ~3 | Equidae | horse | N/A |
| Niles Community | Niles | V59033 | ~3 | Mammuthus and Bison | mammoth, bison | N/A |
| Hayward Motel | Hayward | V6304 | ~3 | Equidae | horse | N/A |
| Alameda | Alameda Island | unknown | ~3 | Megalonyx | sloth | found on east end |
| Alameda Canal | Alameda | V69168 | >3 | Glossotherium | sloth | N/A |

| Locality Name | Location | ID | Miles from RSA | Taxon | Common Name | Other Information |
|---|---|---|---|---|---|---|
| Prune Avenue | Fremont | V5301 | ~4.5 | 63 small animal and invertebrate specimens | various | N/A |
| Mission San Jose | Fremont | unknown | ~5.5 | Proboscidea, Mastodon, Camelops | elephant relative, mastodon, camel | N/A |
| Harrison St Tunnel | Posey Tube | V2841 | ~6 | Mammuthus | mammoth | Alameda tube construction |
| Alameda Tube Excavation | Webster St Tube | V6227 | ~6 | 26 specimens of various genera | various | Alameda tube construction |
| Webster St. | Alameda County | V69170 | ~6 | Proboscidea | elephant relative | BART construction |
| San Francisco Public Utilities Commission water improvement program | Warm Springs | unknown | ~6 | 50+ Rancholabrean and Irvingtonian specimens | | N/A |

Sources: Savage 1951; UCMP 2023; Jefferson 1991b; Parkman 2006; Hay 1927; Hutchison 1987; McGuire and Davis 2013; UCMP 2023; Hay 1927; Parr 2015

## 3.8.5 Best Management Practices

As noted in Chapter 2, Project Alternatives, CCJPA would incorporate a range of BMPs to avoid and minimize adverse effects on the environment that could result from implementation of the proposed Project. BMPs are included in the proposed Project description, and the impact analyses were conducted assuming application of these practices. The BMPs relevant to geology and soils are listed below. Full descriptions of the BMPs are provided in Chapter 2, Project Alternatives.

**BMP GEO-1: Geotechnical Investigations**

**BMP GEO-2: Expansive Soil**

## 3.8.6 Environmental Impacts

This section describes the potential environmental impacts on geology and soils as a result of implementation of the proposed Project. Lettering shown within title for each environmental factor below correlates with CEQA Statute and Guidelines, Appendix G table lettering and numbering.

### 3.8.6.1 Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: 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?

#### No Build Alternative

**No Impact.** Under the No Build Alternative, the Capitol Corridor passenger rail service between Oakland and San Jose would not be relocated from the Niles Subdivision to the Coast Subdivision. Improvements associated with the proposed Project would not occur. Capitol Corridor passenger trains would continue to operate based on current routes with no changes to rail connectivity or operational efficiency. Therefore, the No Build Alternative would not result in impacts or changes directly or indirectly that would cause potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault to within the RSA.

#### Proposed Project

##### Construction and Operations.

**No Impact.** As shown on Figure 3.8-9, the proposed Project is not located within an Earth Fault Zone. In addition, no active earthquake faults cross the RSA. Because there are no active earthquake faults located within the RSA, and because the proposed Project is not located within an Earthquake Fault Zone, the rupture of a known earthquake fault during construction or operation of the proposed project would not occur. Therefore, construction and operation of the proposed Project would not result in adverse effects involving fault ruptures, resulting in no impact.

### 3.8.6.2 Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: Strong seismic ground shaking?

#### No Build Alternative

**No Impact.** Under the No Build Alternative, the Capitol Corridor passenger rail service between Oakland and San Jose would not be relocated from the Niles Subdivision to the Coast Subdivision. Improvements associated with the proposed Project would not occur. Capitol Corridor passenger trains would continue to operate based on current routes with no changes to rail connectivity or operational efficiency. Therefore, the No Build Alternative would not result in impacts or changes directly or indirectly that would cause potential substantial adverse effects, including the risk of loss, injury, or death strong seismic ground shaking within the RSA.

#### Proposed Project

**Construction.**

**Less-than-Significant Impact.** The proposed Project is in a region with active faults (Figure 3.8-8) that can cause strong ground shaking, which could contribute to loss, injury, or death during construction. Construction activities would be conducted for a limited period when considered in the timeframe of earthquake recurrence intervals of faults within the RSA. However, there is a chance that strong earthquakes could occur during construction. The proposed Project includes implementation of BMP GEO-1: Geotechnical Investigations. BMP GEO-1 requires CCJPA to conduct geotechnical investigations to inform Project design. In accordance with BMP GEO-1, the proposed Project would be designed to minimize risk of slope failure, settlement, and erosion as a result of strong seismic ground shaking, using recommended construction techniques and BMPs. With the implementation of BMP GEO-1, impacts related to seismic ground shaking during construction, and associated risk of loss, injury, or death, would be less than significant.

**Operation.**

**Less-than-Significant Impact.** The proposed Project is in a region with active faults (Figure 3.8-8) that can cause strong ground shaking, which could contribute to loss, injury, or death during Project operation. Risks would apply to mobile (i.e., trains) and static Project components. The proposed Project will implement all standards listed in Section 3.8.2.4, above and includes implementation of BMP GEO-1: Geotechnical Investigations. BMP GEO-1 requires that the proposed Project be designed to minimize risk of slope failure, settlement, and erosion as a result of strong seismic ground shaking, using recommended construction techniques and BMPs. With the implementation of BMP GEO-1, impacts related to seismic ground shaking during operations, and associated risk of loss, injury, or death, would be less than significant.

### 3.8.6.3 Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: Seismic-related ground failure, including liquefaction?

#### No Build Alternative

**No Impact.** Under the No Build Alternative, the Capitol Corridor passenger rail service between Oakland and San Jose would not be relocated from the Niles Subdivision to the Coast Subdivision. Improvements associated with the proposed Project would not occur. Capitol Corridor passenger trains would continue to operate based on current routes with no changes to rail connectivity or operational efficiency. Therefore, the No Build Alternative would not result in impacts or changes directly or indirectly that would cause potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction within the RSA.

#### Proposed Project

**Construction.**

**Less-than-Significant Impact.** Risks associated with secondary seismic hazards such as liquefaction and lateral spreading, could affect construction and increase the risk of loss, injury, or death during construction of the proposed Project.

The risk of seismically induced liquefaction during construction would be greatest in areas of high and very high liquefaction susceptibility combined with shallow depth to groundwater. As shown on Figure 3.8-13, areas of high and very high liquefaction susceptibility are present within the RSA. However, the proposed Project includes implementation of BMP GEO-1: Geotechnical Investigations, which requires the Project to be designed to minimize slope failure, settlement, and erosion using recommended construction techniques and BMPs. With the implementation of BMP GEO-1, impacts related to liquefaction during construction would be less than significant.

The risk of seismically induced lateral spreading for the proposed Project is less than significant due to the limited construction timeframe and limited extent of areas susceptible to lateral spreading as shown in Figure 3.8-13. Further, the proposed Project includes implementation of BMP GEO-1: Geotechnical Investigations, which requires the Project to be designed to minimize slope failure, settlement, and erosion using recommended construction techniques and BMPs. Therefore, impacts related to lateral spreading during construction would be less than significant with implementation of BMP GEO-1.

The risk of seismically induced landslides to proposed Project construction would be no impact as the RSA is not located in areas with a distinct landslide susceptibility.

**Operation.**

**Less-than-Significant Impact.** Risks associated with secondary seismic hazards such as liquefaction and lateral spreading could affect operations and increase the risk of loss, injury, or death during operation of the proposed Project.

The risk of seismically induced liquefaction during operations would be greatest in areas of high and very high liquefaction susceptibility combined with shallow depth to groundwater. As shown on Figure 3.8-13, areas of high and very high liquefaction susceptibility are present within the RSA.

However, the proposed Project will implement all standards listed in Section 3.8.2.4, above and includes implementation of BMP GEO-1: Geotechnical Investigations, which requires the Project to be designed to minimize slope failure, settlement, and erosion using recommended construction techniques and BMPs. With the implementation of BMP GEO-1, impacts related to liquefaction during operations would be less than significant.

The risk of seismically induced lateral spreading for the proposed Project during operations is less than significant due to the limited extent of areas susceptible to lateral spreading as shown in Figure 3.8-13. Further, the proposed Project will implement all standards listed in Section 3.8.2.4, above and includes implementation of BMP GEO-1: Geotechnical Investigations, which requires the Project to be designed to minimize slope failure, settlement, and erosion using recommended construction techniques and BMPs. Therefore, impacts related to lateral spreading during operations would be less than significant with implementation of BMP GEO-1.

The risk of seismically induced landslides to proposed Project operations would be no impact as the RSA is not located in areas with distinct landslide susceptibility, such as areas with steep slopes and unstable geological units.

### 3.8.6.4 Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: Landslides?

#### No Build Alternative

**No Impact.** Under the No Build Alternative, the Capitol Corridor passenger rail service between Oakland and San Jose would not be relocated from the Niles Subdivision to the Coast Subdivision. Improvements associated with the proposed Project would not occur. Capitol Corridor passenger trains would continue to operate based on current routes with no changes to rail connectivity or operational efficiency. Therefore, the No Build Alternative would not result in impacts or changes directly or indirectly that would cause potential substantial adverse effects, including the risk of loss, injury, or death involving landslides within the RSA.

#### Proposed Project

##### Construction and Operations.

**No Impact.** As shown in Figure3.8-9, the RSA is not located with a landslide zone. The impact of landslides to construction and operation of the proposed Project would be no impact due to the topography of the RSA being relatively flat and not located adjacent to significant steep slopes or hills.

### 3.8.6.5 Result in substantial soil erosion or the loss of topsoil?

#### No Build Alternative

**No Impact.** Under the No Build Alternative, the Capitol Corridor passenger rail service between Oakland and San Jose would not be relocated from the Niles Subdivision to the Coast Subdivision. Improvements associated with the proposed Project would not occur. Capitol Corridor passenger trains would continue to operate based on current routes with no changes to rail connectivity or operational efficiency. Therefore, the No Build Alternative would not result in impacts or changes to the existing geology and soils within the RSA.

### Proposed Project

#### Construction.

**Less-than-Significant Impact.** Project earthwork activities would be conducted based on local and state regulations and would comply with appropriate permits such as the California Construction NPDES permit, which would reduce erosion and sedimentation though the implementation of BMP HYD-1: Construction Stormwater Management during construction. Therefore, construction of the proposed Project would result in a less than significant impact on erosion and loss of topsoil.

#### Operation.

**Less-than-Significant Impact.** The Project would be operated in areas that are either paved, have previously stabilized soils, or where slopes are either flat or close to horizontal. Such areas would be returned to pavement or stabilized after construction. The proposed Project would also adhere to NPDES construction permitting requirements for post-construction stabilization to reduce the risk of soil erosion or loss of topsoil (BMP HYD-4: Permanent Erosion Control). However, potential exists for soil erosion if proposed Project elements are not adequately designed and constructed to protect soils. Implementation of BMPs and compliance with industry standards and permit requirements would result in a less than significant impact.

## 3.8.6.6 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?

### No Build Alternative

**No Impact.** Under the No Build Alternative, the Capitol Corridor passenger rail service between Oakland and San Jose would not be relocated from the Niles Subdivision to the Coast Subdivision. Improvements associated with the proposed Project would not occur. Capitol Corridor passenger trains would continue to operate based on current routes with no changes to rail connectivity or operational efficiency. Therefore, the No Build Alternative would not be located on a geologic unit or soil that is unstable, or that would become unstable, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.

### Proposed Project

#### Construction.

**Less-than-Significant Impact.** Non-seismically induced landslides are generally associated with areas of moderate slopes, unstable geological units, and/or saturated soils. Project construction would have no impact with respect to on-or off-site landslides due to the topography of the geologic RSA being relatively flat and not located on unstable geologic units.

Non-seismically induced liquefaction would have a no impact level due to the limited duration and extent of construction activities. Seismically induced liquefaction during construction is addressed in Section 3.8.6.3 above.

As discussed in the Section 3.8.4, Affected Environment, some soils within the Project Footprint may fit the collapsible soil criteria such as coarse grained rapidly deposited soils, however soil collapse potential is considered low due to collapsible soils predominantly being associated with arid or semi-arid environments. The Project Footprint is not considered arid or semi-arid. Therefore, the impact of soil becoming collapsible during construction activities would be less than significant.

Land subsidence could occur where dewatering is required (such as for excavation and construction of foundations), however such dewatering would be limited in duration and depth. Dewatering for short-term construction would not cause deep seated land subsidence, such as has occurred in the San Joaquin Valley due to over-extraction of groundwater. Project impacts due to land subsidence during construction activities would be less than significant.

Lateral spreading is generally associated with seismic induced liquefaction in proximity to a free face. Due to the limited duration and extent of construction activities, and stabilization of free faces during construction, impacts related to lateral spreading are potentially significant. With the implementation of BMP GEO-1: Geotechnical Investigations, impacts related to lateral spreading during construction of the proposed Project would be less than significant.

**Operation.**

**Less-than-Significant Impact.** Where the design of the proposed Project includes new embankments and slopes such as the proposed Alameda Creek the risk of on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse of a geologic unit or soil could be affected. Geologic units at risk of these effects include those with a high or very high liquefaction susceptibility and shallow groundwater. As shown on Figure 3.8-13, areas with high or very high liquefaction susceptibility are present within the RSA. With the implementation of BMP GEO-1: Geotechnical Investigations, impacts related to on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse of a geologic unit or soil during operations of the proposed Project would be less than significant.

### 3.8.6.7 Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

#### No Build Alternative

**No Impact.** Under the No Build Alternative, the Capitol Corridor passenger rail service between Oakland and San Jose would not be relocated from the Niles Subdivision to the Coast Subdivision. Improvements associated with the proposed Project would not occur. Capitol Corridor passenger trains would continue to operate based on current routes with no changes to rail connectivity or operational efficiency. Therefore, the No Build Alternative would not be located on expansive soil, creating substantial direct or indirect risks to life or property.

#### Proposed Project

**Construction.**

**Less-than-Significant Impact.** The proposed Project contains areas that have varying potential for expansive soils, the locations of which are shown in Figure 3.8-21. For construction purposes, temporary shallow foundations may only be required for certain specific purposes and would be

constructed within a short period of time. The proposed Project would have a less than significant impact with respect to expansive soils during construction due to the limited extent and duration of construction.

#### Operation.

**Less-than-Significant Impact.** As shown on Figure 3.8-21, areas of the RSA are located on soils classified as having a very high or high expansive soil potential. The effect of the high expansive soil potential on the proposed Project would be the development of high soil pressures when these soils are wetted and consequently swell. The resulting high soil pressures can cause damage to structures such as foundations, pavements, and retaining walls. However, the proposed Project includes implementation of BMP GEO-2: Expansive Soil. BMP GEO-2 requires that the Project structures be designed and constructed to withstand the earth pressure exerted by the expansive clays and to specifications determined by the geotechnical investigation prepared during final design. As necessary, BMP GEO-2 also requires expansive clays to be treated with lime to reduce shrink-swell potential or removed and replaced with a non-expansive material. With the implementation of BMP GEO-2, impacts related to expansive soils would be less than significant.

### 3.8.6.8 Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

#### No Build Alternative

**No Impact.** Under the No Build Alternative, the Capitol Corridor passenger rail service between Oakland and San Jose would not be relocated from the Niles Subdivision to the Coast Subdivision. Improvements associated with the proposed Project would not occur. Capitol Corridor passenger trains would continue to operate based on current routes with no changes to rail connectivity or operational efficiency. Therefore, the No Build Alternative would not have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.

#### Proposed Project

##### Construction and Operations.

**No Impact.** Activities associated with the construction of rail infrastructure improvements and station facilities are not anticipated to result in new substantial discharges of wastewater. During construction activities, the construction contractor would provide portable toilets on site, which would then be removed from the site on a regular basis for servicing off site at an approved wastewater handling facility. Similarly, new rail infrastructure improvements are not anticipated to generate substantial amounts of wastewater during operation or maintenance activities. However, new station or maintenance facilities could result in a minor new source of wastewater that would need to be treated by the local wastewater treatment facility. Therefore, construction and operation of the proposed Project would not require the use of septic tanks or alternative wastewater disposal systems because existing municipal sanitary systems would be utilized. Therefore, no impact would occur.

### 3.8.6.9 Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

#### No Build Alternative

**No Impact.** Under the No Build Alternative, the Capitol Corridor passenger rail service between Oakland and San Jose would not be relocated from the Niles Subdivision to the Coast Subdivision. Improvements associated with the proposed Project would not occur. Capitol Corridor passenger trains would continue to operate based on current routes with no changes to rail connectivity or operational efficiency. Therefore, the No Build Alternative would not directly or indirectly destroy a unique paleontological resources or site or unique geologic features.

#### Proposed Project

**Construction.**

**Less-than-Significant Impact with Mitigation Incorporated.** Paleontological resources have the potential to be affected during earthmoving activity of undisturbed sediment within the RSA. Though the sediment within the RSA is mostly of Holocene age, older sediment that may be paleontologically sensitive underlies it at an unknown depth. The greater the excavation depth, the greater the likelihood of encountering paleontological resources. The estimated maximum depths of major Project features are listed in Table 3.8-7. The potential to encounter fossils is considered to be increased near known fossil localities. As discussed in Section 3.8.4, Affected Environment, several fossil localities are located along the East Bay Coastal Plain. In the Project vicinity, many but not all of the fossil localities are located closer to the hills.

**Table 3.8-7: Maximum Estimated Depth of Proposed Project Features**

| Project Feature | Open Excavation (feet)* | Drilling/ Pile Driving (feet) | Potential to Affect Significant Paleontological Resources |
|---|---|---|---|
| New signals | n/a | 10 | Low – narrow gauge drill |
| Track improvement and construction | 4 | n/a | Low - shallow |
| Roadway work | 2 | n/a | Low - shallow |
| Fence foundation | n/a | 5 | Low - shallow |
| Ardenwood station platform | 5 | n/a | Low - shallow |
| Ardenwood pedestrian overcrossing | TBD | 35 | Potentially high |
| Ardenwood garage (potential) | TBD | 100 | Potentially high |

| Project Feature | Open Excavation (feet)* | Drilling/ Pile Driving (feet) | Potential to Affect Significant Paleontological Resources |
|---|---|---|---|
| SR-92 pier protection walls | n/a | 35 | Potentially high |
| San Leandro Creek bridge (PM 14.29) | TBD | 180 | Potentially high |
| San Lorenzo/Estudillo bridge (PM 16.93) | TBD | 180 | Potentially high |
| San Lorenzo Creek bridge (PM 18.24) | TBD | 180 | Potentially high |
| Bridge PM 18.97 | TBD | 180 | Potentially high |
| Bridge PM 19.23 | TBD | 180 | Potentially high |
| Sulphur Creek Bridge (PM 19.77) | TBD | 180 | Potentially high |
| Bridge PM 23.68 | TBD | 180 | Potentially high |
| Alameda Creek Bridge PM 27.01 | TBD | 180 | Potentially high |
| Crandall Creek Bridge PM 27.37 | TBD | 180 | Potentially high |
| Alameda Creek Bridge PM 27.01 | TBD | 180 | Potentially high |

Note: * any excavation not done with a drill/auger, TBD = to be determined.

Open excavation deeper than 10 feet below the surface in previously undisturbed ground is considered to have the potential to encounter sensitive paleontological resources. Drilling and augering have the potential to recover scientifically significant resources depending on drill diameter. Narrow gauge drilling such as that for signal installation is unlikely to recover significant paleontological resources. However, bridge work would require larger gauge drilling and very deep excavation, increasing the chance of encountering sensitive resources.

This is considered a potentially significant impact. To reduce impacts on paleontological resources, mitigation measure MM GEO-1: Paleontological Resources Mitigation Plan (PRMP) would be implemented. The PRM will include provisions for construction workers to attend a paleontological resource awareness training session. It will determine the extent to which paleontological mitigation is necessary and establishes the ground rules for the program. The PRM shall discuss fossil discovery, recovery, and subsequent handling. With the implementation of MM GEO-1, impacts on paleontological resources would be reduced to a less-than-significant level.

**Operations.**

Operation and maintenance activities would occur in previously disturbed areas (within paved roads and rail corridors), resulting in no potential to impact paleontological resources. Therefore, impacts on paleontological resources during operation and maintenance of the proposed Project would be no impact.

## 3.8.7 Mitigation Measures

The following mitigation measure associated with geology, soils, seismicity, and paleontological resources would be implemented for the proposed Project.

**MM GEO-1: Paleontological Resources Mitigation Plan**

A PRMP will be prepared by a qualified paleontologist following SVP guidelines and implemented during the construction phase of the Project (SVP 2010).

The PRM will include provisions for construction workers to attend a paleontological resource awareness training session and establish the ground rules for the program. The PRMP will discuss fossil discovery, recovery, and subsequent handling protocols and monitoring requirements.

The extent of monitoring required would be dictated by the design of the selected alternative and would be determined during design by a qualified principal paleontologist (who holds a Master of Science or Doctorate degree in paleontology or geology and is familiar with paleontological procedures and techniques) to reduce the potential for impacts to previously undiscovered resources. The principal paleontologist would review the construction plans with proposed excavation sites to determine which, if any, Project components would involve earthmoving activities at depths sufficient to require monitoring. The principal paleontologist would review the construction schedule to develop the required monitoring schedule. Paleontological resources will also be discussed at the pre-bid meeting.

A qualified principal paleontologist will be made aware of the excavation schedule and remain on call during the period of construction specified in the PRMP. If fossils are discovered during construction, the construction crew will immediately notify the resident engineer, who will stop work within 60 feet of the finding. The resident engineer will notify the qualified principal paleontologist who will evaluate the find as soon as possible. If the resource is determined to be potentially significant, CCJPA will be notified, and a recovery program will be initiated.

## 3.8.8 Cumulative Impact Analysis

Cumulative impacts are two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. CEQA requires discussion of the cumulative impacts of the proposed Project to determine if the proposed Project's incremental effect is cumulatively considerable. Cumulatively considerable means that the incremental effects of the proposed Project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects. A project would have a significant impact if the project has a considerable contribution to a significant cumulative impact.

Impacts related to geology, soils, seismicity, and paleontological resources are typically site-specific and depend on the local geologic and soil conditions. The geographic context for the analysis of

potential cumulative impacts on geology, soils, and paleontological resources includes areas within and adjacent to the proposed Project. The RSA for geology, soils, and paleontological resources includes the geologic units affected by the proposed Project as listed in Figure 3.8-1 through Figure 3.8-7. Cumulative projects within this geographic context include the projects listed in Table 3.1-1 and identified on Figure 3.1-1.

Each of the projects listed in Table 3.1-1 was evaluated and considered for cumulative impacts. Although either being located substantially outside the RSA or having a relatively small footprint compared to the proposed Project, construction of any of cumulative projects listed in Table 3.1-1 could result in cumulatively significant erosion impacts unless construction activities are controlled. All new projects that disturb one or more acres, which includes most of the cumulative projects listed in Table 3.1-1 as well as the proposed Project, must comply with the NPDES Construction General Permit, which requires substantive controls to prevent erosion during project construction, including preparation of a SWPPP, as well as municipal and industrial NPDES permits. As a result, no significant cumulative erosion impact would occur.

Individual cumulative projects could increase exposure of people or structures to geologic, seismic and soil hazards that could result in a project-level impact. All individual projects would be subject to applicable state codes, particularly the California Building Standards Code and the requirements of the Alquist-Priolo Act, along with local codes and design standards, all of which are specifically designed to reduce site-specific geologic, seismic, and soils hazards. Portions of the proposed Project would be sited in areas with known geologic hazards, including liquefaction and expansive soils and strong ground shaking. However, the proposed Project would be designed and constructed in accordance with industry design standards, guidelines, and regulations, which would ensure that geologic and soil hazards do not compromise the structural integrity of the facilities that are proposed. Therefore, there would be no cumulative geologic and soil hazard impacts.

In theory, any project within the RSA that requires excavation in sediment that has not been previously disturbed could encounter scientifically significant paleontological resources. However, the majority of these projects would not involve deeper excavation than grading and utility relocation and are not likely to affect paleontological resources. Projects that utilize drilling are likely to damage fossils if encountered, making them nonrecoverable. Projects with deep, open excavation could result in paleontological impacts. If construction activities are not mitigated, the paleontological impacts could create an incremental contribution to paleontological resources that is cumulatively considerable. The proposed project would mitigate impacts to paleontological resources and would not contribute considerably to a cumulative impact.

Of the projects listed in Table 3.1-1, the most likely to have the potential to impact paleontological resources are the transportation projects such as the Quarry Lakes Parkway project (T-4), which is located in a paleontologically sensitive area in the Alameda Creek watershed. The I-880 Interchange Improvements (T-6) and State Route (SR) 262 Cross Connector (T-9) projects also have potential to affect paleontological resources. However, if individually mitigated, these and other potentially significant projects collectively, would not make a contribution to effects on paleontological resources that is cumulatively significant.

Implementation of MM GEO-1: Paleontological Resource Mitigation Plan identified in Section 3.8.7 would ensure that the proposed Project would not contribute to a cumulative impact on geologic, soil, mineral, or paleontological resources particularly related to seismicity, liquefaction and expansive soils and would consequently not be considered cumulatively considerable. Based on

these factors, the proposed Project would not result in cumulative impacts on geology, soils, seismicity, and paleontological resources when considered with other planned projects. The impacts of the proposed Project therefore would not be cumulatively considerable and therefore the proposed Project would not have a significant cumulative impact.

## 3.8.9 CEQA Significance Findings Summary Table

Table 3.8-8 summarizes the geology, soils, and paleontological resources impacts of the proposed Project.

**Table 3.8-8. Geology, Soils, and Paleontological Resources Impact Summary Table**

| Impact | Level of Significance Before Mitigation | Incremental Project Contribution to Cumulative Impacts | Mitigation | Level of Significance with Mitigation Incorporated | Incremental Project Cumulative Impact after Mitigation |
|---|---|---|---|---|---|
| **a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:** | | | | | |
| **i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.** | NI | NCC | N/A | NI | NCC |
| **ii) Strong seismic ground shaking?** | LTS | NCC | N/A | LTS | NCC |
| **iii) Seismic-related ground failure, including liquefaction?** | LTS | NCC | N/A | LTS | NCC |
| **iv) Landslides?** | NI | NCC | N/A | NI | NCC |
| **b) Result in substantial soil erosion or the loss of topsoil?** | LTS | NCC | N/A | LTS | NCC |
| **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?** | LTS | NCC | N/A | LTS | NCC |

| Impact | Level of Significance Before Mitigation | Incremental Project Contribution to Cumulative Impacts | Mitigation | Level of Significance with Mitigation Incorporated | Incremental Project Cumulative Impact after Mitigation |
|---|---|---|---|---|---|
| **d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?** | LTS | NCC | N/A | LTS | NCC |
| **e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of waste water?** | NI | NCC | N/A | NI | NCC |
| **f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?** | S/M | CC | MM GEO-1 | LTS | NCC |

Notes: LTS = Less-than-Significant Impact, NI = No Impact, N/A = Not Applicable, SI = Significant Impact, S/M = Significant Impact but Mitigable to a Less-than-Significant Level, CC = Cumulatively Considerable, NCC = Not Cumulatively Considerable.

## 3.8.10 References

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# 3.9 Greenhouse Gas Emissions

## 3.9.1 Introduction

This section describes the regulatory setting and affected environment for GHG emissions. This section addresses known and potential emissions of GHGs in the GHG RSA and describes the potential impacts related to GHGs during construction and operation of the proposed Project. This section also identifies the potential for cumulative impacts of the proposed Project on GHG when considered in combination with other relevant projects.

## 3.9.2 Regulatory Setting

This section identifies the federal, state, regional, and local laws, regulations, and orders that are relevant to the analysis of GHG emissions. This section also addresses the proposed Project's consistency with the regulations described herein.

### 3.9.2.1 Federal

#### Federal Greenhouse Gas Regulations and Guidance

Several federal executive orders (EOs) have recently been signed by President Joe Biden related to GHG emissions and climate resiliency. EO 13990, signed in January 2021, set a national goal to achieve a 50 to 52 percent reduction from 2005 levels in economy-wide net GHG pollution in 2030. EO 14057, signed in December 2021, requires federal agencies to develop strategic processes for achieving, among other things, carbon-free electricity by 2030 and 100 percent zero-emission vehicle acquisitions by 2035. President Joe Biden has also signed two bills—Infrastructure Investment and Jobs Act (2021) and Inflation Reduction Act (2022)—that provide funding for infrastructure improvements that will reduce GHG emissions and bolster resilience to climate change. Despite these actions, there is currently no federal law or legislatively mandated national GHG reduction target.

NHTSA sets the CAFE standards to improve the average fuel economy and reduce GHG emissions generated by cars and light-duty trucks. NHTSA and United States Environmental Protection Agency (EPA) have proposed amendments to the current fuel efficiency standards for passenger cars and light-duty trucks and new standards covering model years 2021 through 2026. Under the Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule, current standards would have been maintained through 2026.

On September 19, 2019, EPA and NHTSA issued a final action on the One National Program Rule, which is considered Part One of the SAFE Vehicles Rule and a precursor to the proposed fuel efficiency standards, withdrawing the State of California's Clean Air Act preemption waiver to set state-specific standards. The EPA reinstated California's authority under the Clean Air Act to implement its own GHG emission standards and zero-emission vehicles (ZEV) sales mandate on March 9, 2022. On March 31, 2022, NHTSA finalized its vehicle efficiency standards rule to reach a projected industry-wide target of 49 miles per gallon by 2026.

### 3.9.2.2 State

#### Vehicle Efficiency and Zero-Emissions Standards

With the passage of AB 1493 in 2002, California launched an innovative and proactive approach to dealing with GHG emissions and climate change at the state level. AB 1493 required the California Air Resources Board (CARB) 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 model year 2009. Additional strengthening of the Pavley standards (referred to previously as Pavley II and now referred to as the Advanced Clean Cars measure) was adopted for vehicle model years 2017–2025 in 2012. Together, the two standards are expected to increase average fuel economy to 54.5 miles per gallon in 2025.

In August 2022, CARB board members voted to approve the Advanced Clean Cars II proposal, which should dramatically reduce emissions from passenger cars in model years 2026 through 2035. This will require an increasing proportion of new vehicles to be zero-emission vehicles, with the goal being to have 100 percent of new vehicles sold by 2035 to be zero-emission vehicles (CARB 2022a).

CARB also adopted the Advanced Clean Truck Regulation to accelerate a large-scale transition to zero-emission medium- and heavy-duty vehicles. The regulation requires zero-emission medium- and heavy-duty vehicles to be an increasing percentage of total annual vehicle sales in California between 2024 and 2035. By 2035, zero-emission truck/chassis sales will need to be 55 percent of Class 2b–3 truck sales, 75 percent of Class 4–8 straight truck sales, and 40 percent of truck-tractor sales. By 2045, every new medium- and heavy-duty truck sold in California will need to be a zero-emission truck. Large employers, including retailers, manufacturers, brokers, and others, are required to report information about shipments and shuttle services to ensure they purchase available zero-emission trucks for their fleets.

#### Locomotive Emissions Standards

In April 2023, CARB approved the In-Use Locomotive Regulation to further reduce emissions from diesel-powered locomotives and increase use of zero-emission technology. This regulation requires operators to maintain a spending account and pay into the account with an amount of funds corresponding to the emissions generated by the operator's locomotive. The account funds will then be used to purchase or rent Tier 4 or cleaner locomotives. Additionally, new locomotives operated in the state will need to be zero-emissions beginning in 2030 or 2035, depending on whether the locomotive is a switcher or passenger locomotive (2030), or a line-haul locomotive (2035). In 2030, the regulation also prohibits locomotives 23 years or older from operating in the state (CARB 2023a).

As an alternative to the spending account, the In-Use Locomotive Regulation will allow locomotive operators to reduce emissions through other strategies provided that the operator adheres to an alternative fleet milestone option. It is noteworthy to mention that this is the main plan that most passenger rail operators in the State of California will follow. The pathway below is only available as an alternative compliance plan otherwise banned in the main regulatory pathway (spending account):

1. Beginning January 1, 2030, 50 percent of annual fleet usage in California must be from Tier 4 or cleaner locomotives.

2. Beginning January 1, 2035, 100 percent of annual fleet usage in California must be from Tier 4 or cleaner locomotives.
3. Beginning January 1, 2042, 50 percent of annual fleet usage in California must be from zero emissions (ZE) locomotives, ZE capable locomotives, or ZE rail equipment.

Beginning January 1, 2047, 100 percent of annual fleet usage in California must be from ZE locomotives, ZE capable locomotives, or ZE rail equipment.

## Executive Order S-01-07, Low Carbon Fuel Standard

With EO S-01-07, Governor Schwarzenegger set forth the low carbon fuel standard (LCFS) for California in 2007. Under this EO, the carbon intensity of California's transportation fuels was set to be reduced by at least 10 percent by 2020. In 2011, CARB approved amendments to the regulation and, in 2015, readopted the LCFS to address procedural issues. In 2018, CARB approved further amendments to the regulation pertaining to the carbon intensity benchmarks through 2030 (CARB 2020). Under this EO, the carbon intensity of California's transportation fuels is to be reduced by at least 20 percent by 2030.

## Assembly Bill 32 and California Climate Change Scoping Plan

In 2006, the California legislature passed AB 32 (Health and Safety Code Division 25.5, § 38500 et seq.), also known as the California Global Warming Solutions Act. AB 32 requires CARB to implement emission limits, regulations, and other feasible and cost-effective measures such that statewide GHG emissions are reduced to 1990 levels by 2020.

Since AB 32 was adopted, CARB, the California Energy Commission (CEC), the CPUC, and the Building Standards Commission have been developing regulations that will help meet the goals of AB 32. Under AB 32, CARB is required to prepare a scoping plan and update it every 5 years. The original Scoping Plan was approved in 2008, the First Scoping Plan Update was approved in 2014, and an additional update was approved in 2017 (see discussion of SB 32 below). CARB's 2017 Climate Change Scoping Plan identifies specific measures to reduce GHG emissions to 1990 levels by 2020 and requires CARB and other state agencies to develop and enforce regulations and other initiatives for reducing GHG (CARB 2017a). Specifically, the 2017 Climate Change Scoping Plan articulates a key role for local governments, recommending they establish GHG reduction goals for both their municipal operations and the community consistent with those of the state. In 2018, CARB announced that inventory year 2016 emissions had dropped below 1990 levels, which would be an achievement of the AB 32 goal if emissions continue on their current trajectory (CARB 2018).

In November 2022, CARB adopted the 2022 Scoping Plan Update, which identifies a technologically feasible and equity-focused pathway for the state to achieve carbon neutrality by 2045. The 2022 update outlines three alternatives for meeting the state's climate goals: two different alternatives would achieve carbon neutrality by 2035, which would require an acceleration of the 2030 and 2045 GHG goals. A third alternative identifies a pathway to attain carbon neutrality by 2045 (CARB 2022b).

## Senate Bill 375

Senate Bill (SB) 375, signed into law by Governor Schwarzenegger on September 30, 2008, became effective January 1, 2009. This law requires the state's 18 Metropolitan Planning Organizations (MPOs) to develop sustainable communities strategies (SCS) as part of their Regional

Transportation Plans (RTPs) through integrated land use and transportation planning, and to demonstrate an ability to attain the GHG emissions reduction targets that the CARB established for the region by 2020 and 2035. This would be accomplished through either the financially constrained SCS as part of the RTP or an unconstrained alternative planning strategy. If regions develop integrated land use, housing, and transportation plans that meet the SB 375 targets, new projects in these regions can be relieved of certain CEQA review requirements.

## Legislation Associated with Electricity Generation

SB 350, also known as the Clean Energy and Pollution Reduction Act of 2015, was approved by the California Legislature in September 2015 and signed by Governor Brown in October 2015. Its key provisions are to require the following by 2030: (1) a renewables portfolio standard of 50 percent, and (2) a doubling of energy efficiency (electrical and natural gas) by 2030, including improvements to the efficiency of existing buildings. Subsequently, the State passed additional legislation updating some of the SB 350 requirements and increasing use of renewables to produce electricity for consumers. Specifically, California utilities are required to generate 52 percent of their electricity from renewables by 2027 (SB 100), 60 percent by 2030 (SB 100), 90 percent by 2035 (SB 1020), 95 percent by 2040 (SB 1020), and 100 percent by 2045 (SB 100/SB 1020). SB 1020 also requires State agencies to rely on 100 percent renewable energy and zero-carbon resources for their own facilities by 2030.

## Senate Bill 32 and Assembly Bill 197

SB 32 requires CARB to ensure that statewide GHG emissions are reduced to at least 40 percent below the 1990 level by 2030, consistent with the target set forth in EO B-30-15. The companion bill to SB 32, AB 197, creates requirements to form a Joint Legislative Committee on Climate Change Policies, requires CARB to prioritize direct emission reductions and consider social costs when adopting regulations to reduce GHG emissions beyond the 2020 statewide limit, requires CARB to prepare reports on sources of GHGs and other pollutants, establishes 6-year terms for voting members of CARB, and adds two legislators as non-voting members of CARB. CARB adopted the 2017 Climate Change Scoping Plan in November 2017 to meet the GHG reduction requirement set forth in SB 32. It proposes continuing the major programs of the previous Scoping Plan, including Cap-and-Trade Regulation, LFCS, more efficient cars, trucks, and freight movement, Renewable Portfolio Standards, and reducing methane ($CH_4$) emissions from agricultural and other wastes.

## Assembly Bill 1279 and Senate Bill 1203

AB 1279 requires California to achieve net-zero GHG emissions (i.e., reach a balance between the GHG emitted and removed from the atmosphere) no later than 2045 and maintain net negative GHG emissions from then on. It also mandates an 85 percent reduction in statewide human-made GHG emissions (from 1990 levels) by 2045. SB 1203 requires State agencies to achieve net-zero GHG emissions resulting from their operations no later than 2035, or as soon as feasible thereafter.

## Senate Bill 605 and Senate Bill 1383

SB 605 directed CARB, in coordination with other state agencies and local air districts, to develop a comprehensive Short-Lived Climate Pollutant (SLCP) Reduction Strategy. SB 1383 directed CARB to approve and implement the SLCP Reduction Strategy to achieve the following reductions in SLCPs:

- 40 percent reduction in methane ($CH_4$) below 2013 levels by 2030.

- 40 percent reduction in hydrofluorocarbon (HFC) gases below 2013 levels by 2030.
- 50 percent reduction in human made black carbon below 2013 levels by 2030.

CARB adopted the SLCP Reduction Strategy in March 2017 as a framework for achieving the $CH_4$, HFC, and human-made black carbon reduction targets set by SB 1383. The SLCP Reduction Strategy includes 10 measures to reduce SLCPs, which fit within a wide range of ongoing planning efforts throughout the state.

The bill also establishes the following targets for reducing organic waste in landfills and $CH_4$ emissions from dairy and livestock operations as follows:

- 75 percent reduction in organic waste disposal from the 2014 level by 2020.
- 75 percent reduction in organic waste disposal from the 2014 level by 2025.
- 40 percent reduction in $CH_4$ emissions from livestock manure management operations and dairy manure management operations below the dairy sector's and livestock sector's 2013 levels by 2030.

CARB and California Department of Resources Recycling and Recovery (CalRecycle) are currently developing regulations to achieve the organic waste reduction goals under SB 1383. In January and June 2019, CalRecycle proposed new and amended regulations in Titles 14 and 27 of the California Code of Regulations. Among other things, the regulations set forth minimum standards for organic waste collection, hauling, and composting. The final regulations took effect in January 2022.

## Senate Bill 743

SB 743 requires revisions to the CEQA Guidelines that establish new impact analysis criteria for the assessment of a project's transportation impacts. The intent behind SB 743 and revising the CEQA Guidelines is to integrate and better balance the needs of congestion management, infill development, active transportation, and GHG emissions reduction. The Office of Planning and Research (OPR) recommends that vehicle miles traveled (VMT) serve as the primary analysis metric, replacing the existing criteria of delay and level of service. In 2018, OPR released a technical advisory outlining potential VMT significance thresholds for different project types. For example, it would be reasonable to conclude that residential and office projects demonstrating a VMT level that is 15 percent less than existing (2015-2018 average) conditions are consistent with statewide GHG reduction targets. With respect to retail land uses, any net increase of VMT may indicate a significant transportation impact.

## California State Rail Plan

Caltrans is responsible for preparing a State Rail Plan approximately every four years. According to Caltrans, the state rail plan outlines "a long-term vision for an integrated, cohesive statewide rail system that offers efficient passenger and freight service, supports California's economy, and helps achieve critical climate goals."

The 2018 State Rail Plan[1] identifies projects that benefit rail operators and presents a vision for 2040 to divert 88 million daily passenger miles from highways to rail and increase passenger rail travel by 92 million passenger miles per day. With respect to freight rail, the plan includes six key

[1] The draft 2023 State Rail Plan was released by Caltrans in March 2023, but a final version has not yet been published.

elements: having a (1) premier, (2) customer-focused, and (3) integrated system; and developing a rail network that (4) moves both people and products, (5) achieves economic growth, and (6) supports improvements in California's quality of life (Caltrans 2018).

### 3.9.2.3 Regional

#### Bay Area Air Quality Management District

The Project falls under the jurisdiction of the BAAQMD. The BAAQMD has local air quality jurisdiction over projects in the San Francisco Bay Area Air Basin (SFBAAB) including Alameda County. BAAQMD has adopted advisory emission thresholds to assist CEQA lead agencies in determining the level of significance of a project's emissions, which are outlined in its California Environmental Quality Act Air Quality Guidelines (CEQA Guidelines) (BAAQMD 2017). BAAQMD has also adopted air quality plans to improve air quality, protect public health, and protect the climate, including the 2017 Clean Air Plan: Spare the Air, Cool the Climate (2017 Clean Air Plan) (BAAQMD 2017b).

The 2017 Clean Air Plan was adopted by the BAAQMD on April 19, 2017. The 2017 Clean Air Plan updates the prior 2010 Bay Area ozone plan and outlines feasible measures to reduce ozone; provides a control strategy to reduce particulate matter, air toxics, and GHGs in a single, integrated plan; and establishes emission control measures to be adopted or implemented. The 2017 Clean Air Plan contains the following primary goal as it relates to GHG:

- **Protect the Climate:** Reduce Bay Area GHG emissions to 40 percent below 1990 levels by 2030 and 80 percent below 1990 levels by 2050. The 2017 Clean Air Plan is the most current applicable air quality plan for the air basin. Consistency with this plan is the basis for determining whether the proposed Project would conflict with or obstruct implementation of an air quality plan.

In April 2023, BAAQMD adopted the 2022 CEQA Air Quality Guidelines, which include new climate impact thresholds that address the statewide GHG target established by SB 32 and the eventual goal of carbon neutrality by 2045 (e.g., EO B-55-18). The guidelines also look at how project and plan-level CEQA analyses should evaluate the significance of climate impacts, based on evolving case law. The BAAQMD 2022 CEQA Air Quality Guidelines update the CEQA GHG thresholds from the 2017 CEQA Air Quality Guidelines, which were not consistent with the statewide GHG target established by SB 32. In summary, the updated thresholds emphasize the following:

1. Avoiding wasteful electricity usage and developing fossil fuel infrastructure in new buildings that will be in place for decades and thus conflict with carbon-neutrality goals by 2045;
2. Compliance with the California Green Building Standards (CALGreen) Tier 2 electric-vehicle (EV) requirements and per capita reductions in VMT consistent with SB 743; and
3. Consistency with a qualified GHG emissions reduction strategy (also known as a Climate Action Plan [CAP]).

BAAQMD also provided an appendix to the 2022 CEQA Air Quality Guidelines, Justification Report: CEQA Thresholds for Evaluating the Significance of Climate Impacts from Land Use Projects and Plans that explains why its thresholds and approach to analysis for project-level impacts under CEQA are supported by substantial evidence.

### Metropolitan Transportation Commission

The Metropolitan Transportation Commission (MTC) is the MPO for the nine counties that make up the San Francisco Bay Area and the SFBAAB. The first per capita GHG emissions reduction targets for the SFBAAB were 7 percent by 2020 and 15 percent by 2035 relative to 2005 levels. In 2013, MTC adopted a SCS as part of its RTP for the SFBAAB. This was known as Plan Bay Area. The plan goes beyond regional per capita targets and calls for 10 and 16 percent reductions in per capita GHG emissions by 2020 and 2035, respectively (MTC and Associated of Bay Area Governments [ABAG] 2013). On July 26, 2017, the strategic update to this plan, known as Plan Bay Area 2040, was adopted by the ABAG and the MTC. As a limited and focused update, Plan Bay Area 2040 builds upon the growth pattern and strategies developed in the original Plan Bay Area but with updated planning assumptions that incorporate key economic, demographic, and financial trends since 2013 (MTC and ABAG 2017). As required by SB 375, CARB updated the per capita GHG emissions reduction targets in 2018. The new targets (i.e., reductions in per capita GHG emissions of 10 percent by 2020 and 19 percent by 2035 relative to 2005 levels) are addressed in the latest update to Plan Bay Area, Plan Bay Area 2050, which was approved by ABAG and the MTC in October 2021. Plan Bay Area 2050 carries forward many of the development and funding strategies of Plan Bay Area 2040 (MTC and ABAG 2021).

## 3.9.2.4 Local

### Local Government Climate Action Plans

Several jurisdictions in the proposed Project area have adopted CAPs, GHG reduction plans, or equivalent documents aimed at reducing local GHG emissions. Jurisdictions with adopted or in-development climate action plans or GHG reduction plans include the County of Alameda, the City of Oakland, the City of Fremont, the City of Hayward, the City of San Leandro, the City of Newark, and the City of Union City. These plans call for reductions in GHG emissions below current levels and actions to reduce VMT and associated transportation emissions. Improving transit service, a primary goal of the proposed Project, is a key strategy in reducing local GHG emissions.

## 3.9.2.5 Consistency with Plans, Policies, and Regulations

Section 15125(d) of the CEQA Guidelines requires an environmental impact report (EIR) to discuss "any inconsistencies between the proposed Project and applicable general plans, specific plans, and regional plans." Applicable plans, policies, and regulations were considered during the preparation of this analysis and were reviewed to assess whether the proposed Project would be consistent with the plans of relevant jurisdictions. A detailed evaluation of consistency with applicable plans, policies, and regulations is provided in Section 3.9.6.2.

# 3.9.3 Methods for Evaluating Environmental Impacts

This section defines the GHG RSA and describes the methods used to analyze the impacts on GHG within the RSA.

### 3.9.3.1 Resource Study Area

As defined in Section 3.1, Introduction, RSAs are the geographic boundaries within which the environmental investigations specific to each resource topic were conducted. For GHG, the RSA comprises the entire state and global atmosphere, for both construction and operations.

### 3.9.3.2 Data Sources

Impacts of the proposed Project on GHG emissions from construction and operations were assessed and quantified using standard and accepted software tools, techniques, and emission factors. This chapter describes the primary assumptions and methods used to quantify emissions and estimate potential impacts. Model inputs and calculation files can be found in Appendix B.

#### Construction

Construction of the proposed Project would generate emissions of carbon dioxide ($CO_2$), $CH_4$, and nitrous oxide ($N_2O$) in the RSA. It is expected that construction would occur in three calendar years at the Coast and Niles Subdivisions. Emissions would originate from off-road equipment exhaust, employee and haul truck vehicle exhaust (on-road vehicles), and locomotive exhaust. These emissions would be temporary (i.e., limited to the construction period) and would cease when construction activities are complete.

Emissions estimates for construction of the proposed Project were based on engineering inputs. Total emissions from construction of the proposed Project are presented at the average daily time scale and are compared with BAAQMD construction thresholds.

- **Off-Road Equipment**: Emission factors for off-road construction equipment (e.g., loaders, graders, bulldozers) were obtained from the CalEEMod (version 2022.1) User's Guide appendix, which provides values per unit of activity (in grams per horsepower-hour) by calendar year (Appendix B). GHG emissions were estimated by multiplying the CalEEMod emission factors by the equipment inventory provided by the proposed Project engineers.
- **On-Road Vehicles:** On-road vehicles (e.g., pickup trucks, flatbed trucks) would be required for material and equipment hauling, onsite crew and material movement, and employee commuting. Exhaust emissions from on-road vehicles were estimated using the EMFAC2021 emissions model and activity data provided by the proposed Project engineers (Berger pers. comm.; Abi-Hanna pers. comm.). Emission factors for haul, concrete, and water trucks are based on aggregated-speed emission rates for EMFAC's "MHDT" and "HHDT" vehicle categories.[2] Factors for employee commute vehicles are based on a weighted average for all vehicle speeds for EMFAC's "LDA," "LDT1," and "LDT2" vehicle categories.[3]
- **Locomotives:** Emissions from diesel-powered locomotives used to transport rail materials were quantified using the EPA's locomotive engine emission standards (EPA 2009) and activity data provided by the project engineers (Berger pers. comm.; Abi-Hanna pers. comm.). The load factors for the locomotives were calculated using the duty cycle weighting factors defined by the EPA used to calculate cycle-weighted average emission rates[4]. These duty cycle weighting

[2] These categories represent medium-heavy duty and heavy-duty trucks.

[3] These categories represent light-duty autos, and two different sizes of light-duty trucks.

4 Most locomotives have eight engine notch settings, which correspond to power output. In lower notch settings, which are used for acceleration, the engines run less efficiently and produce more emissions per output unit.

factors represent the time spent in each mode (i.e. throttle notches 1-8, idle, and dynamic brake) (CARB 2016). The duty cycle weighting factors for line haul locomotives were used to calculate the load factor for locomotives hauling ballast to and from the site (i.e. off-site locomotives), while the factors for switch locomotives were used to calculate the load factor for locomotives operating on-site and within the proposed Project alignment. The approximate horsepower values for each mode of operation were estimated using power values by notch setting from EPA's *Locomotive Emission Standards Regulatory Support Document* (EPA 1998). All locomotives were assumed to utilize a 4,400 horsepower, Tier 3 engine.

## Operations

### Displaced Vehicle Miles Traveled

Operation of the proposed Project would improve Capitol Corridor passenger rail service between Oakland and San Jose. The resulting reduction in automobile vehicle usage is quantified by year and scenario as part of this analysis. The VMT data were estimated using a regional travel demand model that covers the geographic extent of the Bay Area region.[5] Data have been provided for 2025 and 2040, and for two scenarios (No Project Alternative and Proposed Project). The VMT was separated into 5-mph speed groupings, or "speed bins." The GHG emissions reductions achieved by displaced VMT were estimated using emission factors from EMFAC2021. In 2025, the proposed Project would reduce VMT by approximately 24,000 miles per day relative to the No Project Alternative, and, in 2040, the VMT reduced would be approximately 33,000 miles per day. Appendix B contains additional details regarding the calculations for quantifying emissions from displaced VMT.

### Ardenwood Station Operational Emissions

The new Ardenwood Station would generate GHG emissions from the use of landscaping equipment (i.e. area sources), consumption of electricity (i.e. energy sources), and combustion emissions from the occasional use of a diesel-powered emergency generator (i.e. stationary sources).

The area and stationary source emissions at the Ardenwood Station were estimated in CalEEMod Version 2022.1 based on the estimated size of the station platform and parking garage. The CalEEMod model includes standard land use categories that can be used to represent a project (e.g. residential, commercial, industrial, parking, etc.), and these land use categories have corresponding emissions rates for landscaping equipment and electricity use. Although a train station is not a land use category option in CalEEMod, similar and representative land use categories can be used for comparison. For example, a train boarding platform is a flat, paved surface and can be represented by a land use category that also has those characteristics (e.g., a parking lot). As such, the station platform was modeled using the "parking lot" land use category, while the parking garage was modeled using the "enclosed parking with elevator" land use category.

GHG emissions from the emergency generator were quantified based on the anticipated operating characteristics of the emergency generator at the station and emission factors from CalEEMod. The generator would require testing periodically to ensure that it is functioning properly and would also require operation during power outages. Thus, it was assumed that the generator would operate for 150 hours per year, based on the recommendation of BAAQMD, which accounts for both routine testing (50 hours) and emergency operations (100 hours) (BAAQMD 2023).

[5] For more details on how VMT has been estimated, please refer to Section 3.18 *Transportation*.

On-road vehicle trips to and from the station would also result in emissions from vehicle exhaust pipes because passengers would travel in their vehicles to and from the station to use the train. These emissions are reflected in the changes in VMT resulting from proposed Project implementation, and the methods for calculating those emissions are presented above in *Displaced Vehicle Miles Traveled* discussion.

It should also be noted that implementation of the proposed Project would result in two existing Capitol Corridor stations no longer being used for Capitol Corridor service. The Fremont-Centerville station would continue to be serviced by ACE commuter rail, while the Hayward station would not have any rail service. The removal of service at these two stations may result in GHG emissions reductions; however, emissions reductions are likely to be minor, because train station operations are not major sources of emissions. Regardless, this analysis does not account for any potential reduction in emissions from the removal of Capitol Corridor service. The analysis is thus conservative, because it includes operational emissions from the new Ardenwood Station but does not take credit for reduced operational emissions from the two existing stations.

### Changes to Locomotive Emissions

#### *Capitol Corridor Locomotives*

The proposed Project would reduce rail travel time between Oakland and San Jose. This would be accomplished by shortening the route that Capitol Corridor trains would travel between the two cities. Although the proposed Project would not increase the number of passenger trains on the route, the exhaust emissions from locomotives may be affected by the change in route. Most locomotives have eight engine notch settings, which correspond to power output. In lower notch settings, which are used for acceleration, the engines run less efficiently and produce more emissions per output unit. Since the Coast subdivision would only have one station stop instead of two under the existing route, the proposed Project would result in less locomotive acceleration time, and thus fewer emissions would be produced.

Additionally, the Coast Subdivision is a comparatively straighter route with fewer turns than the Niles Subdivision. This would result in higher speeds and higher fuel consumption, which could partially offset the benefit from the reduced acceleration. However, trains on the Coast Subdivision would also travel a shorter distance than on the Niles Subdivision, which would lower fuel consumption. Overall, it is anticipated that emissions levels from use of the Coast Subdivision would be similar or slightly less compared to use of the Niles Subdivision.

#### *Freight Locomotives*

The proposed Project would not change freight operations. Therefore, it is assumed that there would be no change in freight locomotive emissions as a result of the proposed Project. Freight locomotives would continue to use the subdivisions within the Project Study Area and it is expected that such train traffic would grow each year. The 2018 California State Rail Plan anticipates rail traffic in California will increase at a compound annual growth rate of 2.9 percent through 2040, and rail carload traffic will increase at a compound annual growth rate of 1.7 percent through 2040 (Caltrans 2018).

### 3.9.3.3 CEQA Thresholds

To satisfy CEQA requirements, GHG emissions impacts were analyzed in accordance with Appendix G of the CEQA Guidelines. According to the CEQA Guidelines, CCR, Title 14, Section 15002(g), "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in CEQA Guidelines Section 15064(b)(1), the significance of an activity may vary with the setting. The impact analysis identifies and analyzes construction (short-term) and operation (long-term) impacts, as well as direct and indirect impacts (see PRC Section 21065). The proposed Project would have significant GHG emissions impacts under CEQA if it would:

a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or
b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

The CEQA Guidelines Section 15125 indicate that existing conditions at the time a notice of preparation is released or when environmental review begins "normally" represent the baseline for environmental analysis. 2010, the California Supreme Court issued an opinion holding that while lead agencies have some flexibility in determining what constitutes the baseline, relying on "hypothetical allowable conditions" when those conditions are not a realistic description of the conditions without the proposed Project, would be an illusory basis for a finding of no significant impact from the proposed Project and, therefore, a violation of CEQA (*Communities for a Better Environment v. South Coast Air Quality Management District* [2010] 48 Cal. 4th 310).

On August 5, 2013, the California Supreme Court issued a decision on *Neighbors for Smart Rail v. Exposition Metro Line Construction Authority* (57 Cal. 4th 439) which clarified that, under certain circumstances, a baseline may reflect future, rather than existing, conditions. The ruling specifies that factual circumstances can justify an agency departing from that norm in the following circumstances when such reasons are supported by substantial evidence.

When necessary to prevent misinforming or misleading the public and decision makers.

When the use of future conditions in place of existing conditions is justified by unusual aspects of the project or surrounding conditions. With respect to the proposed Project, using existing conditions to evaluate GHG impacts would misrepresent and mislead the public and decision makers with respect to potential GHG impacts, for the following reasons:

1. On-road vehicle emissions rates are anticipated to lessen in the future due to continuing engine advancements and more stringent air quality regulations. Evaluating the VMT displacement for existing conditions (2019) and quantifying emissions utilizing 2019 vehicle emissions rates would represent a fictitious scenario and would overestimate emissions reductions and potential GHG benefits achieved by the proposed Project.
2. Using the relatively higher "existing conditions" emissions factors to quantify emissions reduction benefits associated with proposed Project-related VMT reductions in 2025 and 2040 would overstate the proposed Project's emissions reduction benefits.

These facts represent substantial evidence in support of using a future conditions analysis, rather than existing conditions, to evaluate GHG impacts. Accordingly, this analysis evaluates the proposed Project emissions in the opening year (2025) and horizon year (2040) conditions, compared to the No Project Alternative in these same years. This approach reflects appropriate vehicle fleet characteristics and emission factors. Using future year conditions as the basis for the CEQA analysis avoids misinforming and misleading the public and decision-makers with respect to GHG impacts, consistent with current CEQA case law.

## Supplemental Thresholds

GHG emissions and global climate change represent cumulative impacts of human activities and development projects locally, regionally, nationally, and worldwide. GHG emissions cumulatively contribute to the significant adverse environmental impacts of global climate change. No single project could generate enough GHG emissions to noticeably change the global average temperature; instead, the combination of GHG emissions from past, present, and future projects and activities have contributed and will contribute to global climate change and its associated environmental impacts.

BAAQMD does not have an adopted significance threshold for construction-related GHG emissions. However, GHG emissions that would occur during construction have been quantified, and a determination is made for the significance of these construction generated GHG emissions impacts in relation to meeting the state's GHG reduction goals.

With respect to operational GHG significance thresholds, BAAQMD released *CEQA Thresholds for Evaluating the Significance of Climate Impacts from Land Use Projects and Plans* in April 2022 and incorporated this report into the 2022 CEQA Guidelines. The BAAQMD report introduces proposed updates to the CEQA GHG thresholds from the 2017 CEQA Guidelines, which were not consistent with the statewide GHG target established by SB 32. These proposed GHG thresholds of significance were updated to consider newer state reduction targets (e.g., SB 32) and eventual carbon neutrality by 2045 (e.g., EO B-55-18), as well as evolving case law. In summary updated thresholds emphasize:

- Avoiding wasting electricity and developing fossil fuel infrastructure in new buildings that will be in place for decades and thus conflict with carbon neutrality by 2045;
- Compliance with CALGreen Tier 2 electric vehicle requirements and per capita VMT reductions consistent with SB 743; and
- Consistency with a qualified greenhouse reduction strategy (also known as a CAP).

These thresholds are applicable to typical land use development projects, such as residential, office, retail, or industrial projects. Because the proposed Project is a rail infrastructure improvement project, the BAAQMD thresholds for operations are not used. Therefore, direct and indirect GHG emissions are discussed with respect to larger statewide GHG emission reduction goals, where a significant impact would occur if emissions would obstruct attainment of the targets outlined under SB 32, or AB 1279. Additionally, the BAAQMD has adopted air quality plans to protect the climate, including the 2017 Clean Air Plan, which is also used to inform the proposed Project's impacts. The 2017 Clean Air Plan outlines feasible measures to reduce GHG to 40 percent below 1990 levels by 2030 and 80 percent below 1990 levels by 2050.

# 3.9.4 Affected Environment

## 3.9.4.1 Environmental Setting

### Global Climate Change

The process known as the greenhouse effect keeps the atmosphere near Earth's surface warm. The greenhouse effect is created by sunlight that passes through the atmosphere. Some of the sunlight striking Earth is absorbed and converted to heat, which warms the surface. The surface emits a portion of this heat as infrared radiation, some of which is re-emitted toward the surface by GHG. Human activities that generate GHG increase the amount of infrared radiation absorbed by the atmosphere, thus enhancing the greenhouse effect and amplifying the warming of Earth.

Increases in fossil fuel combustion and deforestation have exponentially increased concentrations of GHGs in the atmosphere since the Industrial Revolution (Intergovernmental Panel on Climate Change [IPCC] 2007). Rising atmospheric concentrations of GHG in excess of natural levels result in increasing global surface temperatures; a process commonly referred to as global warming. Higher global surface temperatures, in turn, result in changes to Earth's climate system, including increased ocean temperature and acidity, reduced sea ice, variable precipitation, and increased frequency and intensity of extreme weather events (IPCC 2018a). Large-scale changes to Earth's system are collectively referred to as climate change.

IPCC was established by the World Meteorological Organization and United Nations Environment Programme to assess scientific, technical, and socioeconomic information relevant to the understanding of climate change, its potential impacts, and options for adaptation and mitigation. The IPCC estimates that human-induced warming reached approximately 1°C above pre-industrial levels in 2017, increasing at 0.2°C per decade. Under the current nationally determined contributions of mitigation from each country until 2030, global warming is expected to rise to 3°C by 2100, with warming to continue afterwards (IPCC 2018b). Large increases in global temperatures could have substantial adverse effects on the natural and human environments worldwide and in California.

### Greenhouse Gas Emission Inventories

A GHG inventory is a quantification of all GHG emissions and sinks[6] within a selected physical and/or economic boundary. GHG inventories can be performed on a large scale (e.g., for global and national entities) or on a small scale (e.g., for a building or person). Although many processes are difficult to evaluate, several agencies have developed tools to quantify emissions from certain sources. Table 3.9-1 outlines the most recent global, national, statewide, and local GHG inventories to help contextualize the magnitude of potential Project-related emissions. At the local level, all municipalities in the proximity of the RSA that have prepared a GHG inventory are included in Table 3.9-1.

[6] A GHG sink is a process, activity, or mechanism that removes a GHG from the atmosphere.

**Table 3.9-1. Global, National, and State GHG Emissions Inventories**

| Emissions Inventory | $CO_2e$ (metric tons) |
|---|---|
| **2017 IPCC Global GHG Emissions Inventory** | 53,500,000,000 |
| **2021 EPA National GHG Emissions Inventory** | 5,586,000,000 |
| **2020 CARB State GHG Emissions Inventory** | 369,200,000 |
| **2011 BAAQMD GHG Emissions Inventory** | 86,600,000 |
| **2017 City of Oakland GHG Emissions Inventory** | 2,643,884 |
| **2010 City of Fremont GHG Emissions Inventory** | 1,516,500 |
| **2005 City of Hayward GHG Emissions Inventory** | 1,183,274 |
| **2019 Unincorporated Alameda County GHG Emissions Inventory** | 43,372 |
| **2015 City of San Leandro GHG Emissions Inventory** | 636,172 |
| **2005 City of Newark GHG Emissions Inventory** | 433,857 |
| **2005 City of Union City GHG Emissions Inventory** | 342,297 |

***Sources: IPCC 2018b.; EPA 2023; CARB 2023b; BAAQMD 2011; City of Oakland 2020; City of Fremont 2014; City of Hayward 2009; Alameda County 2021; City of San Leandro 2017; City of Newark 2010; City of Union City 2010.***
***Note: Emissions in the table are presented in terms of carbon dioxide equivalent ($CO_2e$)***

## Potential Climate Change Effects

Climate change is a complex process that has the potential to alter local climatic patterns and meteorology. Although modeling indicates that climate change will result in sea level rise (both globally and regionally) as well as changes in climate and rainfall, among other effects, there remains uncertainty about characterizing precise local climate characteristics and predicting precisely how various ecological and social systems will react to any changes in the existing climate at the local level. Regardless of this uncertainty, it is widely understood that substantial climate change is expected to occur in the future, although the precise extent will take further research to define. With respect to central-western California, including the Project Study Area, climate change effects are expected to include the following conditions (PRBO Conservation Science 2011):

- Hotter and drier climate, with average annual temperatures increasing 1.6 to 1.9°F by 2070 and mean annual rainfall decreasing by 2.4 to 7.4 inches.

- Sea level rise by 3.4 to 5 inches by 2020 to 2050 and by 7.6 to 16 inches by 2070 to 2099, potentially affecting or flooding coastal development.
- More frequent and intense wildfires, with the area burned projected to increase by an estimated 10 to 50 percent by 2070 to 2090.
- Decreases in chaparral/coastal scrub (19 to 43 percent by 2070) and blue oak woodland/ foothill pine (44 to 55 percent by 2070); increases in grassland (85 to 140 percent by 2070).
- Increased salinity in the San Francisco Bay, especially during dry years.
- Increase in estuarine flows into the San Francisco Bay, with winter gains approximately balancing spring-summer losses.

Increased heat and decreased air quality, with the result that public health will be placed at risk, native plant and animal species may be lost, and there will be an estimated 60 percent growth in electricity consumption.

## Pollutants of Concern

The principal human-made GHGs contributing to global warming are $CO_2$, $CH_4$, $N_2O$, and fluorinated compounds, including sulfur hexafluoride ($SF_6$), HFCs, and perfluorocarbons (PFCs). Water vapor, the most abundant GHG, is not included in this list because its natural concentrations and fluctuations far outweigh its human-made sources.

The primary GHGs of concern generated by the proposed Project are $CO_2$, $CH_4$, and $N_2O$. Principal characteristics of these pollutants are discussed below.

- $CO_2$ enters the atmosphere through fossil fuels (oil, natural gas, and coal) combustion, solid waste decomposition, plant and animal respiration, and chemical reactions (e.g., manufacture of cement). $CO_2$ is also removed from the atmosphere when it is absorbed by plants as part of the biological carbon cycle.
- $CH_4$ is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and from the decay of organic waste in municipal solid waste landfills.
- $N_2O$ is emitted during agricultural and industrial activities, as well as during combustion of fossil fuels and solid waste.

GHGs are described in terms of a single gas to simplify reporting and analysis. The most commonly accepted method to compare GHG emissions is the global warming potential (GWP) that calculates all GHG emissions in terms of carbon dioxide equivalent ($CO_2e$), which compares the gas in question to that of the same mass of $CO_2$.

Table 3.9-2 lists the global warming potential of $CO_2$, $CH_4$, and $N_2O$ and their lifetimes in the atmosphere.

**Table 3.9-2. Global Warming Potentials and Lifetimes of Key GHG**

| Greenhouse Gas | Global Warming Potential (100 years) | Lifetime (years) |
|---|---|---|
| $CO_2$ | 1 | 50–200 |
| $CH_4$ | 25 | 9–15 |
| $N_2O$ | 298 | 121 |

***Source: CARB 2022c.***

## 3.9.5 Best Management Practices

As noted in Chapter 2, Project Alternatives, CCJPA would incorporate a range of BMPs to avoid and minimize adverse effects on the environment that could result from implementation of the proposed Project. BMPs are included in the proposed Project description, and the impact analyses were conducted assuming application of these practices. The BMPs relevant to GHG are listed below. Full descriptions of the BMPs are provided in Chapter 2, Project Alternatives.**BMP GHG-1. Implement BAAQMD Construction Measures.**

## 3.9.6 Environmental Impacts

This section describes the potential environmental impacts on GHG as a result of implementation of the proposed Project. Lettering shown within title for each environmental factor below correlates with CEQA Statute and Guidelines, Appendix G table lettering and numbering.

### 3.9.6.1 (a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

#### No Project Alternative

**No Impact**. Under the No Project Alternative, the Capitol Corridor passenger rail service between Oakland and San Jose would not be relocated from the Niles Subdivision to the Coast Subdivision. Capitol Corridor passenger trains and UPRR freight trains would continue to operate based on current routes with no changes to connectivity or rail efficiency. The 2018 California State Rail Plan forecasts that rail intermodal traffic in California will increase at a compound annual growth rate of 2.9 percent through 2040 while rail carload traffic will increase at a compound annual growth rate of 1.7 percent through 2040. The projected annual growth rate for rail traffic would result in the generation of additional GHG emissions, causing the level of emissions associated with the existing conditions to increase annually. However, the forecast projected growth along the rail corridor would still occur with or without Project implementation. The No Project Alternative would not result in the implementation of the proposed Project. Therefore, under the No Project Alternative, no additional GHG emissions beyond existing conditions associated with the proposed Project would be generated and there would be no impact.

**Proposed Project**

*Construction*

**Less Than Significant Impact.** Construction of the proposed Project has the potential to create GHG impacts through the use of heavy-duty construction equipment, construction worker vehicle trips, truck hauling trips, and locomotive trips. Table 3.9-3 summarizes estimated construction-related GHG emissions in the BAAQMD in metric tons (MT) per year. Refer to Appendix B for more detailed inputs on the emissions calculations.

**Table 3.9-3. Estimated Project Construction GHGs**

| Construction Year | Annual Emissions (Metric Tons per Year) | | | |
|---|---|---|---|---|
| | $CO_2$ | $CH_4$ | $N_2O$ | $CO_2e$ |
| Year 1 | 3,498 | <1 | <1 | 3,557 |
| Year 2 | 3,969 | <1 | <1 | 4,033 |
| Year 3 | 666 | <1 | <1 | 675 |
| **Total** | **8,133** | **—** | **—** | **8,266** |

***Source: Appendix B***

As shown in Table 3.9-3, the proposed Project would result in 8,266 MT $CO_2e$. Construction emissions would cease once construction of the project is complete and are considered short term.

BAAQMD CEQA Guidelines do not identify a GHG emissions threshold for construction-related emissions; however, they do recommend that GHG emissions from construction be quantified and disclosed and a determination regarding the significance of the GHG emissions be made with respect to whether the project in question is consistent with state goals regarding reductions in GHG emissions. **BMP GHG-1: Implement BAAQMD Construction Measures** minimizes GHG emissions during construction. This measure would reduce GHG emissions by encouraging alternative-fueled construction vehicles and equipment, use of local building materials, and recycling or reuse of construction debris. Implementation of BMP GHG-1 would ensure that GHG emissions during construction would be minimized, which would avoid conflict with statewide emissions reduction goals.

*Operations*

**Less than Significant.** Operation of proposed Project has the potential to create GHG emissions impacts through operation of the new Ardenwood Station. However, proposed Project operations would also improve existing passenger rail services, which would reduce single-occupancy VMT in the region. GHG emissions and reductions generated by these sources were quantified for 2025 and 2040 conditions to evaluate the changes in regional emission as a result of the proposed Project. As noted above in Section 3.9.3, Methods for Evaluating Impacts, emissions from the station operations include combustion emissions from landscaping equipment and an emergency generator.

Additionally, the analysis is conservative, because it does not account for any emissions reductions that may occur from the removal of Capitol Corridor service at the two existing stations.

Table 3.9-4 summarizes the difference in operational emissions for two years between the No Project Alternative and the proposed Project.

**Table 3.9-4. Estimated Project Operational GHGs**

| Operational Year, Scenario, and Emissions Source | Annual Emissions (Metric Tons per Year) | | | |
|---|---|---|---|---|
| | $CO_2$ | $CH_4$ | $N_2O$ | $CO_2e$ |
| ***2025*** | | | | |
| **No Project Alternative Total** | 18,003,675 | 154 | 307 | 18,098,939 |
| On-Road Vehicle Emissions | 18,003,675 | 154 | 307 | 18,098,939 |
| **Proposed Project Total** | 18,001,772 | 154 | 307 | 18,097,027 |
| On-Road Vehicle Emissions | 18,001,772 | 154 | 307 | 18,097,027 |
| Station Operations | 32 | <0.01 | <0.01 | 32 |
| **Net Change 2025[1]** | **-1,870** | **-0.01** | **-0.03** | **-1,880** |
| ***2040*** | | | | |
| **No Project Alternative Total** | 16,089,841 | 81 | 223 | 16,158,291 |
| On-Road Vehicle Emissions | 16,089,841 | 81 | 223 | 16,158,291 |
| **Proposed Project Total** | 16,087,802 | 81 | 223 | 16,156,243 |
| On-Road Vehicle Emissions | 16,087,770 | 81 | 223 | 16,156,211 |
| Station Operations | 32 | <0.01 | <0.01 | 32 |
| **Net Change 2040[1]** | **-2,039** | **-0.01** | **-0.03** | **-2,048** |

***Source: Appendix B***
***Notes: 1. Negative values represent a net reduction in GHG emissions.***

As shown in Table 3.9-4, the proposed Project would result in a net reduction in vehicle-related emissions even though there is a minor increase in emissions from station operations. The overall net effect in 2025 and 2040 would be a GHG emissions decrease of 1,880 and 2,048 MT $CO_2e$, respectively. In general, the effect from reducing VMT becomes less beneficial per mile reduced in future years, because vehicles will become lower emitting in future years from improved technology, more stringent standards and regulations, and turnover of the existing vehicle fleet. As such, there is a lesser beneficial effect in 2040 for each mile reduced; however, more miles would be reduced in 2040 and thus the reduction would be greater in 2040 than in 2025.

As noted in Table 3.9-3, construction of the proposed Project would result in GHG emissions of 8,266 MT $CO_2e$. Conversely, the operational period would result in a net decrease in GHG emissions of 1,880 MT (in 2025) and 2,048 MT (in 2040) relative to the No Project Alternative each year. As such, the emissions generated during the construction period would be offset in approximately 2 to 5 years of operation and, after that, the proposed Project would further decrease emissions relative to the No Project Alternative each year. Although there are no applicable operational GHG significance thresholds for this type of project, it is clear that the proposed Project would not result in GHG emissions that would directly or indirectly have a significant impact on the environment, because the net negative emissions help achieve and are thus consistent with state and local GHG goals. Because the proposed Project would have net negative GHG emissions, the impact would be less than significant.

### 3.9.6.2 (b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases

**No Project**

**No Impac**t. Under the No Project Alternative, the Capitol Corridor passenger rail service between Oakland and San Jose would not be relocated from the Niles Subdivision to the Coast Subdivision. Capitol Corridor passenger trains and UPRR freight trains would continue to operate based on current routes with no changes to connectivity or rail efficiency. As discussed above, the projected annual growth rate for rail traffic would result in the generation of additional GHG emissions, causing the level of emissions associated with the existing conditions to increase annually. However, the forecast projected growth along the rail corridor would still occur with or without Project implementation. Therefore, the No Project Alternative would not result in additional GHG emissions beyond the existing conditions and would thus not conflict with any plans, policies, or regulations adopted for the purpose of reducing GHG emissions. There would be no impact.

**Proposed Project**

*Construction and Operations*.

**Less Than Significant Impact.** CARB adopted the 2017 Climate Change Scoping Plan to meet the GHG reduction requirement set forth in SB 32 and the 2022 Scoping Plan to meet the GHG reduction requirement set forth in AB 1279. In addition, the MTC and ABAG have adopted their RTP/SCS to reduce transportation-related emissions throughout the region. Further, one of the primary goals of BAAQMD's 2017 Clean Air Plan is to protect the climate and reduce Bay Area GHG emissions to 40 percent below 1990 levels by 2030 and 80 percent below 1990 levels by 2050. This analysis also considers the long-range (2045) reduction target outlined in SB 1279. Consistency with these plans

is the basis for determining whether the proposed Project would conflict with an applicable plan, policy, or regulation for the purposes of reducing the emissions of GHG.

The proposed Project proposes to reroute Capitol Corridor passenger rail service to the UPRR Coast Subdivision from the UPRR Niles Subdivision between Oakland Coliseum and Newark Junction and to construct a new intermodal train station along the Coast Subdivision. The purpose and need of the proposed Project support the primary goals of the current Scoping Plan, RTP/SCS, and 2017 Clean Air Plan by reducing passenger rail travel time between Oakland and San Jose and throughout the larger region to increase ridership on transit, ease congestion on roadways, and reduce auto commute times. Increasing transit ridership, easing congestion, and reducing commute time will reduce GHG, thus helping the region and state reach its GHG goals. The proposed Project will also enhance connections between high-demand destinations, overcoming existing geographic service gaps between job centers and affordable housing on the San Francisco Peninsula and the Capitol Corridor route. Access to affordable housing is one of the multi-layered issues that affect GHG, and the proposed Project will help bridge the gap and help the state and region reach their GHG reduction goals.

The proposed Project would improve existing passenger rail and thus encourage and induce increased ridership through improved system operations. The Scoping Plan includes strategies to reduce single-occupancy vehicle usage and to increase alternative transportation. One of the strategies for success listed in CARB's 2022 Scoping Plan Update is to "Invest in making public transit a viable alternative to driving by increasing affordability, reliability, coverage, service frequency, and consumer experience" (CARB 2022b). The proposed Project supports this strategy by improving the efficiency of public transit, making it a more viable alternative to driving in the proposed Project region. The proposed Project would support implementation of Plan Bay Area 2050 by reducing VMT.

Additionally, the proposed Project is mentioned in the 2018 California State Rail Plan, which has a service goal to "improve service speeds and frequencies between San Jose and Oakland with track and ROW improvements, and by introducing an optimized rail schedule that better uses capacity available under existing and enhanced railroad agreements across all intercity and regional rail service providers" (Caltrans 2018). Thus, the proposed Project helps to support that service goal from the State Rail Plan.

Because the proposed Project will facilitate more auto-competitive travel times for intercity passenger rail trips and create new connections to Transbay transit services and destinations on the San Francisco Peninsula, it directly supports and advances measure TR4: Local and Regional Rail Service from the BAAQMD's 2017 Clean Air Plan. Support and advancement of this measure contributes to the BAAQMD efforts to achieve a primary goal of the 2017 Clean Air Plan, which is to reduce Bay Area GHG emissions to 40 percent below 1990 levels by 2030 and 80 percent below 1990 levels by 2050. These GHG goals are consistent with the State's effort to reduce GHG emissions in accordance with SB 32.

Operation of the proposed Project would result in a net reduction in GHG emissions relative to the No Project Alternative (Table 3.9-4), and the emission reductions would facilitate attainment of state and regional GHG reduction goals, including SB 32, AB 1279, and the BAAQMD's 2017 Clean Air Plan goals. Additionally, a net reduction in annual GHG emissions from the proposed Project would also be consistent with the most recent long-term trajectory of statewide climate change planning, as represented by the long-term goal of carbon neutrality by 2045 per SB 1279. The proposed

Project would be consistent with both the 2030 reduction goal and 2045 carbon neutral target. Therefore, this impact would be less than significant.

## 3.9.7 Mitigation Measures

No mitigation measures associated with GHG are required for the proposed Project.

## 3.9.8 Cumulative Impact Analysis

Cumulative impacts can result from individually minor but collectively substantial impacts from past, present, and reasonably foreseeable future projects (those actions that are likely or probable, versus actions that are merely possible) taking place over a period of time. A cumulatively considerable impact to GHGs would occur if the proposed Project when combined with past, present, and reasonably foreseeable projects, results in cumulatively considerable contribution to global climate change. The cumulative RSA for GHGs comprises the entire state and global atmosphere. The cumulative RSA captures potential construction and operational impacts on GHG emissions generated from the combined effects of planned projects and the proposed Project.

During construction, all planned projects in the Project Study Area and within the entire state would emit GHGs from either construction and/or during operational activities. Although there may be planned projects occurring near the proposed Project, climate change is a global phenomenon, and has countless individual contributions from past, present, and future sources. Emissions of GHGs, regardless of the location, contribute to climate change. As noted above, the RSA for GHGs is the entire atmosphere, and, as such, discussing individual planned projects in the RSA does not yield useful information. The project-level analysis above is inherently cumulative.

Construction and operation of other planned projects would result in GHG emissions. In general, projects involving public transit would provide alternatives to vehicular travel and usually result in a net reduction in GHG emissions relative to vehicular travel. If cumulative transportation projects result in a net decrease in VMT, they would reduce GHG emissions. Operation of land development projects would increase GHG pollutant emissions from increased vehicular travel, as well as building energy consumption, waste generation, water and waste treatment, and other sources. The cumulative emission of GHGs from all other planned projects could constitute a significant cumulative impact.

Construction of the proposed Project would generate GHG emissions from the use of heavy-duty construction equipment, construction worker vehicle trips, truck hauling trips, and locomotive trips. Although there is no threshold for construction-period emissions for either project- or cumulative-level impacts, BMP GHG-1 would also reduce GHG emissions during construction. As noted above, construction GHG emissions would be offset within 2 to 5 years of commencing proposed Project operations. Thus, the proposed Project's contribution to cumulative GHG emissions during construction would be less than significant, because operational GHG emissions reductions would more than offset construction emissions in approximately 2 to 5 years.

As discussed above, operation of the proposed Project would result in a net reduction in GHG emissions, relative to the No Project Alternative. Operational GHG reduction benefits from the proposed Project would offset the short-term construction increase in GHG emissions in a few years. Emissions savings achieved thereafter would contribute to reductions in GHG emissions and more than offset the construction period GHG emissions. This reduction would be an environmental

benefit and as a result, the proposed Project's contribution to cumulative GHG emissions during operations would be less than considerable. Additionally, over time, local, state, and federal plans, such as those discussed above, are seeking to dramatically reduce GHG emissions overall.

Based on these factors, the proposed Project would not result in cumulative impacts on GHG emissions when considered with other planned projects. The impacts of the proposed Project therefore would not be cumulatively considerable and therefore the Project would not have a significant cumulative impact associated with GHG emissions.

## 3.9.9 CEQA Significance Findings Table

Table 3.9-5 summarizes the GHG impacts of the proposed Project.

**Table 3.9-5. GHG Impacts Summary**

| Impact | Level of Significance Before Mitigation | Incremental Project Contribution to Cumulative Impacts | Mitigation | Level of Significance with Mitigation Incorporated | Incremental Project Cumulative Impact after Mitigation |
|---|---|---|---|---|---|
| Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment | LTS | NCC | N/A | LTS | NCC |
| Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases | LTS | NCC | N/A | LTS | NCC |

***Notes: LTS = Less than Significant Impact, NI = No Impact, N/A = Not Applicable, SI = Significant Impact, S/M = Significant Impact but Mitigable to a Less than Significant Level, CC = Cumulatively Considerable, NCC = Not Cumulatively Considerable.***

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# 3.10 Hazards and Hazardous Materials

## 3.10.1 Introduction

This section describes the regulatory setting and affected environment for hazards and hazardous materials. This section addresses hazards and hazardous materials sites that are known to occur or have the potential to occur in the proposed hazards and hazardous materials RSA and describes the potential impacts on those resources during construction and operation of the proposed Project. This section also identifies the potential for cumulative impacts of the proposed Project on hazards and hazardous materials when considered in combination with other relevant projects.

## 3.10.2 Regulatory Setting

This section identifies the federal, state, regional, and local laws, regulations, and orders that are relevant to the analysis of hazards and hazardous materials. This section also addresses the proposed Project's consistency with the regulations described herein.

### 3.10.2.1 Federal

#### Clean Air Act (42 United States Code (U.S.C.) 7401 et seq.)

The Clean Air Act is intended to protect the public from hazardous airborne contaminants that can affect human health. The National Emissions Standards for hazardous air pollutants were established under the United States Environmental Protection Agency Clean Air Act. These emissions standards include the regulation of asbestos.

#### Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA or Superfund)

CERCLA, commonly known as Superfund, provides broad federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. CERCLA establishes requirements concerning closed and abandoned hazardous waste sites; provides for liability of persons responsible for releases of hazardous waste at these sites; and establishes a trust fund to provide for cleanup when no responsible party can be identified.

#### Hazardous Materials Transport

The U.S. Department of Transportation, along with the California Highway Patrol (CHP) and Caltrans, regulates transportation of hazardous materials between states and within California. Together, these agencies determine container types used and license hazardous-waste haulers for transportation of hazardous waste on public roads. The FRA enforces the Hazardous Materials Regulations, which include requirements that railroads and other transporters of hazardous materials, as well as shippers, have and adhere to security plans and also train their employees involved in offering, accepting, or transporting hazardous materials on both safety and security matters.

## National Oil and Hazardous Substances Pollution Contingency Plan

The National Oil and Hazardous Substances Pollution Contingency Plan is the federal plan for responding to oil spills and hazardous substances releases. The plan establishes the National Response Team and its roles in the National Response System, which include planning and coordinating response to major discharges of oil or hazardous waste, providing guidance to Regional Response Teams, coordinating a national program of preparedness planning and response, and facilitating research to improve response activities.

## Oil Pollution and Prevention Regulation (40 Code of CFR Part 112)

The EPA's oil spill prevention program includes the SPCC and the Facility Response Plan rules. The SPCC rule helps facilities prevent a discharge of oil into navigable waters or adjoining shorelines. The Facility Response Plan rule requires certain facilities to submit a response plan and prepare to respond to a worst-case oil discharge.

## Occupational Safety and Health Act of 1970

The Occupational Safety and Health Act, which is implemented by the Occupational Safety and Health Administration (OSHA), contains requirements, as set forth in Title 29 of the CFR Section 1910, that are designed to promote worker safety, worker training, and a worker's right-to-know. Title 49 of the CFR requires that every employee who transports hazardous materials receive training to recognize and identify hazardous materials and become familiar with hazardous materials requirements.

## Resource Conservation and Recovery Act (RCRA)

Under RCRA, the EPA has the authority to control the generation, transportation, treatment, storage, and disposal of hazardous waste by large-quantity generators (2,205 pounds/month or more). Under RCRA regulations, hazardous materials and wastes must be tracked from the time of generation to the point of disposal. Additionally, all hazardous waste transporters are required to be permitted and must have an identification number. In California, the EPA has delegated RCRA enforcement to the California Environmental Protection Agency (Cal/EPA) DTSC.

## Right-to-Know Laws and Pollution Prevention Requirements

EO 12856 was issued on August 3, 1993, directing federal agencies to conduct their facility management and acquisition activities to minimize the quantity of toxic chemicals entering any waste stream, including releases to the environment; report to the public on toxic chemicals entering any waste stream from their facilities, including releases to the environment; improve local emergency planning, response, and accident notification; and encourage markets for clean technologies and safe alternatives to extremely hazardous substances or toxic chemicals.

## Superfund Amendments and Reauthorization Act

CERCLA enlarged and reauthorized the Superfund Amendments and Reauthorization Act of 1986 (SARA, Public Law (PL) 99-499). The EPA compiles a list of national priorities among the known releases or threatened releases of hazardous substances, pollutants, or contaminants throughout the U.S. and its territories, known as the National Priorities List (NPL).

### Toxic Substances Control Act (TSCA)

The TSCA of 1976 provides EPA with authority to require reporting, record-keeping, and testing requirements, and restrictions relating to chemical substances and/or mixtures. Certain substances are generally excluded from TSCA, including, among others, food, drugs, cosmetics, and pesticides. TSCA addresses the production, import, use, and disposal of specific chemicals including polychlorinated biphenyls (PCBs), asbestos, radon, and LBP. The Frank R. Lautenberg Chemical Safety for the 21st Century Act was implemented on June 22, 2016, as an update to the TSCA. The new law includes mandatory requirements for the EPA to evaluate existing chemicals with clear and enforceable deadlines; risk-based chemical assessments; increased public transparency for chemical information; and a consistent source of funding for EPA to carry out the responsibilities under the new law.

## 3.10.2.2 State

### California Environmental Protection Agency

Cal/EPA and the State Water Resources Control Board (SWRCB) establish rules governing the use of hazardous materials and the management of hazardous waste. Applicable state and local laws include the following:

- Aboveground Petroleum Storage Tank Act.
- ACM Regulations.
- California Accidental Release Prevention Program.
- Emergency Response to Hazardous Materials Incidents.
- Hazardous Substances Information and Training Act.
- Hazardous Waste Control Law.
- Hazardous Waste Generator and On-site Hazardous Waste Treatment Programs (i.e., Tiered Permitting).
- Public Safety/Fire Regulations/Building Codes.
- Safe Drinking Water and Toxic Enforcement Act.
- Federal Toxic Substances Control Act of 1976.
- Underground Storage of Hazardous Substances Act.

Within Cal/EPA, DTSC has primary regulatory responsibility, with delegation of enforcement to local jurisdictions that enter into agreements with the state agency, for the management of hazardous materials and the generation, transport, and disposal of hazardous waste under the authority of the Hazardous Waste Control Law.

### Hazardous Materials Release Response Plans and Inventory Act (Business Plan Act)

The Business Plan Act requires businesses using hazardous materials to prepare a plan that describes their facilities, inventories, emergency response plans, and training programs. A business plan includes an inventory of hazardous materials handled, facility floor plans showing where hazardous materials are stored, an emergency response plan, and provisions for employee training

in safety and emergency response procedures (California Health and Safety Code, Division 20, Chapter 6.95, Article 1). Per the requirements of this act, the preparation of a Hazardous Materials Business Plan (HMBP) would be required for the safe storage, containment, and disposal of chemicals and hazardous materials related to the proposed project operations, including waste materials. As of May 11, 2016, all sections within CCR Title 19, Division 2, Chapter 4 have been renumbered to include Article 3.9, which includes procedures for regional railroad accident preparedness and immediate response.

### Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program)

The Unified Program required the administrative consolidation of six hazardous materials and waste programs (Program Elements) under one agency, a Certified Unified Program Agency. The Program Elements consolidated under the Unified Programs are: Tiered Permitting, Aboveground Petroleum Storage Tank SPCC, Community-Right-To-Know, California Accidental Release Prevention, Underground Storage Tanks (USTs), and Uniform Fire Code Plans and Inventory Requirements.

## 3.10.2.3 Regional

### Certified Unified Program Agency

Passage of SB 1082 in 1993 required consolidation of the six state-mandated hazardous waste and hazardous materials management programs within a single Unified Program, to be administered by a locally Certified Unified Program Agency). These programs include the following:

- Hazardous Materials Business Plan Program.
- Hazardous Waste Generator Program.
- Underground Storage Tank Program.
- California Accidental Release Prevention Program (CalARP).
- Tiered Permitting Program.
- Aboveground Petroleum Storage Act.

Alameda County Department of Environmental Health (ACDEH) is the Certified Unified Program Agency that coordinates and enforces numerous local, state, and federal hazardous materials management and environmental protection programs in Alameda County.

### Alameda County General Plan Safety Element

The Safety Element of the Alameda County General Plan includes policies and programs to reduce risks associated with the creation, storage, transport, and disposal of hazardous wastes (Alameda County 2014). It provides information about the public airports operating within the County and development standards for airports or activities occurring within the vicinity of an airport. The goals and policies below are relevant to the proposed Project.

- **Goal 4:** Minimize residents' exposure to the harmful effects of hazardous materials and waste.

- **Policy P1:** Uses involving the manufacture, use or storage of highly flammable (or toxic) materials and highly water reactive materials should be located at an adequate distance from other uses and should be regulated to minimize the risk of on-site and off-site personal injury and property damage. The transport of highly flammable materials by rail, truck, or pipeline should be regulated and monitored to minimize risk to adjoining uses.
- **Policy P3:** The County shall minimize risks of exposure to or contamination by hazardous materials by educating the public, establishing performance standards for uses that involve hazardous materials, and evaluating soil and groundwater contamination as part of development project review.
- **Policy P6:** Adequate separation shall be provided between areas where hazardous materials are present and sensitive uses such as schools, residences and public facilities.
- **Policy P8:** Developers shall be required to conduct the necessary level of environmental investigation to ensure that soil, groundwater, and buildings affected by hazardous material releases from prior land uses and lead or asbestos in building materials will not have a negative impact on the natural environment or health and safety of future property owners or users. This shall occur as a pre-condition for receiving building permits or planning approvals for development on historically commercial or industrial parcels.

- **Goal 5:** Minimize potential impacts from aircraft accidents at facilities that contain hazardous materials and waste.
  - **Policy P1:** Require proposed land use projects within Airport Influence Areas (AIAs) that utilize hazardous materials (flammable, explosive, corrosive, or toxic) to be referred to the Airport Land Use Commission (ALUC) for a compatibility determination.
- **Goal 6:** Prepare and keep current emergency procedures in the event of potential natural or man-made disaster.
  - **Policy P2:** Adequate emergency water flow, emergency vehicle access, and evacuation routes shall be incorporated into any new development prior to project approval.

### Alameda County Emergency Operations Plan

The Alameda County Emergency Operations Plan (EOP) (Alameda County 2012) provides an overview of the jurisdiction's approach to emergency operations. It identifies emergency response policies, describes the response and recovery organization, and assigns specific roles and responsibilities to County departments, agencies, and community partners. The EOP has the flexibility to be used for all emergencies and will facilitate response and recovery activities in an efficient and effective way.

## 3.10.2.4 Local Plans

### City of Fremont General Plan

The Safety Element of the City of Fremont General Plan is intended to guide decision making that helps reduce the risks associated with environmental hazards, including hazardous materials and wastes, community emergency preparedness and fire hazards (City of Fremont 2011). The goals and policies below are relevant to the proposed Project.

- **Goal 10-4: Fire Hazards**: Minimum risk to life and property resulting from fire hazards.

  - **Policy 10.4-2: Development Standards:** Maintain development standards that limit potential health and safety risks, and the risks of structure damage and severe economic loss due to fire hazards.
  - **Policy 10-4.3: Access and Clearance:** Require adequate access and clearance for fire equipment, fire suppression personnel, and evacuation for new development.

- **Goal 10-6: Hazardous Materials and Waste**: Minimum feasible risks to life, property and the environment resulting from the use, storage, transportation and disposal of hazardous materials.
  - **Policy 10-6.1: Hazardous Material Regulation:** Maintain sufficient regulation of land use and construction to minimize potential health and safety risks associated with future, current or past use of hazardous materials in Fremont.
  - **Policy 10.6-3: Remediation:** Encourage site investigation and cleanup on properties where contamination is likely.
  - **Policy 10-6.4: Hazardous Waste Management Plan:** Comply with State law requiring adoption of a Hazardous Waste Management Plan.
  - **Policy 10-6.5: Hazardous Material Oversight:** Maintain sufficient oversight regarding the storage, transport and handling of hazardous materials within the City.
  - **Policy 10-6.6: Hazardous Material Disclosure:** Proper disclosure and management by employers that use hazardous materials to disclose risks to employees and nearby residents.
  - **Policy 10.6-7: Emergency Action Plan:** Maintain City Emergency Action Plans and sufficient response capability to respond to a hazardous material emergency.

## City of Fremont Emergency Operations Plan, Basic Plan

The City of Fremont Emergency Operations Plan, Basic Plan was adopted in 2020. The purpose of the plan is to establish the composition and organization of the City's emergency management structure, determine individual roles and responsibilities, and detail the concept of operations. The plan also delineates strategic, operational and tactical initiatives employed by the City of Fremont in response to an Emergency (City of Fremont 2020).

## Hayward 2040 General Plan

The Hazards Element of the Hayward 2040 General Plan addresses risks associated with the use, transport and disposal of hazardous materials and wastes in Hayward (City of Hayward 2022). The Hazards element also addresses Airport hazards. The goals and policies below are relevant to the proposed Project.

- **Goal HAZ-6:** Protect people and environmental resources from contaminated hazardous material sites and minimize risks associated with the use, storage, transport, and disposal of hazardous materials.
  - **Policy HAZ-6.1: Hazardous Materials Program:** The City shall maintain its status as a Certified Unified Program Agency and implement the City's Unified Hazardous Materials and Hazardous Waste Management Program, which includes:

1. Hazardous Materials Release Response Plans and Inventories (Hazardous Materials Business Plans - HMBP);
2. California Accidental Release Prevention (CalARP) Program;
3. Underground Storage Tank (UST) Program;
4. Above-ground Petroleum Storage Act (APSA) Program, including Spill Prevention, Control, and Countermeasure (SPCC) Plans;
5. Hazardous Waste Generator Program;
6. On-site Hazardous Waste Treatment (Tiered Permit) Program; and
7. California Fire Code Hazardous Material Management Plans (HMMP) and Hazardous Materials Inventory Statements (HMIS).

- **Policy HAZ-6.2: Site Investigations:** The City shall require site investigations to determine the presence of hazardous materials and/or waste contamination before discretionary project approvals are issued by the City. The City shall require appropriate measures to be taken to protect the health and safety of site users and the greater Hayward community.
- **Policy HAZ-6.3: Permit Requirements:** The City shall direct the Fire Chief (or their designee) and the Planning Director (or their designee) to evaluate all project applications that involve hazardous materials, electronic waste, medical waste, and other hazardous waste to determine appropriate permit requirements and procedures.
- **Policy HAZ-6.4: Land Use Buffers:** The City shall review applications for commercial and industrial uses that involve the use, storage, and transport of hazardous materials to determine the need for buffer zones or setbacks to minimize risks to homes, schools, community centers, hospitals, and other sensitive uses.
- **Policy HAZ-6.7: Agency Coordination:** The City shall coordinate with State, Federal, and local agencies to develop and promote best practices related to the use, storage, transportation, and disposal of hazardous materials.
- **Policy HAZ-6.8: Truck Routes:** The City shall maintain designated truck routes for the transportation of hazardous materials through the City of Hayward. The City shall discourage truck routes passing through residential neighborhoods to the maximum extent feasible.

- **Goal HAZ-7:** Minimize exposure to safety hazards associated with aircraft using the Hayward Executive Airport.
  - **Policy HAZ-7.1: Land Use Safety Compatibility and Airspace Protection Criteria:** The City shall consider all applicable federal statutes (including 49 U.S.C. 47107), federal regulations (including 14 Code of Federal Regulations 77 et seq.), the FAA's [Federal Aviation Administration] Airport Compliance Manual, FAA Advisory Circulars and other forms of written guidance, and State law, with respect to criteria related to land use safety and airspace protection when evaluating development applications within the Airport Influence Area of the Hayward Executive Airport.
  - **Policy HAZ 7.2: Airport Land Use Compatibility Plan:** The City shall require all development projects within the Airport Influence Area designated in the Airport Land Use Compatibility Plan of the Hayward Executive Airport to comply with all applicable federal

statutes (including 49 U.S.C. 47107), federal regulations (including 14 Code of Federal Regulations 77 et seq.), the FAA's Airport Compliance Manual, FAA Advisory Circulars and other forms of written guidance, and State law, with respect to criteria related to land use safety and airspace protection.

- **Policy HAZ-7.3: Commission Review:** The City shall ensure that all applicable plans, ordinances, and development applications are reviewed by the Alameda County Airport Land Use Commission if required by State law.

## City of Oakland General Plan

The Safety Element of the Oakland General Plan includes a policy framework to guide the public decision-making process for safety hazards including fire and hazardous materials (City of Oakland 2004). In 2012, the City adopted its Local Hazard Mitigation Plan as an appendix of the Safety Element. The goals and policies of the General Plan below are relevant to the proposed Project.

- **Policy HM-1:** Minimize the potential risks to human and environmental health and safety associated with the past and present use, handling, storage and disposal of hazardous materials.
- **Policy HM-2:** Reduce the public's exposure to toxic air contaminants through appropriate land use and transportation strategies.
- **Policy HM-3:** Seek to prevent industrial and transportation accidents involving hazardous materials, and enhance the city's capacity to respond to such incidents.
- **Policy FI-1:** Maintain and enhance the city's capacity for emergency response, fire prevention and fire-fighting.
- **Policy FI-3:** Prioritize the reduction of the wildfire hazard, with an emphasis on prevention.

## City of Oakland Emergency Operations Plan Update

The EOP was updated in 2021. This plan details who is responsible for carrying out specific actions, establishes lines of authority and organizational relationships, and outlines how actions will be coordinated. The EOP provides guidance for all types of hazards that may impact the City throughout the year. The EOP guides personnel in performance of their duties before, during, and through initial emergency recovery (City of Oakland 2021).

## Newark General Plan

The Environmental Hazards Element of the Newark General Plan addresses potential risks to life and property resulting from man-made hazards such as noise and soil contamination (City of Newark 2013). The element also addresses fire hazards and emergency response. The goals and policies of the General Plan below are relevant to the proposed Project.

- **Goal EH-1:** Reduce the potential for injury, harm, property damage, and loss of life resulting from environmental hazards.
    - **Policy EH-1.1: Development Regulations and Code Requirements**: Establish and enforce development regulations and building code requirements to protect residents and workers from flooding, liquefaction, earthquakes, fires, and other hazards.
    - **Policy EH-1.5: Adequacy of Access**: Require adequate access and clearance for fire equipment, fire suppression personnel, and evacuation for new development.

- **Goal EH-4:** Protect Newark residents and workers from the potential adverse effects of hazardous materials.
    - **Policy EH-4.1: Hazardous Materials Risk Reduction:** Seek to reduce the risk of hazardous materials accidents, spills and vapor releases, and minimize the effects of such incidents if they occur.
    - **Policy EH-4.4: Design and Construction of Hazardous Materials Facilities:** Require that all facilities in which hazardous materials are used, handled, or stored are designed and constructed to minimize the possibility of environmental contamination and off-site impacts. The City will work with county, State, and federal agencies to ensure that such facilities are regularly inspected and that applicable regulations are enforced.
    - **Policy EH-4.6: Hazardous Materials Transport:** Seek to reduce the risk of accidents in the transportation of hazardous materials. The City will require compliance with all hazardous waste transport standards established by state and federal agencies.
    - **Policy EH-4.7: Railroad Cargo Safety:** Work with the Union Pacific Railroad (UP) and the California Public Utilities Commission (CPUC) to ensure safe conditions for the loading, unloading, and transport of hazardous materials along rail lines through Newark. UP should be encouraged to maintain its tracks and facilities in excellent condition, and minimize occasions where trains block railroad grade crossings.

## City of San Leandro General Plan

The Environmental Hazards Element of the City of San Leandro General Plan addresses natural and man-made hazards in the City, including wildfire, hazardous materials, and aviation accidents. It includes a summary of emergency preparedness in San Leandro, with policies that provide the foundation for disaster planning in the City (City of San Leandro 2017). The goals and policies of the General Plan below are relevant to the proposed Project.

- **Goal EH-2:** Minimize urban wildfire hazards, both within the city and throughout the East Bay Hills.
    - **Policy EH-2.1: Fire Codes:** Adopt and enforce building and fire prevention codes that require property owners to reduce wildfire hazards on their properties.
- **Goal EH-5:** Protect local residents and workers from the risks associated with hazardous materials.
    - **Policy EH-5.1: Regulatory Compliance:** Work with the appropriate county, regional, state, and federal agencies to develop and implement programs for hazardous waste reduction, hazardous material facility siting, hazardous waste handling and disposal, public education, and regulatory compliance.
    - **Policy EH-5.2: Clean-Up of Contaminated Sites:** Ensure that the necessary steps are taken to clean up residual hazardous wastes on any contaminated sites proposed for redevelopment or reuse. Require soil evaluations as needed to ensure that risks are assessed and appropriate remediation is provided.
    - **Policy EH-5.3: Design of Storage and Handling Areas:** Require that all hazardous material storage and handling areas are designed to minimize the possibility of environmental

contamination and adverse off-site impacts. Enforce and implement relevant state and federal codes regarding spill containment facilities around storage tanks.

- **Policy EH-5.4: Separation from Sensitive Uses:** Provide adequate and safe separation between areas where hazardous materials are present and sensitive uses such as schools, residences, and public facilities. Zoning and other development regulations should include performance standards to avoid safety hazards and achieve compatibility between uses.
- **Policy EH-5.5: Incident Response:** Maintain the capacity to respond immediately and effectively to hazardous materials incidents. Provide ongoing training for hazardous materials enforcement and response personnel.
- **Policy EH-5.7: Hazardous Building Materials:** Ensure the safe and proper handling of hazardous building materials, such as friable asbestos and lead based paint. If such materials are disturbed during building renovation or demolition, they should be handled and disposed of in a manner that protects human health and the environment.

- **Goal EH-9:** Minimize the local impacts and hazards created by air traffic, ground operations, and all other aviation activities, particularly those associated with Oakland International Airport.
  - **Policy EH-9.6: Airport Safety Zones**: Regulate land uses within designated airport safety zones, height referral areas, and noise compatibility zones to minimize the possibility of future noise conflicts and accident hazards.

## 2040 Union City General Plan

The Safety Element of the Union City General Plan seeks to minimize natural and man-made hazards such as wildfire and hazardous materials. The Safety element addresses these risks along with disaster preparedness and emergency response (Union City 2019). The goals and policies of the General Plan below are relevant to the proposed Project.

- **Goal S-4:** To provide increased fire safety through the provision of adequate fire protection infrastructure, public education, and outreach programs.
  - **Policy S-4.2: Require Sprinkler Systems and Smoke Detectors:** The City shall require sprinkler systems and/or smoke detectors according to the adopted City building and fire codes.
  - **Policy S-4.4: Require Brush Clearance and Vegetative Management to Reduce Fire Risk:** The City shall require weed abatement, brush clearance, and vegetative management for all properties.
  - **Policy S-4.5: S-4.5 Maintain Fire Access:** The City shall use appropriate means to maintain fire access roads throughout the City on public and private property.
  - **Policy S-4.6: Maintenance of Fire Roads:** The City shall support efforts by regional agencies, including Alameda County and the East Bay Regional Parks District, to maintain fire roads for emergency vehicle access.
- **Goal S-7:** To protect public health and safety, property, and the environment by promoting the safe management of hazardous substances and controlling the use, storage, handling and disposal of the most toxic and hazardous substances.

- **Policy S-7.1: Control Hazardous Materials:** The City shall strictly control the use, storage, and handling of toxic, explosive, or other hazardous materials and wastes at facilities within Union City.
- **Policy S-7.2: Limit Locations of Hazardous Materials:** The City shall limit locations of hazardous materials storage and use, through the City's development review or building permit review processes, to those areas where potential accidents will not cause undue risk to people and property and where effective emergency response can be provided. Actions, as found appropriate, shall include the prohibition of certain hazardous materials, combinations of materials, or quantities of materials in particular land use areas and/or facilities.
- **Policy S-7.3: Environmental Site Assessment:** The City shall require applications subject to Site Development Review or applications for development on sites where there is potential for contamination to exist to include submittal of a Phase 1 Environmental Site Assessment and Phase 2 Environmental Site Assessment (if required). Any recommendations contained in these documents, including the need for remediation activities or additional study, shall be completed consistent with applicable Federal, State, and local regulations.

## 3.10.2.5 Other Guidance

### Airport Land Use Commissions (ALUCs)

ALUCs are established pursuant to the State ALUC law (Public Utilities Code Article 3.5, State Aeronautics Act, Section 21661.5, Section 21670 et seq., and Government Code Section 65302.3 et seq.) to protect the public health, safety, and welfare by promoting the orderly expansion of airports and adoption of land use measures by local public agencies to minimize exposure to excessive noise and safety hazards near airports, heliports and helipads. ALUCs establish policies for land uses around airports, heliports, and helipads, ensuring that those uses are compatible with airport operations. This is accomplished through the development of Airport Land Use Compatibility Plans (ALUCPs), which address these four impact areas: Noise, Safety, Airspace Protection, and Overflight. ALUCs also ensure that county and city plans (general, specific, and other) and proposed land use policy actions are consistent with the ALUCP. This is done on an advisory basis.

### Union Pacific Railroad Hazardous Materials Emergency Response Plan

UPRR Hazardous Materials Management developed the Hazardous Materials Emergency Response Plan, a performance-based plan that provides guidance to the individual reporting a release as well as a list of training requirements for those responding to an incident (UPRR 2021).

## 3.10.2.6 Consistency with Plans, Policies, and Regulations

The Proposed Project would comply with all relevant federal, state, and local policies and regulations related to hazards and hazardous materials. The proposed Project would provide safe transport and management practices of hazardous materials, which includes compliance with regulations such as the federal Hazardous Materials Transportation Act, the State's Title 26 CCR, and the local certified unified management programs. Therefore, the Proposed Project would be consistent with all policies and regulations related to hazards and hazardous materials.

## 3.10.3 Methods for Evaluating Environmental Impacts

This section defines the RSA for hazards and hazardous materials and describes the methods used to analyze the impacts on hazards and hazardous materials within the RSA.

### 3.10.3.1 Resource Study Areas

As defined in Section 3.1, Introduction, RSAs are the geographic boundaries within which the environmental investigations specific to each resource topic were conducted.

The RSA for hazards and hazardous materials (hazards RSA) encompasses the areas directly or indirectly affected by construction and operation of the proposed Project and includes the following:

1. Schools RSA: Areas within 0.25 mile of the Project footprint to account for potential hazardous materials releases within that distance of an existing school.
2. Contamination RSA: A 0.125-mile radius is considered "adjacent" to the proposed Project and is used to determine the potential for contaminated media, such as soil or groundwater, to be disturbed by the Project construction or operations.
3. Airport RSA: For compliance with CEQA, the RSA for potential hazards to airports only extends to 2 miles from the Project footprint for the consideration of airports and airport land uses.

It is assumed that the direct impacts would be confined to the Project footprint, while indirect impacts could extend to the limits of the hazards RSA described above.

### 3.10.3.2 Data Sources

The following data sources were used to gather hazardous materials and waste data:

- Environmental Data Resources Area/Corridor Report (EDR 2021a, 2021b).
- SWRCB GeoTracker (SWRCB 2021).
- DTSC EnviroStor (DTSC 2021).
- Google Earth (2021).
- CALFIRE Alameda County Fire Hazard Severity Zone Map (CALFIRE 2008).
- Alameda County General Plan Safety Element (Alameda County 2014).
- Hazardous Materials Information Reporting System (HMIRS).
- Resource Conservation and Recovery Act (RCRA) Treatment, Storage, and Disposal Facility (TSDF).
- Assessment, Cleanup, and Redevelopment Exchange System (ACRES).
- Superfund Enterprise Management System (SEMS).
- SPILLS90.
- LUST list.
- U.S. Department of Transportation (U.S. DOT) Office of Pipeline Safety Incident and Accident data (OPS).

- Solid Waste Information System (SWIS).
- Active Mines & Mineral Plants Database Listing.
- PCB Activity Database System (PADS).
- RCRA Large Quantity Generators (LQGs).
- Voluntary Cleanup Program Properties (VCPs).
- Toxic Substances Control Act (TSCA)
- HAZNET.
- E-Manifest.
- Section 7 Tracking Systems (SSTS).

### 3.10.3.3 Terminology

For purposes of this section, the term "hazardous materials" refers to both hazardous substances and hazardous wastes. A "hazardous material" is defined by federal regulations as "a substance or material that … is capable of posing an unreasonable risk to health, safety, and property when transported in commerce" (49 CFR 171.8). California Health and Safety Code Section 25501 defines a hazardous material as follows:

> *Hazardous material means any material that, because of its quantity, concentration, or physical, or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. Hazardous materials include, but are not limited to, hazardous substances, hazardous waste, and any material which a handler or the administering agency has a reasonable basis for believing that it would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment.*

Hazardous wastes are defined in California Health and Safety Code Section 25141(b) as wastes that:

> *… because of their quantity, concentration, or physical, chemical, or infectious characteristics, [may either] cause, or significantly contribute to an increase in mortality or an increase in serious illness, [or] pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.*
>
> *Soil that is excavated from a site containing hazardous materials is a hazardous waste if it exceeds specific criteria listed in the CCR Title 22. Cleanup requirements are determined on a case-by-case basis by the agency with lead jurisdiction over the project. Under CCR Title 22, the term "hazardous substance" refers to both hazardous materials and hazardous wastes, both of which are classified according to four properties: (1) toxicity; (2) ignitability; (3) corrosiveness; and (4) reactivity (CCR Title 22, Chapter 11, Article 3).*

Identified sites of concern were categorized using a subjective risk ranking system, classifying the sites with low risk, moderate risk, high risk, critical risk, or indeterminate risk determinations. The following provides general descriptions of each category:

- **Low-risk** sites have few indications of potential for release of hazardous materials. Sites include those that have had a hazardous materials issue in the past, but have been cleaned up with

approval of the state environmental agency or local regulatory agencies. Examples of low-risk sites include undeveloped or agricultural property, residential property, or benign commercial properties such as office buildings, warehouses, distribution facilities, or municipal facilities with no listed violation.

- **Moderate-risk** sites have some indications of possible hazardous materials issues. A moderate-risk site may appear on a database as having a permit to handle hazardous materials, but has recorded no violations to date. A site could also be interpreted as moderate risk if there is visible surface staining. Examples of moderate-risk sites include auto repair garages, welding shops, or manufacturing facilities.
- **High-risk** sites have a high potential for releasing hazardous materials or have a recorded release issue. Examples of high-risk sites include current service stations, bulk fueling terminals, sites listed in environmental databases as having had a release, or a known release that has not been remediated.
- **Critical-risk** sites are known contaminated sites with a deed restriction (e.g. "Do Not Break Surface").
- **Indeterminate-risk** sites are those which, at the time of report preparation, did not include sufficient information to include a high, moderate, or low ranking. Indeterminate-risk sites often require additional file review to determine the details of any related environmental issues at the site.

### 3.10.3.4 Methodology

The primary method of analysis was a review of public records regarding sites with a recorded environmental history. The databases included federal state, and local records of sites with a release, or conditions indicating a release. Sites located within ⅛ mile were included given a subjective "risk ranking" based on 1) distance relative to the corridor, 2) type of listing and related risk of residual contamination, 3) type of likely contaminant and its specific migration potential, 4) age of the release, and 5) case status (closed, open, monitored).CEQA Thresholds

To satisfy CEQA requirements, hazards and hazardous materials impacts were analyzed in accordance with Appendix G of the CEQA Guidelines. According to the CEQA Guidelines, CCR, Title 14, Section 15002(g), "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in CEQA Guidelines Section 15064(b)(1), the significance of an activity may vary with the setting. The impact analysis identifies and analyzes construction (short-term) and operation (long-term) impacts, as well as direct and indirect impacts (see PRC Section 21065). The proposed Project would have significant hazards and hazardous materials impacts under CEQA if it would:

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;

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 or excessive noise 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; or

g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires.

# 3.10.4 Affected Environment

## 3.10.4.1 Environmental Setting

### Regional Setting

#### Site Vicinity and Characteristics

The hazards RSA is primarily developed urban with varied land uses and development. The Coast Subdivision tracks travel through heavy and light industrial uses, factories and storage areas, commercial uses, low, medium, and high-density residential uses, recreational uses, and areas of designated open space.

##### *Aerially Deposited Lead (ADL) and Lead-Based Paints*

For projects involving construction of transportation corridors, contamination resulting from LBP is a frequent hazardous waste issue. Historically, lead was used as a pigment and drying agent in oil-based paint and many structures built prior to the 1980s may still contain undercoats of LBP. Prior to 1997, Caltrans also used lead-based paint for yellow traffic stripes and pavement markings along roadways (Caltrans 2015). The residue that may be produced from the yellow thermoplastic and yellow paint during road improvement activities may contain lead and chromium (San Joaquin Valley Regional Rail Authority [SJVRRA] 2020). According to the FRA, weathering and routine maintenance of paint on buildings may contaminate nearby soils with lead.

Elevated lead concentrations exist in soils along older roadways as a result of ADL from the historical use of leaded gasoline (Caltrans 2021). Leaded gasoline was used as a vehicle fuel in the United States from the 1920s until the late 1980s. Although lead is no longer used in gasoline formulations, lead emissions from automobiles are a recognized source of contamination in soils along roadways. Surface and near-surface soils along heavily used roadways have the potential to contain elevated concentrations of lead (FRA 2008 and Caltrans 2021).

##### *Treated-Wood Waste*

Railroad ties along existing corridors are commonly treated with wood preservatives such as arsenic, chromium, copper, pentachlorophenol, or creosote. If treated-wood waste is not properly disposed of, the chemicals it contains can potentially contaminate soil, surface water, and/or groundwater (SJVRRA 2020). There is potential for treated-wood waste to occur in the hazards RSA.

#### *Asbestos-Containing Materials*

Exposure to asbestos can result in lung cancer, mesothelioma (i.e., cancer of the linings of the lungs and abdomen), or asbestosis (scarring of lung tissues that results in constricted breathing). ACMs, such as thermal system insulation, surfacing materials, asphalt, and vinyl flooring, may be present in building and bridge structures constructed prior to 1981 (Cal. Code Regs. Title 8, Section 5208).

Naturally occurring asbestos (NOA), which is dependent on a type of geologic formation, can also be a source of ACMs that can become airborne during earthmoving activities. NOA is most commonly found in serpentinite and ultramafic rocks (Van Gosen and Clinkenbeard 2011). USGS map of *Reported Historic Asbestos Mines, Historic Asbestos Prospects, and Other Natural Occurrences of Asbestos in California* (2011), does not show any known NOA sites near the Coast subdivision.

## Local Setting

### Environmental Records Review

An EDR environmental information database search was completed in October 2021. Review of this database search indicated that many listings within the hazards RSA are located outside the UPRR ROW; these include permitted disposal of regulated or hazardous waste. The permitted use or disposal of hazardous materials does not represent an environmental concern if no releases have occurred and there are no violations associated with these activities. Other listed sites include closed LUSTs, historical gasoline stations, Active or Historical USTs, and Aboveground Storage Tanks (ASTs) that have had no reported releases. Based on the distance of these sites from the Project footprint and their regulatory status, the majority of the listings have a very low probability of affecting soil or groundwater within the hazards RSA.

Several properties identified in the records review were determined to represent potential environmental concerns. High-risk and critical-risk sites within ⅛ mile of the Coast Subdivision are presented in Table 3.10-1. Appendix E includes a summary of low-risk, moderate-risk, high-risk, critical-risk, and indeterminant-risk sites within ⅛ mile of the Coast Subdivision. The following critical-risk sites are located along the Coast Subdivision:

- 880 Doolittle Drive in San Leandro, approximately 432 feet northwest of the Coast Subdivision.
- 10800 Edes Avenue in Oakland, approximately 623 feet north-northwest of the Coast Subdivision.
- 701 105th Avenue in Oakland, approximately 114 feet north-northwest of the Coast Subdivision.

The history of these critical-risk sites along the Coast Subdivision and contamination on site are described in greater detail in Table 3.10-1. Hazardous materials listings in the hazards RSA are shown in Figure 3.10-1 through Figure 3.10-4.

**Table 3.10-1. Critical and High-Risk Sites within the Contamination RSA (⅛ mile) of the Coast Subdivision**

| Risk Ranking | Map ID(s) | Facility Type | Address | Approximate Distance (feet) and Direction from Project Footprint | Location of Information | Listing Status |
|---|---|---|---|---|---|---|
| **High Risk** | A256<br>A257 | Service Station | 9757 San Leandro, Oakland | 10 NNW | LUST list | Status: Open. |
| **Details:** Potential contaminants of concern include gasoline. Potential medium of concern includes groundwater. The site is currently used as a semi-truck staging and parking area. | | | | | | |
| **High Risk** | 297 | Chemical Manufacturing | 2205 Lewelling Blvd, San Leandro | 21 NW | SEMS-ARCHIVE | Status: Certified. |
| **Details:** Potential contaminants of concern include high levels of copper and compounds, lead, and zinc. All buildings on the site have been demolished and only building foundations remain. | | | | | | |
| **High Risk** | C362 | Gas Station | 670 98th Ave, Oakland | 31 NNW | LUST list | Status: Open. Assessment & Interim Remedial Action as of 1/1/1990. |
| **Details:** The potential contaminant of concern is gasoline and the potential medium of concern is groundwater. The station building and was reportedly demolished and the USTs removed from the site in 1983. | | | | | | |
| **Critical Risk** | F613 | Foundry | 701 105th Ave, Oakland | 114 NNW | DEED<br>HAZNET<br>ENVIROSTOR | Status: Certified O&M (Operations and Maintenance). Land Use Restrictions Only as of 6/18/2019. |
| **Details:** The site was formerly occupied as a foundry, which resulted in contamination. Potential contaminants of concern include antimony and compounds, arsenic, cobalt, lead, and Polycyclic Aromatic Hydrocarbons (PAHS). The potential media affected is soil. | | | | | | |

**Table 3.10-1. Critical and High-Risk Sites within the Contamination RSA (⅛ mile) of the Coast Subdivision**

| Risk Ranking | Map ID(s) | Facility Type | Address | Approximate Distance (feet) and Direction from Project Footprint | Location of Information | Listing Status |
|---|---|---|---|---|---|---|
| **High Risk** | 56 | Agricultural Manufacturing | 2230 & 2242 Davis Court, Hayward | 140 NW | CPS-SLIC | Status: Open. Site Assessment as of 1/22/2018. |
| **Details:** Potential contaminants of concern include diesel, lead, PAHS, trichloroethylene (TCE), waste oil, motor oil, hydraulic oil, and lubricating oil. Potential media of concern are an aquifer used for drinking water supply, soil vapor, and other media is under investigation. | | | | | | |
| **High Risk** | L60 | Auto Shop | 7324 Wells Ave, Newark | 160 SSE | CPS-SLIC<br>CHMIRS | Status: Open. Verification Monitoring as of 9/9/2004. |
| **Details:** Potential contaminants of concern include lead, methyl tert-butyl ether (MTBE), tert-butyl alcohol (TBA), other fuel oxygenates, and total petroleum hydrocarbons (TPH). Potential media of concern are groundwater (uses other than drinking water) and soil. This site is currently a wrecking yard and repair shop. | | | | | | |
| **High Risk** | T70<br>T73 | Corporation Yard | 3636 Smith St, Union City | 175 NW | LUST list | Status: Open. Site Assessment as of 4/1/1985. |
| **Details:** Gasoline is the potential contaminant of concern. Groundwater is the potential medium of concern. The site is an existing and former corporation yard used for maintenance and refueling of vehicles (mostly school buses, trucks, and service type machinery), vehicle storage, cleaning, and general equipment storage yard. | | | | | | |
| **High Risk** | DU763 | Concrete Wall Sawing Company | 2501 Grant Ave, San Lorenzo | 180 NW | CPS-SLIC | Status: Open. Site Assessment as of 9/17/1990. |
| **Details:** Potential contaminants of concern include arsenic, chromium, copper, lead, and nickel. The potential media of concern are under investigation. | | | | | | |
| **High Risk** | BU806 | Electroplating Facility | 10319 & 10323 Pearmain Street, Oakland | 199 NNW | ENVIROSTOR | Status: Certified as of 5/10/2006. |

**Table 3.10-1. Critical and High-Risk Sites within the Contamination RSA (⅛ mile) of the Coast Subdivision**

| Risk Ranking | Map ID(s) | Facility Type | Address | Approximate Distance (feet) and Direction from Project Footprint | Location of Information | Listing Status |
|---|---|---|---|---|---|---|
| **Details:** The site is a state response site or NPL. Past uses that caused contamination include metal plating. Potential contaminants of concern include cyanide. The potential affected media are contaminated surfaces/structures. | | | | | | |
| **High Risk** | V185 | Electroplating Facility | 10132 Edes Ave, Oakland | 265 NNW | SEMS-ARCHIVE | Status: Certified/ O&M as of 4/30/2012. |
| Details: Potential contaminants of concern include metals and other contaminants. Potential media of concern are soil and soil vapor. The site is a former electroplating facility. | | | | | | |
| **High Risk** | R219 | Oil Company | 3111 Depot Rd, Hayward | 285 NW | CPS-SLIC<br>LUST | Status: Open. Remediation as of 10/14/2021. |
| **Details:** Potential contaminants of concern include gasoline, other chlorinated hydrocarbons, tetrachloroethene (PCE), TCE, and vinyl chloride (VC). Current operations consist only of the storage and distribution of petroleum products in their original containers and limited ethyl alcohol repackaging. | | | | | | |
| **High Risk** | BF246<br>BF247 | Adhesives Manufacturing Company | 6925 Central St, Newark | 315 SSE | CPS-SLIC<br>SEMS-ARCHIVE<br>RCRA-LQG | Status: Open. Verification Monitoring as of 8/1/2019. |
| **Details:** Potential contaminants of concern are benzene, other petroleum, TCE, and VC. Groundwater is the potential medium of concern. | | | | | | |
| **High Risk** | BN271<br>BN272 | Dry Cleaners | 37171 Sycamore St, Newark | 345 SSE | CPS-SLIC | Status: Open. Site Assessment as of 8/6/2003. |
| **Details:** Potential contaminants of concern are not specified. An aquifer used for drinking water supply, indoor air, and soil vapor are the potential media of concern. Since 2016, dry cleaning operations appear to have changed from the former solvent-based system to a "green-based" system. | | | | | | |

**Table 3.10-1. Critical and High-Risk Sites within the Contamination RSA (⅛ mile) of the Coast Subdivision**

| Risk Ranking | Map ID(s) | Facility Type | Address | Approximate Distance (feet) and Direction from Project Footprint | Location of Information | Listing Status |
|---|---|---|---|---|---|---|
| **High Risk** | GR1184 | Pipe And Foundry Company | 1295 Whipple Rd, Union City | 381 NNW | SEMS-ARCHIVE | Status: Refer Other Agency. |
| **Details:** This property is a tiered permit site. Past uses that caused contamination, potential media of concern and potential affected media are unspecified. | | | | | | |
| **Critical Risk** | ID1321<br>ID1322 | Aerospace Manufacturing And Maintenance | 880 Doolittle Dr, San Leandro | 432 NW | CPS-SLIC<br>HAZNET<br>LUST<br>DEED<br>ENVIROSTOR | Status: Certified/ O&M as of 1/25/2013. |
| **Details:** Volatile organics are the contaminants of concern. The potential affected media is groundwater. Operations on site included manufacturing rocket nozzles and aircraft parts on the property. There were four TCE degreasing USTs on the site and the USTs were removed. | | | | | | |
| **High Risk** | DD480<br>DD482 | Industrial Laundry Facility | 30305 Union City Blvd, Union City | 470 NW | RCRA-LQG<br>CPS-SLIC | Status: Open. Remediation as of 1/1/2015. |
| **Details:** The potential contaminants of concern include gasoline, Stoddard solvent, mineral spirits, distillates, PCE, TCE, VC, waste oil, motor oil, hydraulic oil, and lubricating oil. An aquifer used for drinking water supply and groundwater are the potential media of concern. | | | | | | |
| **High Risk** | DJ501 | Industrial Manufacturing | 24747 Clawiter Rd, Hayward | 480 NW | CPS-SLIC | Status: Open. Site Assessment as of 11/1/2016. |
| **Details:** Potential contaminants of concern include 1,1,1-trichloroethane (TCA), acetone, benzene, dichloroethane (DCE), diesel, ethylbenzene, freon, gasoline, kerosene, other chlorinated hydrocarbons, other insecticides/pesticide/fumigants/herbicides, other solvent or non-petroleum hydrocarbon, PCE, toluene, TCE, VC, waste oil/motor/hydraulic/lubricating, and xylene. Potential medium of concern includes groundwater. | | | | | | |

**Table 3.10-1. Critical and High-Risk Sites within the Contamination RSA (⅛ mile) of the Coast Subdivision**

| Risk Ranking | Map ID(s) | Facility Type | Address | Approximate Distance (feet) and Direction from Project Footprint | Location of Information | Listing Status |
|---|---|---|---|---|---|---|
| **High Risk** | DN530<br>DN531<br>DN532 | Waste Management/ Used Oil Recycling | 6880 Smith Ave., Newark | 485 SSE | PADS<br>SEMS-ARCHIVE<br>RCRA-LQG<br>RCRA-TSDF<br>2020 COR ACTION<br>CHMIRS | Status: Active As of 11/22/2004. |
| **Details:** Potential contaminants of concern include chlorine, metals, petroleum, PAHs, and VOCs. The potential media of concern are soil and groundwater. | | | | | | |
| **High Risk** | DS546 | Truck Manufacturing Company | 20201 Mack St, Hayward | 495 NW | CPS-SLIC | Status: Verification Monitoring as of 6/11/2019. |
| **Details:** Potential contaminants of concern include DCE and other chlorinated hydrocarbons. The potential media of concern are not specified. | | | | | | |
| **High Risk** | JD1435 | Dry Cleaner | 13778 Doolittle Dr, San Leandro | 497 NW | CPS-SLIC | Status: Open. Assessment & Interim Remedial Action as of 9/27/2017. |
| **Details:** Potential contaminants of concern include DCE, PCE, TCE, and vinyl chloride. Potential media of concern include indoor air, other groundwater, soil, and soil vapor. | | | | | | |
| **High Risk** | JP1531<br>JP1534 | Chemical Manufacturing | 2140 Davis St, San Leandro | 545 NW | LUST<br>ENVIROSTOR<br>RCRA-LQG | Status: Refer Other Agency as of 3/13/1996. |

**Table 3.10-1. Critical and High-Risk Sites within the Contamination RSA (⅛ mile) of the Coast Subdivision**

| Risk Ranking | Map ID(s) | Facility Type | Address | Approximate Distance (feet) and Direction from Project Footprint | Location of Information | Listing Status |
|---|---|---|---|---|---|---|
| **Details:** Potential contaminants of concern include organic liquids with metals, polymeric resin waste, unspecified organic liquid mixture, waste oil, and mix oil. Potential media affected are unspecified. | | | | | | |
| **High Risk** | 1618 | Dry Cleaner | 2250 Marina Blvd, San Leandro | 584 NW | CPS-SLIC | Status: Open-Site Assessment as of 8/5/2020. |
| **Details:** Potential contaminants of concern include PCE and TCE. Potential media of concern include indoor air, soil vapor, and other media under investigation. | | | | | | |
| **High Risk** | DS674<br>DS676<br>DS677 | Truck Manufacturing/ Repair And Transit | 20234 Mack Street, Hayward | 595 NW | CPS-SLIC<br>SEMS-ARCHIVE | Status: Open. Verification Monitoring as of 5/25/2018. |
| **Details:** Potential contaminants of concern include DCE, ethylbenzene, other chlorinated hydrocarbons, other solvent or non-petroleum hydrocarbon, PAHs, PCE, toluene, TCE, and VC. The potential medium of concern is groundwater. | | | | | | |
| **High Risk** | EU704 | Gas Station | 7275 Thornton Ave, Newark | 610 SSE | LUST | Status: Open. Eligible for closure as of 6/28/2021. |
| **Details:** The potential contaminant of concern is gasoline. The potential medium of concern is groundwater. | | | | | | |
| **High Risk** | EV710 | Heat Treating And Brazing Company | 2342 American Ave, Hayward | 610 NW | SEMS-ARCHIVE<br>RCRA-LQG<br>CPS-SLIC | Status: Open. Assessment & Interim Remedial Action as of 9/14/2021. |
| **Details:** Potential contaminants of concern include chlorinated solvents (TCE). Potential media of concern include an aquifer used for drinking water supply, indoor air, other groundwater, soil, soil vapor, well used for drinking water supply, and other media under investigation. | | | | | | |

**Table 3.10-1. Critical and High-Risk Sites within the Contamination RSA (⅛ mile) of the Coast Subdivision**

| Risk Ranking | Map ID(s) | Facility Type | Address | Approximate Distance (feet) and Direction from Project Footprint | Location of Information | Listing Status |
|---|---|---|---|---|---|---|
| **Critical Risk** | KO1677<br>KO1678 | Plant Nursery, Construction And Demolition Business | 10800 Edes Ave, Oakland | 623 NNW | DEED<br>HAZNET<br>US BROWN-FIELDS | Status: Certified O&M-Land Use Restrictions Only. |
| **Details:** Potential contaminants of concern include lead, PAHs, TPH-motor oil, and TPH-diesel. Soil is the potentially affected medium. The site is currently undeveloped. | | | | | | |
| **High Risk** | FG793 | Storage Facility | 6800 Overlake Place, Newark | 650 S | CPS-SLIC | Status: Open. Remediation as of 8/2/2016. |
| **Details:** Potential contaminants of concern include copper, lead, other metal, and zinc. Soil is the potential medium of concern. The elevated metals appear to be within slag that was imported to the site as fill material. Redevelopment of the property for use as a storage facility is planned. Excavation and relocation of the slag beneath a cap has been proposed and is currently in a public comment period. | | | | | | |
| **High Risk** | EI794<br>EI795<br>EI796 | Construction Product Manufacturing | 6851 Smith Ave, Newark | 650 SSE | LUST<br>SEMS | Status: Open. Verification Monitoring as of 10/22/2020. |
| **Details:** Gasoline is the potential contaminant of concern. Groundwater is the potential medium of concern. The site is a commercial manufacturing facility located in a commercial district. | | | | | | |

*Source: SWRCB 2021; DTSC 2021; EDR 2021b*

**Figure 3.10-1. Hazardous Materials Database Listings in the Contamination RSA – Part 1**

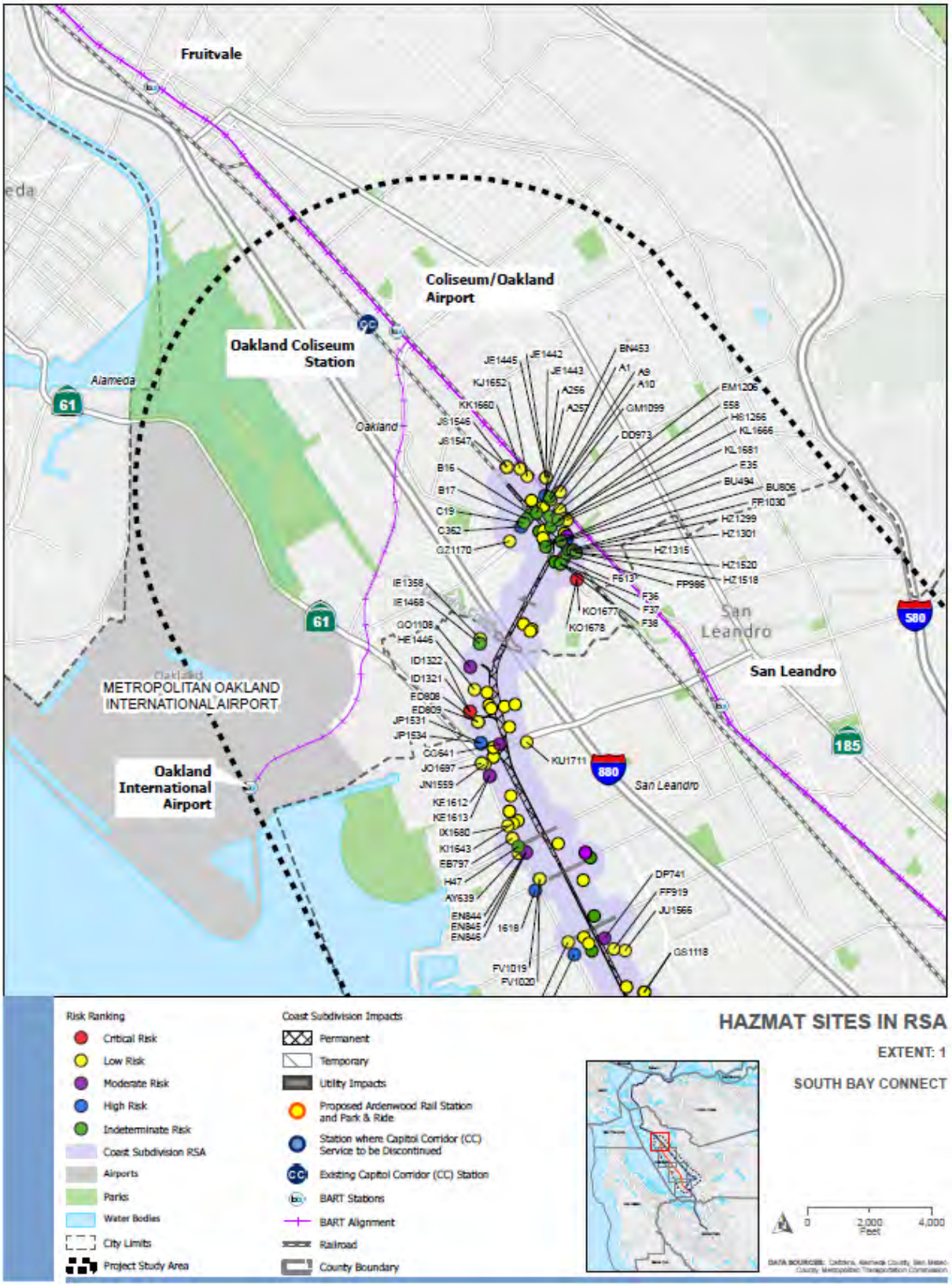


**Figure 3.10-2. Hazardous Materials Database Listings in the Contamination RSA – Part 2**

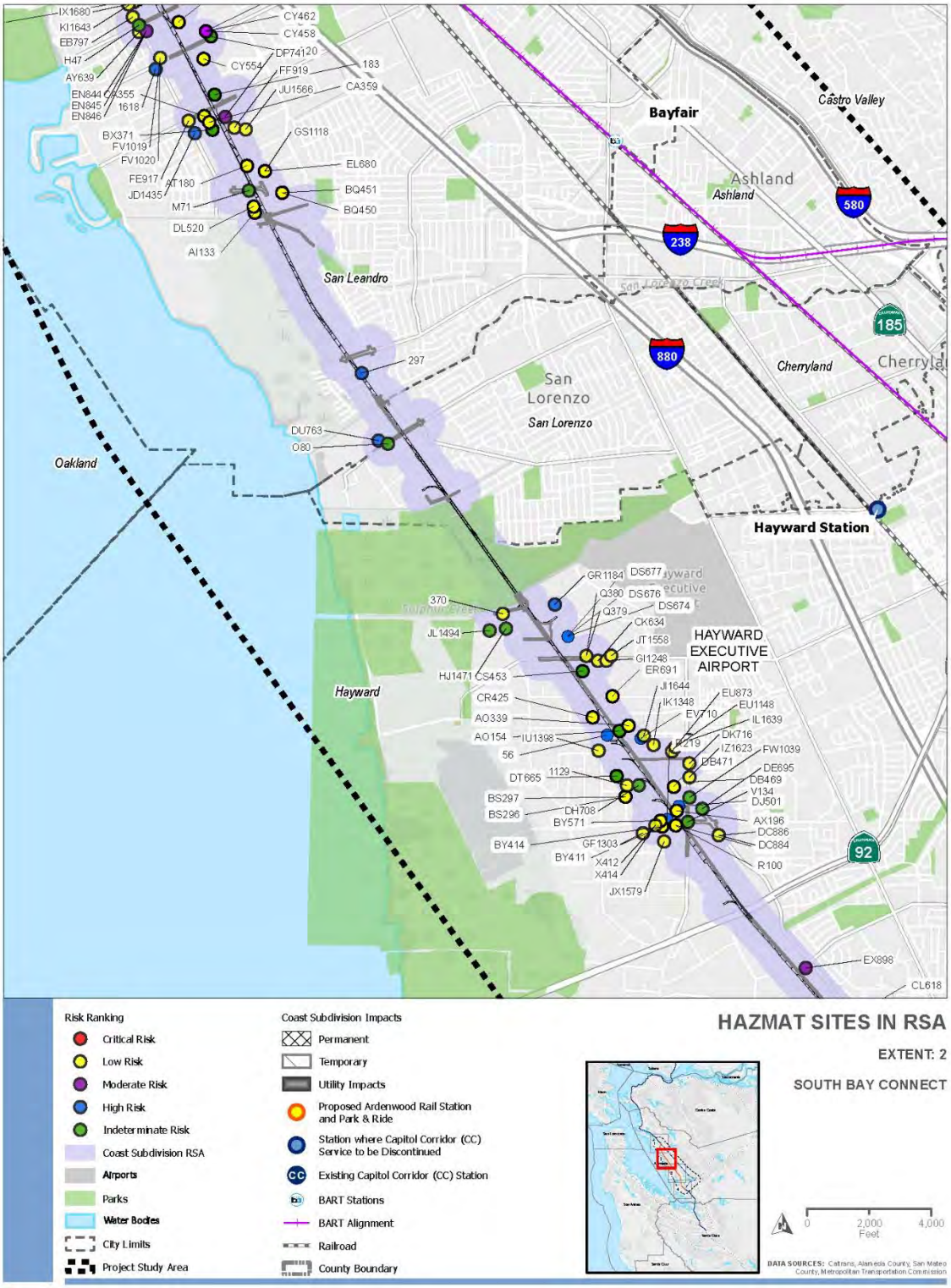


**Figure 3.10-3. Hazardous Materials Database Listings in the Contamination RSA – Part 3**

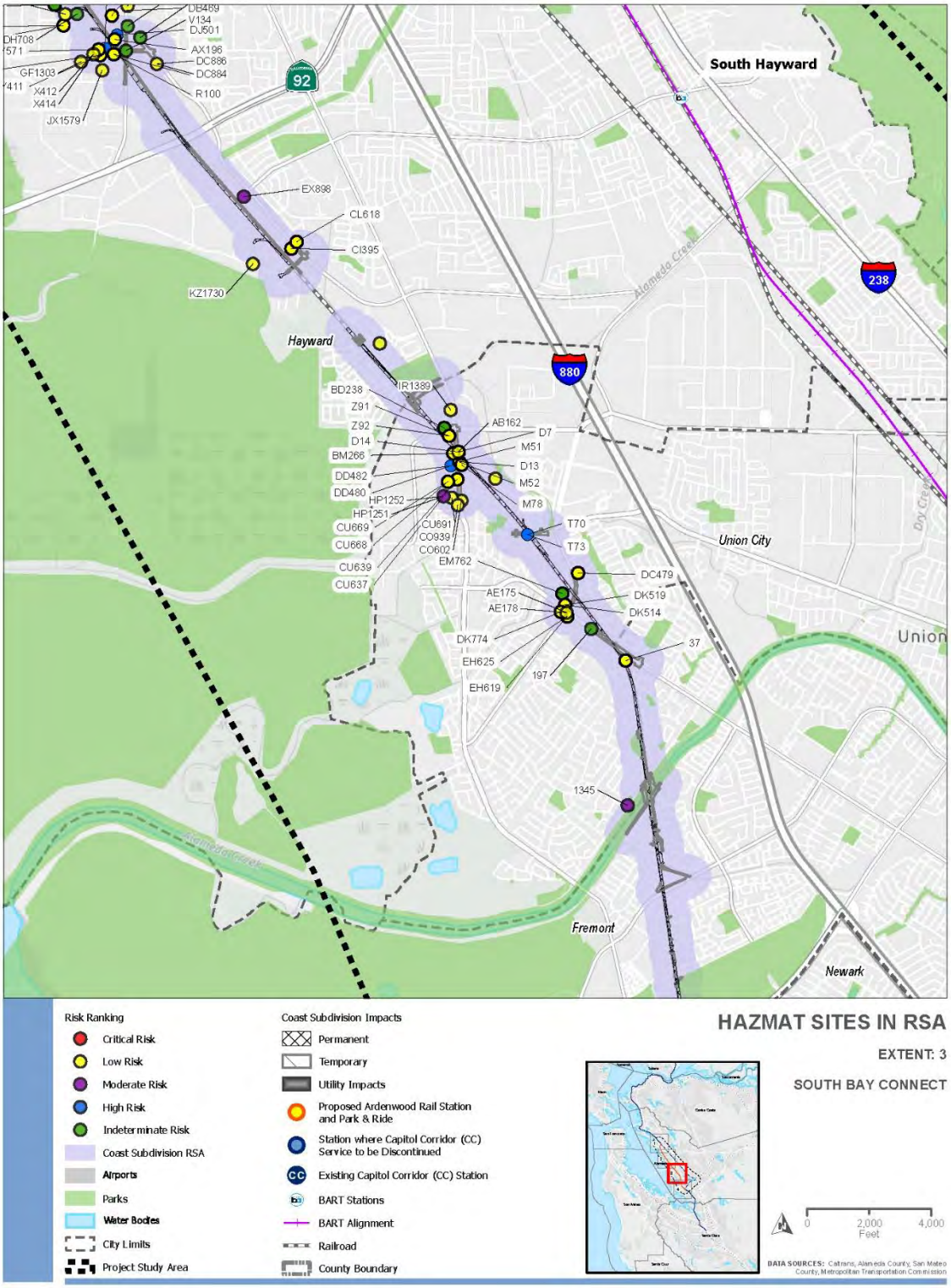
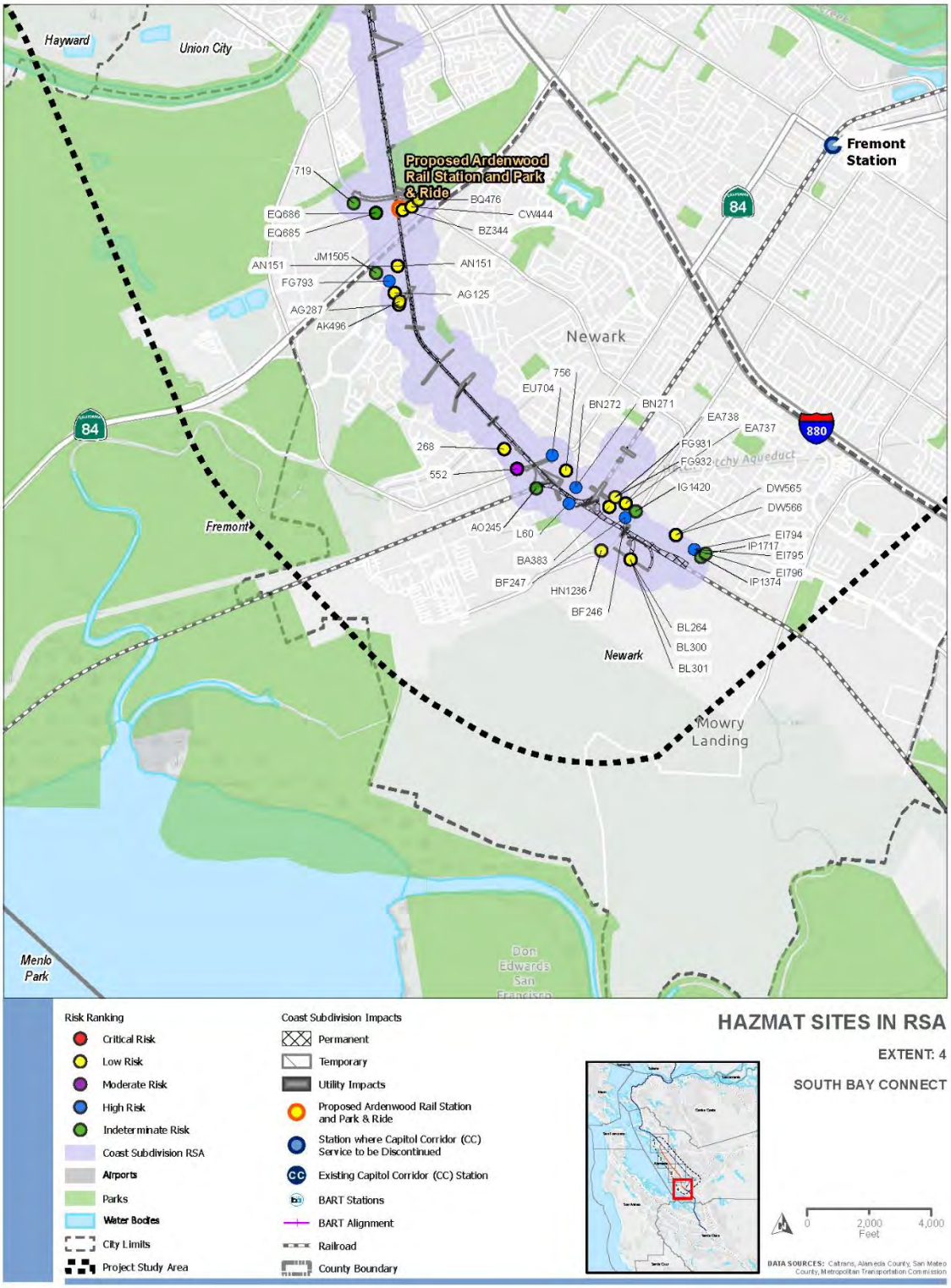


**Figure 3.10-4. Hazardous Materials Database Listings in the Contamination RSA – Part 4**



### Emergency Response and Emergency Evacuation

As discussed in further detail in Section 3.16, Public Services, fire protection services in the region are provided by Alameda County Fire Department (ACFD), Oakland Fire Department (OFD), City of Hayward Fire Department (HFD), Fremont Fire Department (FFD), and East Bay Regional Parks District Fire Department (EBRPDFD). The ACFD (which also serves as the Fire Department for Union City, Newark, San Leandro, and unincorporated Alameda County) has adopted an average response time goal of five minutes or less for 90 percent of the calls for the first responding unit, and 10 minutes or less for 90 percent of the remaining units responding to a first alarm assignment (City of Newark 2013). OFD aims to provide emergency service within seven minutes of notification 90 percent of the time (City of Oakland 2021). HFD meets or exceeds the response goal of putting the first arriving fire company on scene in five minutes or less 90 percent of the time, with the remainder of the required response teams for first alarms on scene in less than eight minutes 90 percent of the time (City of Hayward 2020). FFD has adopted a five minute-thirty second response time goal for 90 percent of all emergency calls. Response times for EBRPDFD are not available online.

As discussed in Section 3.10.2, Regulatory Setting, the 2012 Alameda County Emergency Operations Plan provides an overview of the jurisdiction's approach to emergency operations. Fremont, Oakland, and Newark also have their own local emergency operations plans, as described in Section 3.10.2. These plans generally identify emergency response policies, discuss procedures for emergency evacuation, describe the response and recovery organization, and assign specific roles and responsibilities to County departments, agencies, and community partners. The EOPs have the flexibility to be used for all emergencies to facilitate response and recovery activities in an efficient and effective way (Alameda County 2012).

As discussed in Section 3.10.2, as the Certified Unified Program Agency for Alameda County, the ACDEH coordinates and enforces numerous local, state, and federal hazardous materials management and environmental protection programs in Alameda County. The Hazardous Materials Division enforces spill prevention, through such measures as requiring an SPCC plan at certain facilities. In the event of a spill, the California Office of Emergency Services (State Warning Center) and ACDEH should be contacted.

### Fire Hazards

Wildfire risks are described in detail in Section 3.21, Wildfire. As discussed in Section 3.21, CALFIRE has designated VHFHSZs in SRAs and LRAs in Alameda County (Section 3.21; Figure 3.21-5); however, none of these are within the RSA. In addition to SRAs and LRAs, VHFHSZs can also be designated by a local agency (California Fire Code 2019). The following cities and unincorporated areas do not have local VHFHZs within the RSA: Oakland, Hayward, San Leandro, Newark, and Union City. Alameda County has not identified any VHFHSZs within San Lorenzo (Alameda County 2014).

The City of Fremont has designated VHFHSZs within the city that are outside of the SRAs and LRAs proposed by CALFIRE (CALFIRE 2007; City of Fremont 2020). There is one Fremont-designated VHFHSZs within the RSA: Ardenwood Historic Farm (Section 3.21; Figure 3.21-6). The Ardenwood Historic Farm is located east of the Coast Subdivision, north of Ardenwood Boulevard.

### Airports within the Airport RSA

Airports in the airport RSA include the Oakland International Airport and the Hayward Executive Airport (Figure 3.10-5 and Figure 3.10-6). The proposed Project is also located within the Oakland International ALUCP AIA and the Hayward Executive Airport ALUCP AIA (ESA Airports 2010a, 2010b).

### Schools within the Schools RSA

Private and public schools within a 0.25-mile radius of the Project footprint (Schools RSA) are presented in Figure 3.10-5 through Figure 3.10-7.

## 3.10.5 Best Management Practices

As noted in Chapter 2, Project Alternatives, CCJPA would incorporate a range of BMPs to avoid and minimize adverse effects on the environment that could result from implementation of the proposed Project. BMPs are included in the proposed Project description, and the impact analyses were conducted assuming application of these practices. The BMPs relevant to hazards and hazardous materials are listed below. Full descriptions of the BMPs are provided in Chapter 2, Project Alternatives.

**BMP HAZ-1 Prepare a Construction Hazardous Materials Management Plan (HMMP).**

**BMP HAZ-2 Property Acquisition Phase 1 and Phase 2 Environmental Site Assessments.**

**BMP HAZ-3 Prepare a General Construction Soil Management Plan.**

**BMP HAZ-4 Prepare Parcel-Specific Soil Management Plans and Health and Safety Plans (HASP).**

**BMP HAZ-5 LUST Sites and Coordination with DTSC.**

**BMP HAZ-6 Halt Construction Work if Potentially Hazardous Materials/Abandoned Oil Wells are Encountered.**

**BMP HAZ-7 Pre-Demolition Investigation.**

**BMP WF-1 Prepare Fire Prevention Plan.**

**BMP WF-2 Use Drought-Tolerant and Fire-Resistant Native Plants.**

**BMP TR-1 Transportation Management Plan (TMP).**

**Figure 3.10-5. Schools within 0.25 mile of the Project Footprint (Schools RSA) – Part 1**

**Figure 3.10-6. Schools within 0.25 mile of the Project Footprint (Schools RSA) – Part 2**

**Figure 3.10-7. Schools within 0.25 mile of the Project Footprint (Schools RSA) – Part 3**

# 3.10.6 Environmental Impacts

This section describes the potential environmental impacts related to hazards and hazardous materials as a result of implementation of the proposed Project. Lettering shown within title for each environmental factor below correlates with CEQA Statute and Guidelines, Appendix G table lettering and numbering.

## 3.10.6.1 (a) Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

### No Project Alternative

**No Impact.** Under the No Project Alternative, the Capitol Corridor passenger rail service between Oakland and San Jose would not be relocated from the Niles Subdivision to the Coast Subdivision. Improvements proposed for the Niles and Coast Subdivisions associated with the proposed Project would not occur. Capitol Corridor passenger trains would continue to operate based on current routes with no changes. Therefore, the No Project Alternative would result in no impacts.

### Proposed Project

#### Construction

**Less than Significant Impact.** Construction would involve the handling, storage, transport, and disposal of hazardous materials. During construction, the use of hazardous materials and substances would be required, and hazardous wastes would be generated during operation of construction equipment. Hazardous materials used in construction would include, but are not limited to, vehicle fuels, asphalt/concrete, lubricants, drilling fluids, and paints. Using these materials, including their routine transport and disposal, carries the potential for an accidental release into the local environment.

Equipment fueling would likely occur using temporary aboveground storage tanks and fuel trucks at specified staging and laydown areas. Other potentially hazardous materials used in smaller quantities (for example, paints and asphalt) would be stored using specialized containment, such as sheds or trailers. If a spill of these materials were to occur, the accidental release could pose a hazard to construction employees, the public, and the environment depending on the magnitude and location of the spill and relative hazard of the material released. Although typical construction management practices limit and often eliminate the risk of such accidental releases, the extent and duration of proposed Project construction presents a possible risk to the environment through the routine use of hazardous materials. Handling such materials would occur during short-term construction activities and would be subject to federal and state regulations and local health and safety requirements. Typical requirements include temporary storage BMPs, containment in closed containers, characterization of waste material for disposal, and disposal at facilities that are equipped and licensed to handle waste with specified characteristics.

In addition to the use of construction-related hazardous materials, known and unknown sources of contaminated soil and groundwater are also expected to be encountered during soil excavations and dewatering activities, which would require specialized handling, treatment, and potentially off-site transport and disposal. As shown in Figure 3.10-1 through Figure 3.10-4, multiple hazardous

materials listings exist within the hazards RSA. For this reason, per CCR Title 22, Division 4.5 regulations, excavation, handling, transport, and disposal must be conducted by a licensed hazardous waste transporter. Depending on the contaminant and concentrations encountered, contaminated soils and groundwater would be disposed of at an approved facility in accordance with all applicable local, state, and federal laws and regulations.

The potential hazards generated by the routine transport, use, and disposal of hazardous materials, contaminated soils, and/or contaminated groundwater during construction are not anticipated to have a significant impact, if adequately managed according to applicable laws, regulations, and industry BMPs. With the implementation of **BMP HAZ-1: Prepare a Construction Hazardous Materials Management Plan (HMMP)**, construction impacts would be considered less than significant.

#### Operation

**Less than Significant Impact.** Long-term operational activities and practices involving routine transport, use, and storage of potentially hazardous materials for railroad maintenance, including shipments in tankers on the railroads, would remain similar to existing conditions. Future operations within the RSA would continue to involve routine transport of hazardous materials and wastes, such as gasoline, brake fluids, and coolants. Heavy maintenance activities would continue off site at existing maintenance facilities and would not be affected by the proposed Project. As discussed, the proposed Project would comply with standard regulations and policies regarding the routine transport, use, storage, handling, and disposal of potentially hazardous materials during operations in order to protect human health and the environment. Therefore, long-term impacts would be considered less than significant.

## 3.10.6.2 (b) Would the project 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?

### No Project Alternative

**No Impact.** Under the No Project Alternative, the Capitol Corridor passenger rail service between Oakland and San Jose would not be relocated from the Niles Subdivision to the Coast Subdivision. Improvements proposed for the Niles and Coast Subdivisions associated with the proposed Project would not occur. Capitol Corridor passenger trains would continue to operate based on current routes with no changes. Therefore, the No Project Alternative would result in no impacts.

### Proposed Project

#### Construction

**Less than Significant Impact.** Ground-disturbing activities on the Coast and Niles Subdivisions, such as excavations, the removal and addition of tracks, modification of tracks, grade crossing improvements, new or extended siding, installation of new structures and construction of Ardenwood Station, may have the potential to disturb known and unknown contaminated soil or groundwater. As shown in Table 3.10-1, a number of high-risk sites along the Coast Subdivision in the hazards RSA have been listed on various hazardous materials databases. Ground disturbance

and structure demolition at identified hazardous materials sites could result in a hazardous materials release into the environment.

The proposed Project involves multiple waterway crossings. Construction work over waterbodies would involve spill prevention and control BMPs. As discussed in Section 3.11, Hydrology and Water Quality, the proposed Project would require permitting for work near waterbodies and would be subject to compliance with standard federal, state, and local regulations and policies related to water quality during construction of the proposed Project.

Due to the close proximity of the Project footprint to existing hazardous materials listings, potential exposure to contaminated soil and/or groundwater or contaminant migration could result. Construction of belowground elements could encounter soils and groundwater contaminated with hazardous materials, which could release volatile contaminant vapors during excavations or other ground-disturbing activities.

In addition, based on the age (pre-1970s) of many of the buildings within the RSA, it is possible that these buildings were constructed when ACM and LBPs were readily used. Acquisition of property and structure demolition would be required for construction of the proposed Project. However, demolition of structures containing LBP and ACM requires specific remediation activities regulated by federal, state, and local laws and regulations. As a result, the likelihood of the Project resulting in the accidental release of ACM or LBP into the environment is considered low. With the implementation of **BMP HAZ-1** through **BMP HAZ-7**, any reasonably foreseeable upset and accident conditions involving the release of hazardous materials would be avoided. Therefore, with the implementation of **BMP HAZ-1** through **BMP HAZ-7**, impacts associated with construction activities would be considered less than significant.

#### Operation

**Less than Significant Impact.** Operation of the proposed Project would involve the use of hazardous materials and wastes, such as gasoline, brake fluids, and coolants, that could be subject to accidental releases. The handling of such materials would be subject to federal and state regulations, local health and safety requirements, and UPRR hazardous materials and wastes policies and standards. In general, they require that these materials not be released to the environment or disposed of as general refuse. Collection in proper containers and disposal at approved facilities is required. Therefore, operational impacts would be considered less than significant, and no mitigation measures are required.

### 3.10.6.3 (c) Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

#### No Project Alternative

**No Impact.** Under the No Project Alternative, the Capitol Corridor passenger rail service between Oakland and San Jose would not be relocated from the Niles Subdivision to the Coast Subdivision. Improvements proposed for the Niles and Coast Subdivisions associated with the proposed Project would not occur. Capitol Corridor passenger trains would continue to operate based on current routes with no changes. Therefore, the No Project Alternative would result in no impacts.

### Proposed Project

#### Construction

**Less than Significant Impact.** During construction, commercially available hazardous materials such as gasoline, brake fluids, coolants, and paints would be used and would also involve the production, removal, and transport of hazardous materials. Therefore, the proposed Project could potentially result in hazardous releases near schools within 0.25 mile of the proposed Project. As shown in Figure 3.10-5 through Figure 3.10-7, approximately 21 schools are located within 0.25 mile of the proposed Project. However, with the implementation of **BMP HAZ-1** through **BMP HAZ-7**, short-term impacts would be considered less than significant.

Multiple construction vehicles would be operated within the Project footprint over the construction duration, which could result in emissions of air pollutants in the vicinity of an existing school. Fuel combustion results in the release of pollutants that can be considered hazardous, such as VOC. Air pollutants produced by motor vehicle fuel combustion are addressed in Section 3.4, Air Quality. As described in Section 3.4, BMPs would be implemented in order to reduce emissions and dust near schools and other sensitive receptors during construction. Therefore, impacts would be considered less than significant and no mitigation measures are required.

#### Operation

**Less than Significant Impact.** As discussed previously, future operations within the hazards RSA would involve routine transport of hazardous materials and wastes. However, the proposed Project would comply with standard regulations and policies regarding the routine transport, use, storage, handling, and disposal of potentially hazardous materials during operations in order to protect human health and the environment. Therefore, long-term impacts would be considered less than significant during operations.

## 3.10.6.4 (d) Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

### No Project Alternative

**No Impact.** Under the No Project Alternative, the Capitol Corridor passenger rail service between Oakland and San Jose would not be relocated from the Niles Subdivision to the Coast Subdivision. Improvements proposed for the Niles and Coast Subdivisions associated with the proposed Project would not occur. Capitol Corridor passenger trains would continue to operate based on current routes with no changes. Therefore, the No Project Alternative would not create a significant hazard to the public or the environment.

### Proposed Project

#### Construction

**Less than Significant Impact.** As shown in Table 3.10-1, a number of high-risk sites along the Coast Subdivision have been listed on various hazardous materials databases in the hazards RSA and have

been assigned a ranking based on their potential to affect the environment as a result of ground-disturbing activities.

The close proximity of these existing hazardous materials listings to Project-related permanent and temporary construction impact areas would carry the potential for encountering contaminated soil and/or groundwater. Figure 3.10-1 through Figure 3.10-4 provides the locations of these hazardous materials listings within the hazards RSA that may be affected by pre-existing contamination. A summary of hazardous materials listings within ⅛ mile of the Coast Subdivision is provided in Appendix E.

Implementation of **BMP HAZ-1**, included as part of the proposed Project, would limit the potential for impacts through early identification of potential soil and groundwater contamination within the hazards RSA. Construction activities associated with the proposed Project could occur on or near sites included on hazardous materials database listings and have the potential to disturb contaminated soil or groundwater. However, with the implementation of **BMP HAZ-3** through **BMP HAZ-6**, impacts associated with construction activities would be considered less than significant and no mitigation is required.

#### Operation

**No Impact.** Operation of the proposed Project does not require ground disturbance. As such, long-term impacts associated with the sites above would not result in a potential release of hazardous materials. Therefore, no long-term impacts are anticipated.

### 3.10.6.5 (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 or excessive noise for people residing or working in the project area?

## No Project Alternative

**No Impact.** Under the No Project Alternative, the Capitol Corridor passenger rail service between Oakland and San Jose would not be relocated from the Niles Subdivision to the Coast Subdivision. Improvements proposed for the Niles and Coast Subdivisions associated with the proposed Project would not occur. Capitol Corridor passenger trains would continue to operate based on current routes with no changes. Therefore, the No Project Alternative would not result in a safety hazard or excessive noise associated with being within an airport land use plan.

## Proposed Project

#### Construction and Operation

**Less than Significant Impact.** The Coast and Niles Subdivisions are both located within two miles of the Oakland International Airport and the Hayward Executive Airport. The subdivisions are also located within the Oakland International ALUCP AIA and the Hayward Executive ALUCP AIA. The ALUCPs for the airports include policies intended to reduce the risk of harm to people and property located within the AIAs and focus on four impact areas: noise, safety, airspace protection, and overflight. Land uses that may cause visual, electronic, navigational, or bird strike hazards to aircraft

in flight shall be allowed within the airport influence area only if the uses are consistent with FAA rules and regulations. Specific characteristics to be avoided include:

1. Glare or distracting lights that could be mistaken for airport lights;
2. Sources of dust, heat, steam smoke, or thermal plumes that may impair pilot vision or create turbulence within flight path;
3. Sources of electrical or other interference that could affect aircraft communications or navigation; and
4. Any proposed use that creates an increased attraction for wildlife (ESA Airports 2010a, 2010b).

Improvements at the grade crossings would involve automatic flashing warning lights that would turn on intermittently throughout the day and would be similar to existing conditions. Other permanent lighting would also be consistent with the lighting in the existing vicinity given the industrial and commercial land uses that surround the hazards RSA. Lighting would be required on a temporary basis during construction; however, construction would be limited to daytime hours, when possible, and would be similar to existing sources of light in the hazards RSA.

No Project activities are proposed that would create sources of thermal plumes, electrical interference, or water vapor. Proposed Project activities are industrial in nature and would not attract wildlife. Given the industrial nature of the proposed Project, the Project would be considered a noise-compatible land use and activities associated with the land use may be carried out with essentially no interference from aircraft noise (ESA Airports 2010a, 2010b). Properties within an AIA are routinely subject to overflights by aircraft. However, this would not result in a safety hazard for people residing or working in the hazards RSA during construction and operations. Overflights by aircraft would occur intermittently throughout the day and would therefore not result in increased noise hazards over an extended period of time. Noise levels as a result of the proposed Project are discussed in detail in Section 3.14, Noise and Vibration.

Tall structures are prohibited at properties within the AIAs and ALUCPs. The proposed Project does not include structures that are tall enough to create a hazard to aircraft. Cranes and other equipment or scaffolding structures needed for construction would also be far enough away from the airport to avoid hazards and would be on site only temporarily. Based on these factors, impacts would be less than significant and no mitigation would be required.

### 3.10.6.6 (f) Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

#### No Project Alternative

**No Impact.** Under the No Project Alternative, the Capitol Corridor passenger rail service between Oakland and San Jose would not be relocated from the Niles Subdivision to the Coast Subdivision. Improvements proposed for the Niles and Coast Subdivisions associated with the proposed Project would not occur. Capitol Corridor passenger trains would continue to operate based on current routes with no changes. Therefore, the No Project Alternative would not result in impairment or interference with an adopted emergency response or evacuation plan.

## Proposed Project

### Construction

**Less than Significant Impact.** During construction, roads may be temporarily impeded due to operation of construction equipment. To the extent possible, construction equipment would be staged in designated areas while not in use.

Implementation **BMP TR-1: Transportation Management Plan** would reduce potential traffic impacts during construction and would include detours and alternate routing. Additionally, the proposed Project would not change any emergency response plan routes. Therefore, impacts associated with construction activities would be less than significant.

### Operations

**Less than Significant Impact.** While no state or federal standards for response times have been established for the purposes of identifying CEQA thresholds of significance, the California High Speed Rail Authority San Jose to Merced Project Section Draft EIR/EIS (April 2020) indicated that a conservative CEQA threshold of significance for change in emergency vehicle access times would be 30 seconds (i.e., 10 percent of 600 seconds or five minutes). According to Section 3.18, Transportation, it is assumed that freight service on the Coast Subdivision stays similar to No Project levels (to be conservative). The proposed Project would result in only a slight increase in access time. Based on these factors, impacts on an emergency response plan or emergency evacuation plan would be less than significant.

# 3.10.6.7 (g) Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?

## No Project Alternative

No Impact. Under the No Project Alternative, the Capitol Corridor passenger rail service between Oakland and San Jose would not be relocated from the Niles Subdivision to the Coast Subdivision. Improvements proposed for the Niles and Coast Subdivisions associated with the proposed Project would not occur. Capitol Corridor passenger trains would continue to operate based on current routes with no changes. There would be no changes to rail connectivity or operational efficiency. Therefore, the No Project Alternative would not expose people or structures to potential wildland fires and no impacts are anticipated to occur.

## Proposed Project

### Construction

**Less than Significant Impact.** As discussed in Section 3.21, Wildfire, construction would comply with UPRR standards as well as all state and local fire safety codes and regulations applicable within the VHFHSZs, such as restrictions on the use of equipment that may produce a spark, flame, or fire; require the use of spark arrestors on construction equipment with an internal combustion engine; safe use of gasoline-powered tools in fire hazard areas; and required fire suppression equipment that must be provided on site for various types of work in fire-prone areas. With implementation of **BMP WF-1**, these restrictions would also be applicable near (within 500 feet of) a VHFHSZ. The

Project would also comply with OSHA safety requirements and hazardous material storage BMPs included in the Project's Storm Water Pollution Prevention Plan (SWPPP), which would ensure the safe storage of ignitable materials.

#### Operations

**Less than Significant Impact.** Project operation would not exacerbate wildfire risks as the Project would comply with UPRR design standards and maintenance practices. Design of the rail system would comply with National Fire Protection Association (NFPA) fire protection requirements. Ongoing vegetation removal is required by UPRR as part of its regular maintenance within its ROW. UPRR (2021) requires 12 feet on either side of track centers be cleared of vegetation for main lines sidings, and industrial lead tracks. Additional vegetation clearance is required at bridges, public crossings, around buildings, stations and platforms, and around signs and signals. UPRR would continue vegetation clearance along all subdivisions as part of proposed Project operation. Due to UPRR's ongoing vegetation clearing, rail operation would not cause vegetation fires as a result of sparks or contact with the underside of both passenger and freight rail cars.

Shifting of passenger rail facilities from the Niles to Coast subdivisions shifts passenger rail outside of VHFHSZs. Although Ardenwood Historic Farm is a VHFHSZ, it is isolated from other VHFHSZs. Moving passenger rail out of a large VHSHZ to outside an isolated VHFHSZ reduces overall risk to passengers. Based on these factors, impacts from wildfire would be less than significant.

## 3.10.7 Mitigation Measures

No mitigation measures for hazards and hazardous materials are required for the proposed Project.

## 3.10.8 Cumulative Impact Analysis

The cumulative RSA for hazards and hazardous materials consists of the Project footprint and a 0.25-mile buffer. The cumulative RSA was developed in order to capture the potential for the proposed Project, and other relevant future planned projects in the area, to disturb contaminated sites or hazardous listings, create additional hazards for workers and sensitive receptors (that is, construction or operation near airports, private air strips, and schools), create or exacerbate fire hazards, or interfere with an emergency response or emergency evacuation plan.

Under the cumulative condition, ongoing urban and industrial practices are expected to continue within the cumulative RSA through the 2025 and 2040 planning horizons. Historically, the cumulative RSA has had general areas of hazardous materials and waste concerns, including transportation of hazardous materials and wastes; potential hazardous substances associated with building materials, road, and railway corridors, utility corridors, industrial facilities; naturally occurring hazards; school facilities; oil and gas wells; and hazardous materials database listings. Population increases in the Project Study Area are anticipated to contribute incrementally to the transport, storage, use, and disposal of hazardous materials and wastes in the cumulative RSA.

The cumulative transportation and industrial projects in the Project Study Area would require the use, transport, and disposal of chemicals and hazardous materials, such as vehicle fuels, coolants, gasoline, oils, lubricants, drilling fluids, and paints during construction and operations, similar to those needed for the proposed Project. The use of these materials presents a risk of releasing hazardous wastes or materials into the environment. In addition to the use of hazardous materials, contaminated soil, and groundwater are also expected to be encountered during soil excavations

and dewatering activities associated with other planned cumulative projects. However, as with the proposed Project, other planned projects would be tightly controlled and subject to federal, state, and local health and safety requirements. Typical requirements include temporary storage BMPs, containment in closed containers, and characterization of waste material for disposal at facilities that are equipped and licensed to handle waste with specified characteristics.

During construction, the Centerville Complete Streets, Centerville Railroad Safety Improvements, Quarry Lakes Parkway Project, and State Route 84 Intermodal Bus Facility have the potential to create hazardous emissions within 0.25 mile of an existing school. These emissions would be temporary and intermittent during the construction phase of each of the planned projects and would likely be controlled by BMPs to reduce emissions to a less than significant level.

Temporary or permanent road closures may be required for the planned projects, which could result in impacts to an emergency response or emergency evacuation plan. However, any road closures proposed under the cumulative projects would require coordination and approval from appropriate agencies and departments within the City and County. The planned projects included in this cumulative analysis would be located predominantly within industrial zones outside of wildlands or very high, high, and moderate fire hazard severity zones and would not create substantial risk to wildfire.

Proposed Project BMPs include preparation of a Construction Hazardous Materials Management Plan (**BMP HAZ-1**), completion of an Environmental Site Assessment (**BMP HAZ-2**), preparation of a General Construction Soil Management Plan that includes provisions for how soils will be managed (**BMP HAZ-3**), parcel-specific soil management plans and health and safety plans (**BMP HAZ-4**), plans to halt construction work if potentially hazardous materials or abandoned oil wells are encountered (**BMP HAZ-6**), pre-demolition investigation prior to the demolition of any structures constructed prior to the 1970s (**BMP HAZ-7**), and implementation of a traffic management plan during construction (**BMP TR-1**). With implementation of these BMPs, potential impacts from the release of hazardous wastes and materials, disturbance of contaminated sites, emissions near schools, or interference with an emergency response or emergency evacuation plan would be minimized. The proposed Project is located within 2 miles of an airport and within an airport land use plan. However, the proposed Project would comply with policies established to reduce hazards to the public and aircraft from being located within the AIA and proposed land uses would be compatible with the airport land use plan. Portions of the proposed Project are located within VHFHSZs. However, as discussed in Section 3.21, Wildfire, construction would comply with UPRR standards as well as all state and local fire safety codes and regulations applicable within the VHFHSZs. The proposed Project would also implement **BMP WF-1** to reduce wildfire risks. Therefore, the proposed Project's contribution to wildfire hazards in the cumulative RSA would not be cumulatively considerable.

The proposed Project, when considered in combination with other planned projects in the cumulative RSA that would also be tightly controlled and subject to federal, state, and local health and safety requirements, would not result in a significant cumulative impact on hazards and hazardous materials.

## 3.10.9 CEQA Significance Findings Summary Table

Table 3.10-2 summarizes the hazards and hazardous materials impacts of the proposed Project.

**Table 3.10-2. CEQA Significance Determination Summary**

| Impact | Level of Significance Before Mitigation | Incremental Project Contribution to Cumulative Impacts | Mitigation | Level of Significance with Mitigation Incorporated | Incremental Project Cumulative Impact after Mitigation |
|---|---|---|---|---|---|
| **Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?** | LTS | NCC | N/A | LTS | NCC |
| **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?** | LTS | NCC | N/A | LTS | NCC |
| **Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?** | LTS | NCC | N/A | LTS | NCC |
| **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?** | LTS | NCC | N/A | LTS | NCC |

**Table 3.10-2. CEQA Significance Determination Summary**

| Impact | Level of Significance Before Mitigation | Incremental Project Contribution to Cumulative Impacts | Mitigation | Level of Significance with Mitigation Incorporated | Incremental Project Cumulative Impact after Mitigation |
|---|---|---|---|---|---|
| **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 or excessive noise for people residing or working in the project area?** | LTS | NCC | N/A | LTS | NCC |
| **Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?** | LTS | NCC | N/A | LTS | NCC |
| **Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?** | LTS | NCC | N/A | LTS | NCC |

*Notes: LTS = Less than Significant Impact, NI = No Impact, N/A = Not Applicable, SI = Significant Impact, S/M = Significant Impact but Mitigable to a Less than Significant Level, CC = Cumulatively Considerable, NCC = Not Cumulatively Considerable.*

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# 3.11 Hydrology and Water Quality

## 3.11.1 Introduction

This section describes the regulatory setting and affected environment for hydrology and water quality resources and identifies potential temporary and permanent impacts of the proposed Project during construction and operation of the project on those resources. This includes the hydrology and water quality issues that are known or have potential to occur in the Resource Study Area (RSA). This section also addresses the proposed Project's consistency with federal, state, and local regulations, policies, and goals related to hydrology and water quality.

## 3.11.2 Regulatory Setting

This section identifies federal, state, regional and local laws, regulations, and orders that are relevant to the analysis of hydrology and water quality. It also addresses the proposed Project's consistency with the regulations described herein.

### 3.11.2.1 Federal

#### Surface Water Hydrology and Surface Water Quality

##### Clean Water Act

In 1972, the government of the United States (U.S.) passed the Federal Water Pollution Control Act, which later came to be known as the Clean Water Act (CWA). This legislation, issued by the U.S. Environmental Protection Agency (EPA), established the contemporary legal foundation and structure for regulating water quality throughout the United States. The objective of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." The list below summarizes some of its more important sections:

- Sections 303 and 304 provide for water quality standards, criteria, and guidelines for all surface Waters of the U.S.
- Section 401 requires an applicant for any federal project that proposes an activity that may result in a discharge to Waters of the US to obtain certification from the state that the discharge will comply with other provisions of the CWA. The Waters of the U.S. include all navigable water bodies and all water bodies that drain into a navigable water body. The guidelines allow the discharge of dredged or fill material into the aquatic system only if there is no practicable alternative that would have less adverse impacts. The Regional Water Quality Control Board (RWQCB) administer this permitting program in California.
- Section 402 established the National Pollutant Discharge Elimination System (NPDES), which is a permitting system for the discharge of any pollutant (except for dredge or fill material) into Waters of the U.S. The State Water Resources Control Board (SWRCB) and the RWQCB administer this permitting program in the state of California; later sections will discuss the NPDES in detail.

- Section 404 establishes a permit program for the discharge of dredge or fill material into Waters of the U.S. The United States Army Corps of Engineers (USACE) administers this permit program.

**National Pollutant Discharge Elimination System (NPDES)**

The NPDES permit was established in the CWA to regulate municipal and industrial discharges to surface Waters of the U.S. The ultimate objective of the CWA is zero pollutant discharges, but it recognizes the need for a system to regulate non-zero pollutant discharges until the zero-pollutant objective is feasible. Section 402 of the CWA established the NPDES for this purpose. The NPDES regulates all pollutant discharges, particularly point source discharges, to the Waters of the U.S.

Passage of the Water Quality Act of 1987 amended the CWA to specifically include stormwater discharges as a type of point source discharge and established the framework for regulating municipal and industrial stormwater discharges under the NPDES program. This amendment added stormwater-related discharges associated with construction projects to the list of discharges that require an NPDES permit. This inclusion of stormwater-related discharge is why construction projects are subject to the requirements of the NPDES and must satisfy the requirements of all applicable NPDES permits.

Allowable concentrations and mass emissions of pollutants are only set at a regional level. These set concentrations and mass emissions of pollutants are specifically allowed either through site-specific NPDES permits or through other regulatory mechanisms, such as Total Maximum Daily Loads (TMDL).

Non-point pollution sources are defined as sources originating over a wide area rather than from a definable point. Non-point pollution often enters receiving water bodies in the form of surface water runoff and is not conveyed by way of pipelines or discrete conveyances. As defined in federal regulations, non-point sources are generally exempt from the NPDES permit program requirements. However, non-point source discharges caused by general construction activities are controlled by the NPDES program.

The goal of NPDES non-point source regulations is to improve the quality of stormwater discharged to receiving waters to the “maximum extent practicable” through the use of best management practices (BMP). BMPs can include the development and implementation of various practices, including structural measures (e.g., the construction of biofiltration strips/swales, and detention basins), regulatory measures (e.g., local authority over drainage facility design), public policy measures (e.g., labeling of storm drain inlets as to the impacts of dumping on receiving waters), and educational measures (e.g., workshops informing the public of the impacts of household chemicals dumped into storm drains).

CWA federal regulations define “municipal separate storm sewer” to mean “a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains): (i) owned or operated by a State, city, town, borough, county…” Pursuant to the CWA Section 402, NPDES Permits are required and issued for discharges from a Municipal Separate Storm Sewer System (MS4) serving a population of 100,000 or more for Phase I, and serving a population of 10,000 or more for Phase II. See the Local Regulations and Guidance section below for more details on the MS4 NPDES Permit.

## Groundwater

### Safe Drinking Water Act of 1974 (42 U.S.C. § 300 et seq.)

The Safe Drinking Water Act of 1974 was originally passed by Congress to protect public health by regulating the nation's public drinking water supply. The act authorizes the EPA to set national health-based standards for drinking water to protect against both naturally-occurring and human-produced contaminants that may be found in drinking water. The act applies to every public water system in the U.S.

The Sole Source Aquifer Protection Program is authorized by Section 1424(e) of the act. The Sole Source Aquifer designation is a tool to protect drinking water supplies in areas where there are few or no alternative sources to the groundwater resource and where, if contamination occurred, using an alternative source would be extremely expensive. All proposed projects receiving federal funds are subject to EPA review so they do not endanger a water source.

## Floodplains

### Executive Order 11988 (Floodplain Management, 1977)

Executive Order 11988 (Floodplain Management) directs all federal agencies to avoid, to the maximum extent possible, long- and short-term adverse impacts associated with the occupancy and modification of floodplains, and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. Requirements for compliance are outlined in Title 23, Code of Federal Regulations, Part 650, Subpart A (23 CFR 650A) titled "Location and Hydraulic Design of Encroachment on Floodplains" (FHWA, 2015).

If the preferred alternative involves significant encroachment within the floodplain, the final environmental document (final Environmental Impact Statement [EIS] or Finding of No Significant Impact [FONSI]) must include:

- The reasons why the proposed action must be located in the floodplain;
- The alternatives considered and why they were not practicable; and
- A statement indicating whether the action conforms to applicable state or local floodplain protection standards.

### National Flood Insurance Act (42 U.S.C. § 4001 et seq.) and Flood Disaster Protection Act (42 U.S.C. § 4001 to 4128)

The purpose of the Flood Disaster Protection Act of 1973 is to identify flood-prone areas and provide insurance. The act requires purchase of insurance for buildings in special flood-hazard areas. The act is applicable to any federally-assisted acquisition or construction project in an area identified as having special flood hazards. Projects should avoid construction in, or develop a design to be consistent with, Federal Emergency Management Agency (FEMA)–identified special flood-hazard areas.

The FEMA oversees the National Flood Insurance Program (NFIP), which offers federally-backed flood insurance to homeowners, renters, and business owners in communities that choose to participate in the program. Flood Insurance Studies (FIS) are typically published for each county. Within the study area, the latest FISs were published in 2018 for Alameda County.

Based on the results of the FISs, FEMA develops flood insurance rate maps (FIRM) for participating communities. The FIRMs divide communities into zones of relative flood risk severity. Flood Hazard Zones are areas inundated by the 100-year flood (i.e., 1 percent chance of annual flooding).

To be eligible for federally-backed flood insurance, a community must participate in the NFIP. Participating communities must adopt and enforce floodplain management ordinances meeting or exceeding FEMA requirements for reducing the risks of future flood damage. FEMA has set a minimum national standard, allowing no more than a 1-foot increase in base flood elevations (BFE) (whether mapped or not mapped) because of the cumulative impact of local development.

If a project will substantially alter the extent or depth of the base flood, the owner must submit supporting documentation and modeling. If the development proposal is approved by FEMA, FEMA issues a Conditional Letter of Map Revision (CLOMR). After construction is complete, as-built construction plans and modeling are submitted to FEMA, and FEMA issues a Letter of Map Revision (LOMR), which officially updates the FIRM.

### Rivers and Harbors Act of 1899 (33 U.S.C. § 401 et seq.)/General Bridge Act of 1946 (33 U.S.C. § 525 et seq.)

The Rivers and Harbors Act of 1899 (RHA) is the primary federal law regulating activities that may affect navigation on the nation's waterways.

Section 14 of the RHA (33 U.S.C. § 408) requires USACE's permission for the use, including modifications or alterations, of any flood control facility built by the United States to prevent impairment of the usefulness of the federal facility.

### Federal Emergency Management Agency Design Standards

FEMA standards are employed for design, construction, and regulation to reduce flood loss and to protect resources. Two types of standards are often employed: design criteria and performance standards.

The design criteria dictates that a provision, practice, requirement, or limit must be met (e.g., using the 1%-annual-chance flood and establishing floodway boundaries so as not to cause more than a 1-foot increase in flood stages).

A performance standard dictates that a goal is to be achieved, leaving it to the individual application as to how to achieve the goal (e.g., providing protection to the regulatory flood, keeping post-development stormwater runoff the same as pre-development, or maintaining the present quantity and quality of water in a wetland).

The 1%-annual-chance flood and floodplain have been adopted as a common design and regulatory standard in the United States. The NFIP adopted it in the early 1970s as a standard for use by all federal agencies with the issuance of Executive Order 11988. States or local agencies are free to impose a more stringent standard within their jurisdiction.

FEMA defines a regulatory floodway as:

> The channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation (WSE) more than a designated height. Communities must regulate development in these floodways to ensure that there are no increases in upstream flood elevations.

#### Code of Federal Regulations Title 44, Section 60.3(d)(3)

According to Title 44, Section 60.3(d)(3) of the *Code of Federal Regulations* (CFR), a community shall:

> Prohibit encroachments, including fill, new construction, substantial improvements, and other development within the adopted regulatory floodway unless it has been demonstrated through hydrologic and hydraulic analyses performed in accordance with standard engineering practice that the proposed encroachment would not result in any increase in flood levels within the community during the occurrence of the base flood discharge (United States, Federal Emergency Management Agency, Department of Homeland Security, 2002).

The community is responsible for reviewing and maintaining documentation demonstrating that any permitted floodway encroachment meets NFIP requirements. A "no-rise certification" for floodways may be used to document the analyses.

Per Title 44, Section 60.3(d)(4) of the CFR, floodway encroachments that cause an increase may be permitted, provided the community first applies for a conditional FIRM and floodway revision CLOMR and fulfills the requirements for such revisions as established under the provisions of Title 44 Section 65.12 of the CFR and receives the approval of the Floodplain Administrator (U.S. Government Publishing Office, 2002).

## 3.11.2.2 State

### Surface Water Hydrology and Surface Water Quality

Contemporary water quality regulation began in the State of California with the Dickey Act, which was passed in 1949. The Dickey Act created the RWQCBs and the State Water Quality Control Board, which was later combined with the State Water Resources Board and became known as the SWRCB. California's Porter-Cologne Act, enacted in 1969, provides the basis for contemporary water quality regulation in the state.

In the state of California, the SWRCB now administers water rights, water pollution control, and both federal and state water quality functions throughout the state. Each of the RWQCBs is responsible for the protection of beneficial uses of water resources according to federal, state, and local regulatory requirements within its jurisdiction and each uses planning, permitting, and enforcement authorities to meet these responsibilities. In particular, the SWRCB administers statewide NPDES permits, and the RWQCBs administer local NPDES permits.

#### Porter-Cologne Water Quality Act

The Porter-Cologne Act significantly expanded the mandate and authority of the SWRCB and RWQCBs to regulate water quality, including the requirement of a "Report of Waste Discharge" for any discharge of waste (liquid, solid, or otherwise) to land or surface waters that may impair a beneficial use of surface or ground water of the state.

> The Legislature finds and declares that the people of the state have a primary interest in the conservation, control, and utilization of the water resources of the state, and that the quality of all the waters of the state shall be protected for use and enjoyment by the people of the state. The Legislature further finds and declares that activities and factors which may affect the quality of waters of the state shall be regulated to attain the highest water quality, which is reasonable, considering all demands being made and to be made on those waters and the total values involved, beneficial and detrimental, economic and social, tangible and intangible. The Legislature further finds

and declares that the health, safety and welfare of the people of the state requires that there be a statewide program for the control of the quality of all the waters of the state; the state must be prepared to exercise its full power and jurisdiction to protect the quality of waters in the state from degradation originating inside or outside the boundaries of the state; the waters of the state are increasingly influenced by inter-basin water development projects and other statewide considerations. The Legislature finds that the factors of precipitation, topography, population, recreation, agriculture, industry, and economic development vary from region to region within the state, and that the statewide program for water quality control can be most effectively administered regionally within a framework of statewide coordination and policy (Porter-Cologne Water Quality Act, Chapter 1, pg. 1, 2006).

### MS4 General Permit

The Union Pacific Railroad (UPRR) currently does not have any set guidelines for addressing stormwater treatment or hydromodification management. Currently runoff within UPRR's R/W is self-retaining within ballasted track sections. Any discharges from UPRR connecting to a City's or County drainage systems, shall adhere to the local Phase I Municipal Regional Permit (MRP Order R2-2022-2018, NPDES Permit No. CAS612008). Along the corridor, the project passes through the cities of Oakland, San Leandro, Hayward, Union City, Fremont, and Newark as well as unincorporated Alameda County, therefore, the San Francisco Bay RWQCB Municipal Regional Stormwater NPDES Permit (MRP) shall apply. For work proposed that crosses or discharges to BART's right of way (ROW) the non-traditional permittee Phase II MS4 NPDES will apply (Water Quality Order 2013-0001-DWQ, NPDES No. CAS000004). For any discharges connecting to Caltrans ROW or any work within their ROW shall adhere to the Caltrans NPDES Order 2022-0033-DWQ NPDES Permit No. CAS000003.

#### Construction General Permit

The CGP (NPDES No. CAS000002, SWRCB Order No. 2022-0057-DWQ) was adopted on September 8, 2022, and went into effect on September 1, 2023. The permit regulates stormwater discharges from construction sites that result in a disturbed soil area of one acre or greater, and/or are smaller sites that are part of a larger common plan of development. For all projects subject to the CGP, applicants are required to develop and implement an effective Storm Water Pollution Prevention Plan (SWPPP). A Water Pollution Control Plan is necessary for projects with a disturbed soil area less than 1 acre.

By law, all stormwater discharges associated with construction activity where clearing, grading, and excavation results in soil disturbance of at least one acre must comply with the provisions of the CGP. Construction activity that results in soil disturbances of less than one 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 SWPPPs; 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 are based on potential erosion and transport to sensitive 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 pre- and post-construction aquatic biological assessments during specified seasonal windows.

### McAteer-Petris Act (Gov. Code § 66600 et seq.)

The McAteer-Petris Act created the San Francisco Bay Conservation and Development Commission (BCDC) to administer the policies of the federal Coastal Zone Management Act by regulating the use of land and water in the coastal zone of San Francisco Bay. BCDC regulates nearly all work, including grading, on land within 100 feet of San Francisco Bay shoreline ("shoreline band"), all areas subject to tidal action, such as sloughs and marshes, and certain designated waterways. BCDC carries out its "federal consistency" responsibilities by reviewing federal projects much as it reviews permit applications. The BCDC issues four types of permits: major permits, administrative permits, emergency permits, and region-wide permits.

The agency's decision to grant or deny a permit for the project is guided by the McAteer-Petris Act's provisions and the standards set out in the San Francisco Bay Plan (Bay Plan) (BCDC 2021). BCDC is authorized to regulate fill or dredge in the San Francisco Bay and development of the shoreline band. The McAteer-Petris Act created broad circumstances under which a permit is required by providing that any person wishing to place fill, extract materials, or make any substantial change in the use of water, land, or structures within areas subject to BCDC's jurisdiction obtain a permit. The term fill is defined broadly to include not only earth and other materials, but pilings, structures placed on pilings, and floating structures. BCDC is authorized to issue a permit for fill in the Bay if it determines that the issuance of the permit would be consistent with the provisions of the Act and with the policies established for the Bay Plan or if BCDC determines that the activity to be permitted is necessary for the health, safety, or welfare of the public in the entire Bay Area. Pursuant to Section 66605 of the McAteer-Petris Act, BCDC must determine if the proposed fill in the Bay: (1) is for a water-oriented use and provides public benefits that outweigh the adverse impacts from the loss of open water areas; (2) there is no alternative upland location available for the proposed action; (3) the fill would be the minimum amount necessary to achieve the purpose of the proposed action; (4) the nature, location, and extent of fill minimizes harmful effects on the Bay; (5) the fill is constructed in accordance with sound safety standards.

The McAteer-Petris Act also provides that a permit must be obtained from BCDC prior to undertaking construction activities within the shoreline band jurisdiction. In addition, for permitting purposes, the McAteer-Petris Act allows for areas associated with the shoreline band to be designated by BCDC for priority uses. Within such areas, the proposed use must be consistent with the priority uses specified for the designated area.

For any locations confirmed to be within BCDC jurisdiction, the proposed Project would need to obtain the appropriate permit from BCDC. To obtain a permit for development within the shoreline band, the proposed Project must provide for maximum feasible public access to the Bay and the shoreline. BCDC requires those portions of a project in San Francisco Bay and the shoreline band to plan for and adapt to sea level rise caused by global climate change. BCDC updated their San Francisco Bay Plan Climate Change Policy Guidance (Guidance) in July 2021. The Guidance provides non-regulatory, but interpretive, information to assist in the development of prospective projects in relation to the requirements of the Climate Change policies with permit applicants, local jurisdictions, and the public at large. Further discussion of sea level rise impacts as an aspect of the permit determination for the proposed Project is included in Chapter 4.

## Groundwater

### California Safe Drinking Water Act (Cal. Health and Safety Code § 116270)

The federal Safe Drinking Water Act requires states to obtain and maintain primary enforcement responsibility for public water systems. Thus, the California Safe Drinking Water Act was developed to meet this criterion of the federal counterpart. The California Safe Drinking Water Act improves the minimum requirements of the federal Safe Drinking Water Act and established primary drinking water standards that are at least as stringent. Because groundwater is used by the Alameda County Water District (ACWD) as a source and East Bay Municipal Utility District as a supplemental source of drinking water, the Safe Drinking Water Act may apply if the groundwater aquifers in the vicinity of the Resource Study Area are impacted by construction activities for this Project.

### Sustainable Groundwater Management Act (Senate Bill 1168, Assembly Bill 1739, and Senate Bill 1319)

On September 16, 2014, Governor Edmund G. Brown Jr. signed historic legislation to strengthen local management and monitoring of groundwater basins most critical to the state's water needs. The three bills, Senate Bill 1168 (Pavley), Assembly Bill 1739 (Dickinson), and Senate Bill 1319 (Pavley), together makeup the Sustainable Groundwater Management Act (SGMA). SGMA establishes phased requirements for high- and medium-priority basins to adopt groundwater sustainability plans, depending on whether a basin is in critical overdraft. SGMA requires locally controlled groundwater sustainability agencies to adopt groundwater sustainability plans by January 31, 2020, for all high- or medium-priority basins in overdraft condition, and by January 31, 2022, for all other high- and medium-priority basins unless the basin is legally adjudicated or otherwise managed sustainably.

## Floodplains

### California's National Flood Insurance Act

In the state of California, nearly all of the state's flood-prone communities participate in the NFIP, which is locally administered by the California Department of Water Resources' (DWR) Division of Flood Management. Under California's NFIP, communities have a mutual agreement with the state and federal government to regulate floodplain development according to certain criteria and standards, which is further detailed in the NFIP.

### Cobey-Alquist Flood Plain Management Act (Cal. Water Code § 8400 et seq.)

The Cobey-Alquist Flood Plain Management Act encourages local governments to adopt and enforce land use regulations to implement floodplain management. It also provides state assistance and guidance for flood control.

# 3.11.2.3 Regional

## Surface Water Hydrology and Surface Water Quality

### San Francisco Bay Regional Water Quality Control Board Municipal Regional Permit

For the proposed Project improvements that are or will be owned and/or maintained by local jurisdictions (e.g. at-grade crossings, grade separations, and stations) and for the bridge crossings

over local jurisdiction ROW that are owned and maintained by UPRR, the proposed Project would comply with the requirements of the San Francisco Bay RWQCB Municipal Regional Stormwater NPDES Permit (MRP) (Order R2-2022-2018, NPDES Permit No. CAS612008). The MRP provides waste discharge requirements for the discharge of stormwater runoff from the MS4s in the cities of Alameda, Albany, Berkeley, Dublin, Emeryville, Fremont, Hayward, Livermore, Newark, Oakland, Piedmont, Pleasanton, San Leandro, and Union City and unincorporated portions of Alameda County.

#### Alameda Countywide Clean Water Program C. 3 Stormwater Technical Guidance

The Alameda County Flood Control and Water Conservation District (ACFCWCD) and Zone 7 of the ACFCWCD joined together to form the Alameda Countywide Clean Water Program (ACCWP).The ACCWP developed the *C.3 Stormwater Technical Guidance* (2023) to fulfill the post-construction stormwater treatment 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 the implementation of permanent stormwater BMPs and hydromodification assessment, susceptibility, and management measures throughout Alameda County. Selection, placement, and design of stormwater treatment BMPs within these areas would adhere to the guidance document.

#### Alameda County Hydrology and Hydraulics Manual

Because the proposed Project is within Alameda County, the proposed Project design should adhere to the guidelines set forth by the most current version of the *Alameda County Hydrology and Hydraulics Manual* (2018), available through the ACFCWCD website.

### Groundwater

#### Dewatering Activities

Within the jurisdiction of the San Francisco Bay RWQCB, dewatering activities are often regulated under one of the following general NPDES waste discharge requirement permits:

- Discharge or Reuse of Extracted and Treated Groundwater Resulting from the Cleanup of Groundwater Polluted by Volatile Organic Compounds (VOC), Fuel Leaks and Other Related Wastes (VOC and Fuel General Permit), Order No. R2-2017-0048, NPDES No. CAG912002.
- Discharge or Reuse of Extracted Brackish Groundwater, Reverse Osmosis Concentrate Resulting from Treated Brackish Groundwater, and Extracted Groundwater from Structural Dewatering Requiring Treatment (Groundwater General Permit), Order No, R2-2018-0026, NPDES No. CAG912004.

The VOC and fuel general permit are used for the treatment and discharge of groundwater contaminated with VOCs and petroleum hydrocarbons at construction or remediation sites. The Groundwater General Permit is typically used for long-term structural dewatering of more than 10,000 gallons per day or aquifer reclamation activities requiring reverse osmosis.

#### Alameda County Water District Groundwater Management Policy

It is the policy of the ACWD to efficiently protect and manage the Niles Cone Groundwater Basin to ensure a reliable supply of high-quality water that satisfies present and future municipal, industrial, recreational, and agricultural water needs in the ACWD service area.

The ACWD adopted the ACWD Groundwater Management Policy in 1989 (amended in 2001) to protect and improve the ACWD's groundwater resources for the benefit of both ACWD's customers and private well owners. The objectives of the ACWD Groundwater Management Policy are to increase groundwater replenishment capability; increase usable storage capacity of the groundwater basin; operate the basin to provide a reliable water supply to meet baseload and peak distribution system demands, emergent source of supply, and reserve storage to augment dry year supplies; and to protect groundwater quality from all sources. It also aims to improve the groundwater quality by removing salts and other contaminants and improving the water quality of source water used for groundwater recharge.

### Floodplains

#### Cobey-Alquist Flood Plain Management Act (Cal. Water Code § 8400 et seq.)

The Cobey-Alquist Flood Plain Management Act encourages local governments to adopt and enforce land use regulations to implement floodplain management. It also provides state assistance and guidance for flood control.

#### Alameda County Floodplain Data

As part of the NFIP, typically, each county (or community) has a FIS (FEMA, 2018a), which is used to locally develop FIRMs and BFE. The FIS volumes for the proposed Project limits are 06001CV001B, 06001CV002B, and 06001CV003B.

The ACFCWCD is responsible for flood control management for Alameda County.

## 3.11.2.4 Consistency with Plans, Policies, and Regulations

For improvements that are or will be owned and/or maintained by local jurisdictions (e.g., at-grade crossings, grade separations, and stations) and for the railroad bridge crossings over the local jurisdiction's ROW, which are owned and maintained by UPRR, the proposed Project would also comply with the regulations set forth by the general plans, municipal codes and ordinances within the cities of Oakland, San Leandro, Castro Valley, Hayward, Fremont, Union City, and Newark as well as Alameda County. Refer to Appendix F for other related local policies.

# 3.11.3 Methods for Evaluating Environmental Impacts

This section defines the RSA for hydrology and water quality and describes the methods used to analyze the impacts on hydrology and water quality, groundwater, and floodplains within the RSA.

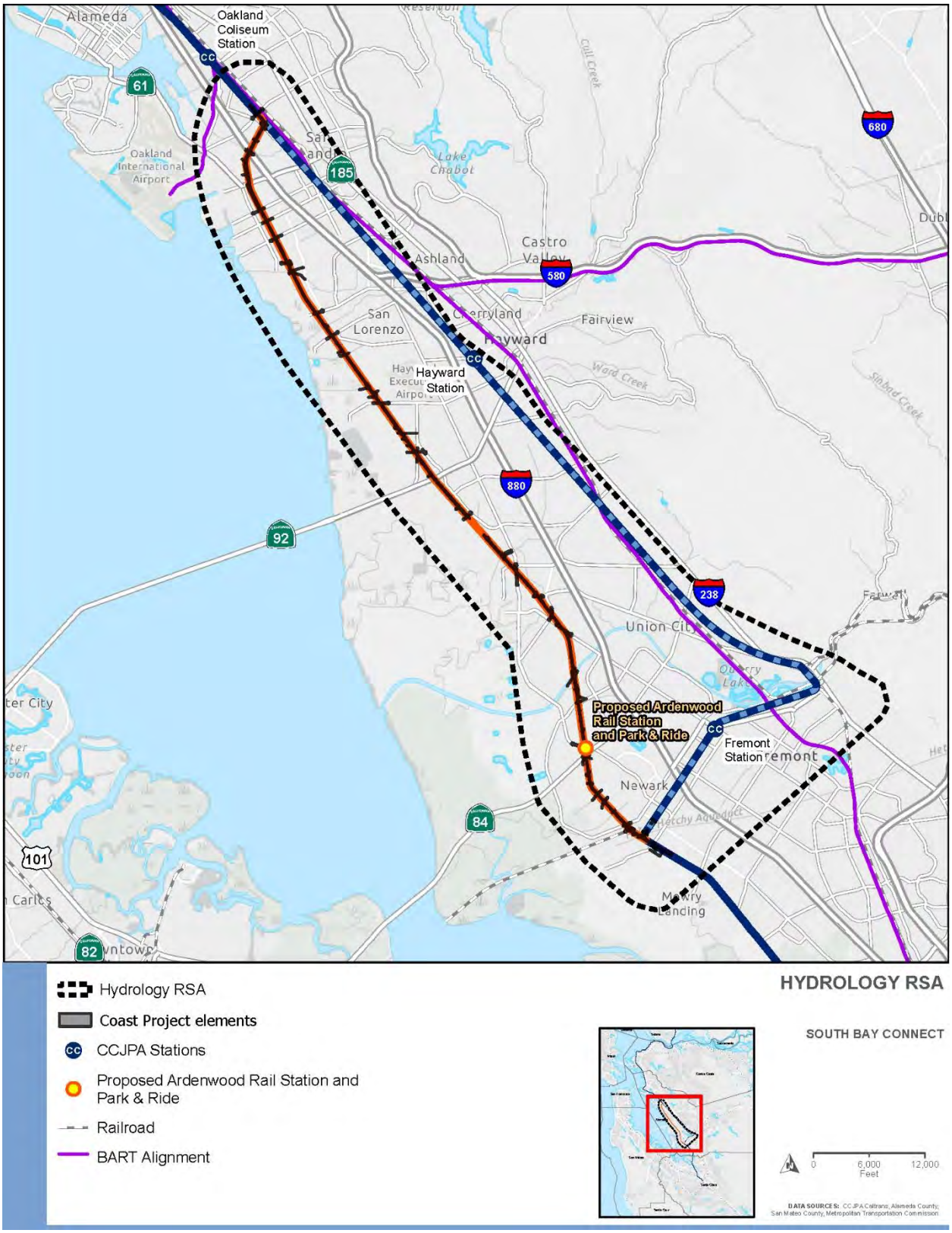
## 3.11.3.1 Resource Study Area

As defined in Section 3.1, Introduction, RSAs are the geographic boundaries within which the environmental investigations specific to each resource topic were conducted. The hydrology and water quality RSA covers water bodies, groundwater basins, and floodplains that fall within a

boundary extending 0.25 mile upstream of the Niles Subdivision and 1 mile downstream of the Coast Subdivision. See Figure 3.11-1 for the hydrology and water quality RSA for the proposed Project.

The proposed Project is divided into three sections: North (MP 18.38 at Grant Avenue in the unincorporated area of San Lorenzo to approximately MP 13.15 just north of 98th Street in the city of Oakland), Central (from MP 25.25 to MP 25.26 at Smith Street in the city of Union City to MP 18.48 at Grant Avenue in the unincorporated area of San Lorenzo), and South (from MP 31.64 at the southern end of the proposed Project area in the city of Newark to MP 25.25 between MP 25.26 at Smith Street in the city of Union City).

**Figure 3.11-1. Hydrology RSA**



### 3.11.3.2 Data Sources

Table 3.11-1 lists the information sources referenced (and associated geographic information system [GIS] data) to describe the affected environment.

**Table 3.11-1. Summary of Data Sources**

| Data Source | Name/Description of Source(s) |
|---|---|
| ***Climate, Precipitation, and Topography*** | |
| U.S. Geological Survey | The National Map Viewer 2016 |
| Western Regional Climate Center | Period of Record Monthly Summary in Oakland (046332), Oakland Metro INTL AP (0463350), Newark (046144) (2006) |
| United States Department of Agriculture Natural Resources Conservation Service National Water and Climate Center | Climate Report at Hayward Air Terminal (2019) |
| ***Surface Water Hydrology*** | |
| Alameda County Clean Water Program (ACCWP) | *C.3 Stormwater Technical Guidance Manual Version 8.* (2023) |
| ACCWP | Hydro Modification Susceptibility Map (2019) |
| ACFCWCD | *Alameda County Hydrology and Hydraulics Manual* (2023) |
| California Department of Forestry and Fire Protection | Calwater 2.2.1 Watershed Boundaries GIS data (2013) |
| ***Surface Water Quality*** | |
| San Francisco Bay RWQCB | *Water Quality Control Plan Basin Plan for the San Francisco Bay Basin* (2023) |
| SWRCB | *2020–2022 California Integrated Report* (Clean Water Act Section 303(d) List and 305(b) Report) (2022) |

**Table 3.11-1. Summary of Data Sources**

| Data Source | Name/Description of Source(s) |
|---|---|
| ***Groundwater*** | |
| DWR | California's Groundwater Bulletin 118 and GIS Data (2004a, 2004b, 2004c, 2004d, 2004e, 2004f, 2006, 2020); Water Management Planning Tool (2015) |
| SWRCB | GeoTracker Database (2021) |
| SWRCB | Groundwater Ambient Monitoring & Assessment Program (2021) |
| U.S. Geological Survey (USGS). National Water Information System. | National Water Information System. Groundwater Levels for California (2021) |
| ***Floodplains*** | |
| FEMA | FIS Number 06001C0256G (2009a)<br>FIS Number 06001C0286G (2009b)<br>FIS Number 06001C0287G (2009c)<br>FIS Number 06001C0288G (2009d)<br>FIS 06001C0289G (2009e)<br>FIS Number 06001C0293G (2009f)<br>FIS Number 06001C0427G (2009g)<br>FIS Number 06001C0429G (2009h)<br>FIS Number 06001C0431G (2009i)<br>FIS Number 06001C0432G (2009j)<br>FIS Number 06001C0433G (2009k)<br>FIS Number 06001C0434G (2009l)<br>FIS Number 06001C0441G (2009m)<br>FIS Number 06001C0443G (2009n)<br>FIS Number 06001C0455G (2009o)<br>FIS Number 06001C0461G (2009p)<br>Guidelines for Implementing Executive Order 11988, Floodplain Management, and Executive Order 13690, Establishing a Federal |

**Table 3.11-1. Summary of Data Sources**

| Data Source | Name/Description of Source(s) |
|---|---|
| | Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input (2015a)<br>Federal Flood Risk Management Standard (FFRMS) (2015b)<br>FIS 06001CV001B for Alameda County (2018a)<br>FIS Number 06001C0258H (2018b)<br>FIS Number 06001C0266H (2018c)<br>FIS Number 06001C0267H (2018d)<br>FIS Number 06001C0269H (2018e) |
| California Emergency Management Agency, California Geological Survey, and University of Southern California | Tsunami Inundation Maps for Emergency Planning State of California (2021) |
| USACE | 4.1.0. (ACFCC \| Run Info: 1D/subcrit/steady state/32,000cfs 100yr/debris included) |
| FEMA/USACE – Effective Models | Hydraulic Engineering Center's River Analysis System (HEC-RAS), Version 5.0.3 (Zone 5 Line K \| Run Info: 1D/subcrit/steady state/1600cfs 100yr)<br>Hydraulic Engineering Center's River Analysis System (HEC-RAS), Version 5.0.6 (Zone 5 Line H \| Run info: 1D/subcrit/steady state/610cfs 100yr) |
| ACFCWCD/USACE | Hydraulic Engineering Center's River Analysis System (HEC-RAS), Version 5.0.7 (ACFCC \| Run Info: 1D-2D coupled/unsteady/34,100cfs 100yr peak) |
| HDR\|WRECO | Preliminary Alameda Creek HEC-RAS Model |

Thirty-six (36) crossings of creeks and waterways are present in the RSA. Sixteen of these have either no proposed improvements or are not within the 100-year floodplain. CCJPA requested hydraulic models for the other 20 creeks and waterways. Fifteen of these 20 models were requested from FEMA and ACFCWCD because the waterways fall in both the regulated FEMA floodway and ACFCWCD jurisdiction.

All 20 creek models were requested from FEMA in 2022 and 2023; model data for five creeks was provided to CCJPA by March 2023. Modeling data from FEMA for the remaining 15 creek crossings that were requested is unavailable.

Requests for 15 creek models within ACFCWCD jurisdiction were made between October 2021 and October 2023; model data for one creek (ACFCC) was provided to CCJPA in 2023. Modeling data from ACFCWCD for the remaining 14 creek crossings that were requested is unavailable.

Of the 20 proposed Project creek crossings, six effective models have been obtained from FEMA and ACFCWCD. These models were analyzed under assumed proposed Project conditions to conduct a quantitative assessment of the proposed Project impacts, where feasible. LiDAR data, existing infrastructure construction As-Builts, and other available information has been sourced as needed and documented in Table 3.11-1 above.

For the 14 creek crossings within floodplains and floodways[1] where effective models were not available, qualitative assessments were conducted on the potential for proposed Project impacts. A summary of the creek crossings and the model data available is presented in Table 3.11-2.

**Table 3.11-2. Models Requested and Agency Response**

| Name of Creek Crossing | Agency Contacted | Model Data Available | Notes Regarding Data Provided |
|---|---|---|---|
| Zone 2 Line K (Sulphur Creek) | FEMA | Yes | HEC-2 v4.6.2 Model |
| | ACFCWCD | No | Data unavailable |
| Zone 5 Line K (Crandall Creek) | FEMA | Yes | HEC-RAS v5.0.3 Model |
| | ACFCWCD | No | Data unavailable |
| Zone 3A Line A (Old ACFCC)) | FEMA | Yes | HEC-2 v4.6.2 Model received |
| | ACFCWCD | No | Data unavailable |
| ACFCC1 | FEMA | No | Data unavailable |
| | ACFCWCD | Yes | HEC-RAS Model. See footnote 1 below. |
| Line P (San Leandro Creek) | FEMA | No | HEC-2 PDF illegible |
| | ACFCWCD | No | Data unavailable |
| Zone 5 Line H | FEMA | Yes | HEC-2 PDF |

[1] A floodway is all or a portion of a floodplain that would be inundated under a 100-year flood (base flood) as designated by the local floodplain manager. To avoid impacts related to flooding, FEMA and the local agencies require that an encroachment into a floodplain not increase the WSE of the 100-year flood by more than 1 foot in floodplains and have no increase in regulatory floodways.

**Table 3.11-2. Models Requested and Agency Response**

| Name of Creek Crossing | Agency Contacted | Model Data Available | Notes Regarding Data Provided |
|---|---|---|---|
| | ACFCWCD | No | Data unavailable |
| Line N (Stonehurst Creek) | FEMA | No | HEC-2 PDF illegible |
| | ACFCWCD | No | Data unavailable |
| Zone 4 Line A | FEMA | No | Data unavailable |
| | ACFCWCD | No | Data unavailable |
| Zone 3A Line B (Ward Creek) | FEMA | No | Data unavailable |
| | ACFCWCD | No | Data unavailable |
| Zone 3A Line D | FEMA | No | Data unavailable |
| | ACFCWCD | No | Data unavailable |
| Zone 3A Line E | FEMA | No | Data unavailable |
| | ACFCWCD | No | Data unavailable |
| Zone 3A Line A-2 | FEMA<br>ACFCWCD | No | Data unavailable |
| Bockman Canal/Line N (tributary to SF Bay) | FEMA<br>ACFCWCD | No | Data unavailable |
| Unnamed crossing 0.3 miles south of Line N | FEMA<br>ACFCWCD | No | Data unavailable |
| | FEMA | No | Data unavailable |

**Table 3.11-2. Models Requested and Agency Response**

| Name of Creek Crossing | Agency Contacted | Model Data Available | Notes Regarding Data Provided |
|---|---|---|---|
| Unnamed crossing 0.08 miles south of Dyer Street | ACFCWCD | | |
| Zone 2 Line A | FEMA | No | Data unavailable |
| | ACFCWCD | | |
| Zone 5 Line M | FEMA | No | Data unavailable |
| | ACFCWCD | | |
| Zone 2 Line B (San Lorenzo Creek) | FEMA | No | Data unavailable<br>HEC-RAS v4.1.0 Model |
| | ACFCWCD | Yes | |
| Zone 5 Line F-1 | FEMA | No | Data unavailable |
| | ACFCWCD | | |
| Unnamed crossing 0.2 miles south of Zone 2 Line A | FEMA | No | Data unavailable |
| | ACFCWCD | | |

***Note: ACFCC=Alameda Creek Flood Control Canal***
***1- The ACFCC existing condition HEC-RAS model is from one of the latest studies by ACFCWCD, the model was developed from various sources of information for high level planning purposes. ACFCWCD does not guarantee the hydraulic model accuracy and/or the background data used for the model development.***

### 3.11.3.3 CEQA Thresholds

For this analysis, the proposed Project would result in a significant impact on hydrology and water quality if it would:

a. Violate water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality.

b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin.

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:

   1) Result in substantial erosion or siltation on- or off-site.

   2) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site.

   3) 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.

   4) Impede or redirect flood flows.

d. Risk release of pollutants due to Project inundation in flood hazard, tsunami, or seiche zones.

e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

# 3.11.4 Affected Environment

## 3.11.4.1 Environmental Setting

### Regional Setting

The surface water hydrology, surface water quality, groundwater, and floodplains in the RSA are described in the following subsections. This information provides the context for the environmental analysis and the evaluation of impacts.

### Climate, Precipitation, and Topography

The RSA is located in the western part of Alameda County from Oakland to Newark. The topography generally slopes moderately downward to the west. The UPRR Coast Subdivision lays on flat terrain by the San Francisco Bay. The elevation of the RSA varies from sea level (0 feet) to about 50 feet (USGS 2021).

The proposed Project area has a Mediterranean climate, characterized by mild, moist winters and hot, dry summers. Climate summary reports for the proposed Project area were obtained from the Western Regional Climate Center Website for Station Oakland, Oakland Metro INTL AP, and Newark, and United States Department of Agriculture Natural Resources Conservation Service National Water and Climate Center Website for Station Hayward. Mean maximum temperature ranges from 54 to 98 degrees Fahrenheit (°F), mean minimum ranges from 33 to 49, and mean total rainfall ranges from 14.31 to 22.61 inches (Western Regional Climate Center; United States Department of Agriculture Natural Resources Conservation Service National Water and Climate Center 2021). The maximum average temperature reported for the RSA is 79.7 Fahrenheit degree in September, and minimum average temperature is 39.6 Fahrenheit degree in January. The RSA generally experiences precipitation between October and May. The average annual precipitation is 17.3 inches with January being the wettest month at an average of 3.6 inches and July being the driest month with an average of 0.02 inch.

## Surface Water Hydrology and Water Quality

### Regional Hydrology

According to the Watershed Boundary Dataset defined by the USGS, the proposed Project is contained wholly in the San Francisco Bay Hydraulic Basin. The proposed Project is within two subbasins, the San Francisco Bay and Coyote Subbasins (18050004 and 18050003 respectively), which together contain four watersheds that overlap with the proposed Project: San Lorenzo Creek (106,303 acres), Alameda Creek (86,666 acres), Aqua Caliente Creek (40,752 acres), and San Francisco Bay (202,981 acres).

Another watershed delineation for California exists as the California Interagency Watershed Map of 1999, known today as Calwater 2.2.1. This dataset, defined by DWR, integrates administrative and legal boundaries and is more accurate in mountainous terrain. There are two Calwater Watersheds in the RSA. Specifically, these are defined as California Department of Fish and Wildlife Super Planning Watersheds (CDFSPW). The RSA also contains two Hydrologic Areas and two Hydrologic Sub-Areas, which are listed in Table 3.11-3.

**Table 3.11-3. Hydrologic Units, Areas and Sub-Areas in RSA**

| Hydrologic Unit | Hydrologic Area | Hydrologic Sub-Area (has) | Area (in acres) | CDFSPW Name |
|---|---|---|---|---|
| **Santa Clara** | East Bay Cities | undefined HSA, #204.20 | 320.5 | Oakland |
| | | | | Don Castro Reservoir |
| | | | | Lake Chabot |
| **Santa Clara** | Fremont Bayside | undefined HSA, #205.20 | 10,988.6 | Newark Slough |

*Source: CALFIRE 2013*

According to the ACFCWCD's "Explore Watersheds" Webpage (2017), the RSA lies across Elmhurst Creek Watershed, San Leandro Creek Watershed, San Leandro Marina Watershed, Estudillo Canal Watershed, San Lorenzo Creek Watershed, Bockman Canal Watershed, Hayward Landing Watershed, Old Alameda Creek Watershed, Alameda Creek Watershed, Newark Slough Watershed, Plummer Creek Watershed, and Mowry Slough Watershed.

### Receiving Waterbodies and Waterway Crossings

Creeks designated by the ACFCWCD within the hydrology and water quality RSA are presented in Table 3.11-4. Each of the proposed Project's receiving water bodies is listed in Table 3.11-5 and shown in Figure 3.11-2.

**Table 3.11-4. Receiving Waterbodies and Waterway Crossings**

| Receiving Waterbodies and Waterway Name | FEMA designated Line Name | Type of Channel |
|---|---|---|
| ***Coast - North*** | | |
| Estudillo Canal/San Leandro Creek | Zone 2 Line A | Engineered Channel |
| San Lorenzo Creek | Zone 2 Line B | Engineered Channel |
| Elmhurst Creek | Line M | Natural Channel |
| San Leandro Creek | Line P | Natural Channel |
| Stonehurst Creek | Line N | Natural Channel |
| N/A | A crossing of an unnamed creek 0.2 mile south of Zone 2 Line A | Natural Channel |
| **Coast - Central** | | |
| Sulphur Creek | Zone 2 Line K | Natural Channel |
| Old ACFCC | Zone 3A Line A | Natural Channel |
| Bockman Canal | Line N | Natural Channel |
| N/A | A crossing of an unnamed creek 0.3 mile south of Line N (Tributary to SF Bay) | Natural Channel |
| N/A | Zone 4 Line A | Natural Channel |

**Table 3.11-4. Receiving Waterbodies and Waterway Crossings**

| Receiving Waterbodies and Waterway Name | FEMA designated Line Name | Type of Channel |
|---|---|---|
| N/A | Zone 3A Line A-2 | Natural Channel |
| ***Coast - South*** | | |
| Alameda Creek Flood Control Channel/Alameda Creek | N/A | Natural Channel |
| N/A | A crossing of an unnamed creek 0.08 mile south of Dyer Street | Natural Channel |
| Crandall Creek | Zone 5 Line K | Natural Channel |
| N/A | Zone 5 Line H | Engineered Channel |
| Plummer Creek | Zone 5 Line F-1 | Engineered Channel |

***Source: FEMA, 2018***

**Table 3.11-5. Proposed Project Watersheds and Receiving Water Bodies**

| Hydrologic Region | Hydrologic Unit(s) | Hydrologic Area(s) | Planning Watersheds | Local Watersheds | Receiving Water Body |
|---|---|---|---|---|---|
| ***Coast Subdivision - North Section*** | | | | | |
| **San Francisco Bay** | South Bay | East Bay Cities (HUC-8 18050004) | Undefined (Oakland Planning Watershed) | Elmhurst Creek Watershed | Elmhurst Creek |
| | | | | San Leandro Creek Watershed | Stonehurst Creek |
| | | | | | San Leandro Creek/Line P |
| | | | | Oyster Point Watershed | San Francisco Bay |
| | | | | San Leandro Marina Creek Watershed | San Francisco Bay |
| | | | | Estudillo Canal Watershed | Estudillo Canal/San Leandro Creek/Zone 2 Line A |
| | | | | San Lorenzo Creek Watershed | San Lorenzo Creek |
| | | | | Bockman Canal Watershed | Bockman Canal |

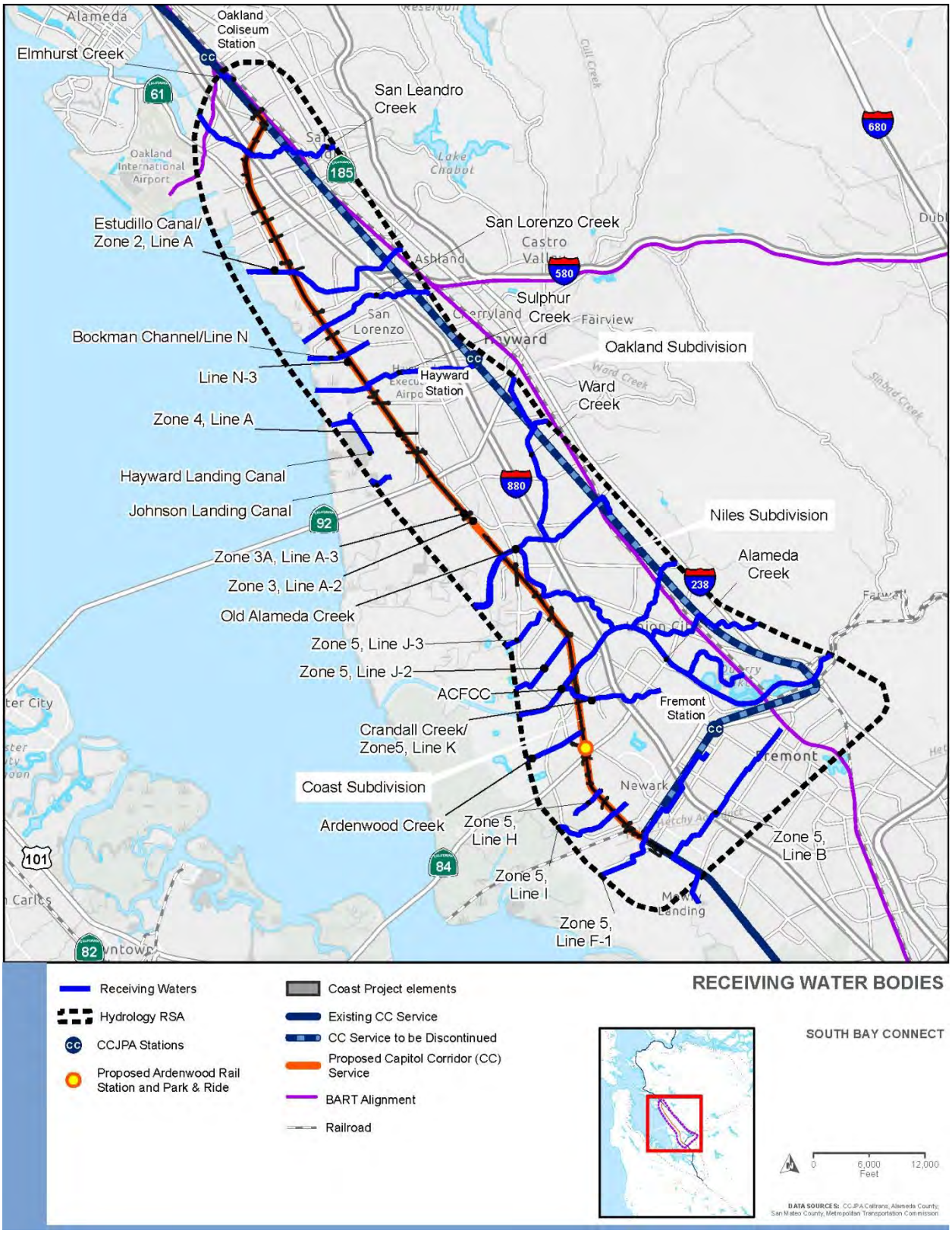
**Table 3.11-5. Proposed Project Watersheds and Receiving Water Bodies**

| Hydrologic Region | Hydrologic Unit(s) | Hydrologic Area(s) | Planning Watersheds | Local Watersheds | Receiving Water Body |
|---|---|---|---|---|---|
| ***Coast Subdivision - Central Section*** | | | | | |
| **San Francisco Bay** | South Bay | East Bay Cities (HUC-8 18050004) | Undefined (Oakland Planning Watershed) | Lower Sulphur Creek Watershed | Sulphur Creek(west) |
| | | | | Hayward Landing Watershed | Hayward Landing Canal |
| | | | | | Zone 4 Line A |
| | | | | Old Alameda Creek Watershed | Zone 3A Line A-3 Engineered Channel |
| | | | | Johnson Landing Watershed | Johnson Landing Canal |
| | | | | Old Alameda Creek Watershed | Old Alameda Creek |
| | | | | | Zone 5 Line J-3 Engineered Channel |

**Table 3.11-5. Proposed Project Watersheds and Receiving Water Bodies**

| Hydrologic Region | Hydrologic Unit(s) | Hydrologic Area(s) | Planning Watersheds | Local Watersheds | Receiving Water Body |
|---|---|---|---|---|---|
| ***Coast Subdivision - South Section*** | | | | | |
| **San Francisco Bay** | South Bay | East Bay Cities (HUC-8 18050004) | Undefined (Oakland Planning Watershed) | Zone 5 Line J-2 Subwatershed - part of the Alameda Creek Watershed | Zone 5 Line J-2 Engineered Channel (to Alameda Creek Flood Control Channel) |
| | | | | Crandall Creek Subwatershed - part of the Alameda Creek Watershed | Ardenwood Creek |
| | Santa Clara | Fremont Bayside (HUC-8 18050003) | Newark Slough (Undefined Planning Watershed) | Newark Slough Watershed | Zone 5 Line H Engineered Channel (to Newark Slough) |
| | | | | | Zone 5 Line I Engineered Channel (to Newark Slough) |
| | | | | Plummer Creek Watershed | Zone 5 Line F-1 Engineered Channel (to Plummer Creek) |
| | | | | | Zone 5 Line B Engineered Channel (to Mowry Slough) |

**Figure 3.11-2. Proposed Project Receiving Water Bodies**



### Beneficial Uses and Water Quality Objectives

The San Francisco Bay RWQCB developed a watershed planning document, called the Basin Plan (2023), which establishes a list of beneficial uses for aquatic resources. Beneficial uses are the useful resources, services, and qualities that certain aquatic resources provide. In addition, the Basin Plan lays out standards, called water quality objectives, that all aquatic resources must meet to preserve the established beneficial uses. When aquatic resources consistently fail to meet a water quality objective, the San Francisco Bay RWQCB must develop and implement a program designed to control sources of pollution through regulatory mechanisms to repair aquatic resources, attain water quality objectives, and support its beneficial uses.

The Basin Plan (San Francisco Bay RWQCB, 2023) does not list the beneficial uses for several of the receiving water bodies outlined below; however, the Basin Plan states that "the beneficial uses of any specifically identified water body generally apply to all its tributaries." Therefore, the beneficial uses of the main streams of creeks that are listed would also apply to their tributaries. See Table 3.11-6 for beneficial uses for receiving water bodies.

**Table 3.11-6. Listed Beneficial Uses for Receiving Water Bodies**

| Subdivision | Receiving Water Body | Existing Beneficial Uses |
|---|---|---|
| **Coast – North Section** | Elmhurst Creek (tributary to San Leandro Bay) | COMM, EST, MIGR, RARE, WILD, REC-1, REC-2, NAV |
| **Coast – North Section** | Stonehurst Creek/Line N (tributary to San Leandro Creek) | FRSH, COLD, MIGR, RARE, SPWN, WARM, WILD, REC-1, REC-2 |
| **Coast – North Section** | San Leandro Creek/Line P | FRSH, COLD, MIGR, RARE, SPWN, WARM, WILD, REC-1 |
| **Coast – North Section** | San Francisco Bay | IND, COMM, SHELL, EST, MIGR, RARE, SPWN, WILD, REC-1, REC-2, NAV |
| **Coast – North Section** | Estudillo Canal/Zone 2 Line A | WARM, WILD, REC-1, REC-2 |
| **Coast – North Section** | San Lorenzo Creek/Zone 2 Line B | MUN, FRSH, GWR, COLD, MIGR, SPWN, WARM, WILD, REC-1, REC-2 |
| **Coast – North Section** | Bockman Canal/Line N (tributary to San Francisco Bay) | IND, COMM, SHELL, EST, MIGR, RARE, SPWN, WILD, REC-1, REC-2, NAV |
| **Coast – Central Section** | Sulphur Creek | WARM, WILD, REC-1, REC-2 |

**Table 3.11-6. Listed Beneficial Uses for Receiving Water Bodies**

| Subdivision | Receiving Water Body | Existing Beneficial Uses |
|---|---|---|
| **Coast – Central Section** | Hayward Landing Canal (tributary to San Francisco Bay) | IND, COMM, SHELL, EST, MIGR, RARE, SPWN, WILD, REC-1, REC-2, NAV |
| **Coast – Central Section** | Zone 3A Line A-3 Engineered Channel (tributary to Old Alameda Creek) | EST, WILD, REC-1, REC-2 |
| **Coast – Central Section** | Johnson Landing Canal (tributary to San Francisco Bay) | IND, COMM, SHELL, EST, MIGR, RARE, SPWN, WILD, REC-1, REC-2, NAV |
| **Coast – Central Section** | Zone 3A Line A (tributary to Old Alameda Creek) | EST, WILD, REC-1, REC-2 |
| **Coast – Central Section** | Zone 5 Line J-3 Engineered Channel (tributary to Alameda Creek) | AGR, GWR, COMM, COLD, MIGR, RARE, SPWN, WARM, WILD, REC-1, REC-2 |
| **Coast – South Section** | Zone 5 Line J-2 Engineered Channel (tributary to Alameda Creek) | AGR, GWR, COMM, COLD, MIGR, RARE, SPWN, WARM, WILD, REC-1, REC-2 |
| **Coast – South Section** | Ardenwood Creek (tributary to Alameda Creek) | AGR, GWR, COMM, COLD, MIGR, RARE, SPWN, WARM, WILD, REC-1, REC-2 |
| **Coast – South Section** | Zone 5 Line H Engineered Channel (tributary to Newark Slough) | EST, RARE, WILD, REC-1, REC-2 |
| **Coast – South Section** | Zone 5 Line I Engineered Channel (tributary to Newark Slough) | EST, RARE, WILD, REC-1, REC-2 |
| **Coast – South Section** | Zone 5 Line F-1 Engineered Channel (tributary to Plummer Creek) | EST, RARE, WILD, REC-1, REC-2 |
| **Coast – South Section** | Zone 5 Line B Engineered Channel (tributary to Mowry Slough) | EST, RARE, WILD, REC-1, REC-2 |

*Notes: AGR = agricultural supply; COLD = cold freshwater habitat; COMM = commercial, and sport fishing; EST = estuarine habitat; FRSH = freshwater replenishment; GWR = groundwater recharge; IND = industrial service supply; MIGR = fish migration; MUN = municipal and domestic supply; NAV = navigation; PRO = industrial process supply; RARE = preservation of rare and endangered species; REC-1 = water contact recreation; REC-2 = noncontact water recreation; SPWN = fish spawning; WARM = warm freshwater habitat; WILD = wildlife habitat*

*Source: San Francisco Bay RWQCB, 2023.*

### Water Quality Objectives

According to the Basin Plan (San Francisco Bay RWQCB 2023), the overall goals of the water quality regulations are to protect and maintain thriving aquatic ecosystems and the resources those systems provide to the society and to accomplish these in an economically and socially sound manner. The San Francisco Bay RWQCB establishes and enforces Waste Discharge Requirements (WDR) for point and nonpoint source of pollutant levels necessary to meet numerical and narrative water quality objectives. See Table 3.11-7 for the descriptions of the surface water quality objectives from the Basin Plan.

**Table 3.11-7. Surface Water Quality Objectives (San Francisco Bay RWQCB)**

| Parameter | Surface Water Quality Objective |
|---|---|
| **Bacteria** | Water quality objectives for bacteria in Table 3-1 of the basin plan shall be strictly applied except when otherwise provided for in a TMDL. |
| **Bioaccumulation** | Controllable water quality factors shall not cause a detrimental increase in concentrations of toxic substances found in bottom sediments or aquatic life. |
| **Biostimulatory Substances** | Waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses. |
| **Color** | Waters shall be free of coloration that causes nuisance or adversely affects beneficial uses. |
| **Dissolved Oxygen** | In waters with the beneficial use of COLD, dissolved oxygen may not be depressed below 7.0 milligrams per liter. In waters with the beneficial use of WARM, dissolved oxygen may not be depressed below 5.0 milligrams per liter. The basin plan also contains dissolved oxygen objectives for tidal waters. |
| **Floating Materials** | Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses. |
| **Oil and Grease** | Waters shall not contain oils, greases, waxes, or other materials in concentrations that result in a visible film or coating on the surface of the water or on objects in the water, that cause nuisance, or that otherwise adversely affect beneficial uses. |

**Table 3.11-7. Surface Water Quality Objectives (San Francisco Bay RWQCB)**

| Parameter | Surface Water Quality Objective |
|---|---|
| **Population and Community Ecology** | All waters shall be maintained free of toxic substances in concentrations that are lethal to or that produce significant alterations in population or community ecology or receiving water biota. In addition, the health and life history characteristics of aquatic organisms in waters affected by controllable water quality factors shall not differ significantly from those for the same waters in areas unaffected by controllable water quality factors. |
| **pH** | The pH shall not be depressed below 6.5 nor raised above 8.5. This encompasses the pH range usually found in waters within the basin. Controllable water quality factors shall not cause changes greater than 0.5 units in normal ambient pH levels. |
| **Radioactivity** | Radionuclides shall not be present in concentrations that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life. Waters designated with the beneficial use of MUN shall not contain concentrations of radionuclides in excess of the limits specified in Table 4 of Section 64443 (Radioactivity) of Title 22 of the California Code of Regulations. |
| **Salinity** | Controllable water quality factors shall not increase the total dissolved solids or salinity of waters of the state so as to adversely affect beneficial uses, particularly fish migration and estuarine habitat. |
| **Sediment** | The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses. Controllable water quality factors shall not cause a detrimental increase in the concentrations of toxic pollutants in sediments or aquatic life. |
| **Settleable Material** | Waters shall not contain substances in concentrations that result in the deposition of material that cause nuisance or adversely affect beneficial uses. |
| **Suspended Material** | Waters shall not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses. |
| **Sulfide** | All water shall be free from dissolved sulfide concentrations above natural background levels. |
| **Tastes and Odors** | Waters shall not contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin, that cause nuisance, or that adversely affect beneficial uses. |

**Table 3.11-7. Surface Water Quality Objectives (San Francisco Bay RWQCB)**

| Parameter | Surface Water Quality Objective |
|---|---|
| **Temperature** | The natural receiving water temperature of inland surface waters shall not be altered unless it can be demonstrated to the satisfaction of the regional board that such alteration in temperature does not adversely affect beneficial uses. In waters with the beneficial uses of WARM or COLD, the temperature shall not be increased by more than 5° Fahrenheit (2.8° Celsius) above natural receiving water temperature. |
| **Toxicity** | All waters shall be maintained free of toxic substances in concentrations that are lethal to or that produce other detrimental responses in aquatic organisms. |
| **Turbidity** | Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses. Increases from normal background light penetration or turbidity relatable to waste discharge shall not be greater than 10 percent in areas where natural turbidity is greater than 50 Nephelometric turbidity units. |
| **Un-Ionized Ammonia** | The discharge of wastes shall not cause receiving waters to contain concentrations of un-ionized ammonia in excess of the following limits (in milligrams per liter as Nitrogen): annual median: 0.025; maximum, central bay and upstream: 0.16; maximum, lower bay: 0.4. |
| **Chemical Constituents** | Waters shall not contain chemical constituents in concentrations that negatively affect beneficial uses. The basin plan contains numerical water quality objectives for specific chemical constituents for specific stream types, aquatic resources, watersheds, tidal areas, and beneficial uses. See the tables in Chapter 3 of the Basin Plan for more information. |

*Notes: COLD = cold freshwater habitat; MUN = municipal and domestic supply; WARM = warm freshwater habitat*
*Source: San Francisco Bay RWQCB, 2023*

### Clean Water Act Section 303(d) List and Total Maximum Daily Loads

A TMDL is a regulatory response initiated by an RWQCB to quantify and enforce the maximum amount of a pollutant that may be discharged to an aquatic resource such that it continues to meet water quality objectives and support its beneficial uses. If an RWQCB can address the impairment through other regulatory means, a TMDL may not be developed and implemented. The 2020-2022 California Integrated Report (CWA Section 303[d]-listed / 305[b] Report) lists several water bodies that have water quality impairments and TMDLs. See Table 3.11-8 for listed receiving water bodies within the hydrology and water quality RSA and their pollutants.

**Table 3.11-8. 303(d)-listed Pollutants for the Proposed Project**

| Receiving Water Body/ Crossing | Impairment | Status of TMDL | Notes on TMDL |
|---|---|---|---|
| **San Leandro Creek, Lower[1]** | Diazinon | Addressed with approved TMDL | Approved in 2007 |
| **San Leandro Creek, Lower[1]** | Trash | Addressed with action other than TMDL | Expected attainment: 2029 |
| **San Lorenzo Creek[1]** | Diazinon | Addressed with approved TMDL | Approved in 2007 |
| **San Leandro Bay (part of San Francisco Bay, Lower)** | Zinc | TMDL required | Expected completion: 2019 |
| **San Leandro Bay (part of San Francisco Bay, Lower)** | Dieldrin | TMDL required | Expected completion: 2013 |
| **San Leandro Bay (part of San Francisco Bay, Lower)** | Dioxin Compounds | TMDL required | Expected completion: 2019 |
| **San Leandro Bay (part of San Francisco Bay, Lower)** | Furan Compounds | TMDL required | Expected completion: 2019 |
| **San Leandro Bay (part of San Francisco Bay, Lower)** | Invasive Species | TMDL required | Expected completion: 2019 |
| **San Leandro Bay (part of San Francisco Bay, Lower)** | Chlordane | TMDL required | Expected completion: 2013 |
| **San Leandro Bay (part of San Francisco Bay, Lower)** | Lead (sediment) | TMDL required | Expected completion: 2019 |
| **San Leandro Bay (part of San Francisco Bay, Lower)** | PAHs (sediment) | TMDL required | Expected completion: 2019 |
| **San Leandro Bay (part of San Francisco Bay, Lower)** | Pesticides (sediment) | TMDL required | Expected completion: 2019 |
| **San Leandro Bay (part of San Francisco Bay, Lower)** | DDT | TMDL required | Expected completion: 2029 |

**Table 3.11-8. 303(d)-listed Pollutants for the Proposed Project**

| Receiving Water Body/ Crossing | Impairment | Status of TMDL | Notes on TMDL |
|---|---|---|---|
| **San Leandro Bay (part of San Francisco Bay, Lower)** | Mercury | Addressed with approved TMDL | Approved in 2008 |
| **Old ACFCC[1]** | Trash | Addressed with action other than TMDL | Expected attainment: 2029 |
| **Alameda Creek[1]** | Diazinon | Addressed with approved TMDL | Approved in 2007 |
| **San Francisco Bay, Lower** | DDT | TMDL required | Expected completion: 2013 |
| **San Francisco Bay, Lower** | Dioxin Compounds (including 2,3,7,8-TCDD) | TMDL required | Expected completion: 2019 |
| **San Francisco Bay, Lower** | Invasive Species | TMDL required | Expected completion: 2019 |
| **San Francisco Bay, Lower** | Furan Compounds | TMDL required | Expected completion: 2019 |
| **San Francisco Bay, Lower** | PCBs (dioxin-like) | Addressed with approved TMDL | Approved in 2010 |
| **San Francisco Bay, Lower** | Dieldrin | TMDL required | Expected completion: 2013 |
| **San Francisco Bay, Lower** | Trash | TMDL required | Expected completion: 2021 |
| **San Francisco Bay, Lower** | Mercury | Addressed with approved TMDL | Approved in 2008 |
| **San Francisco Bay, Lower** | Chlordane | TMDL required | Expected completion: 2013 |

*DDT = Dichlorodiphenyltrichloroethane; PAHs = polycyclic aromatic hydrocarbons; PCBs = polychlorinated biphenyl ethers; TCDD = Tetrachlorodibenzo-p-dioxin*

*[1] These aquatic resources intersect the proposed Project footprint.*

*Source: SWRCB, 2021*

### Soil Erosion Potential

Erosion and sedimentation are major contributing factors to water quality degradation and is associated with activities that cause soil disturbances, such as construction. In general, sediment is transported by water as either a suspended load or a bedload. The K factor represents a soil's susceptibility to erosion and the amount and rate of runoff. Fine-textured soils high in clay have low K factors, about 0.02 to 0.15, due to cohesive particles that resist detachment by water. Coarse-textured soils, such as sandy soils, also have low K factors, about 0.05 to 0.2, because of low runoff potential even though soil particles are cohesionless. Medium-textured soils have moderate K factors, about 0.25 to 0.4, because they are moderately susceptible to erosion and produce moderate runoff. Soils with high silt content are the most erodible and typically have K factors greater than 0.4. According to the Caltrans Water Quality Planning Tool (Caltrans, 2024), the K factor throughout the RSA varies from 0.24 bordering much of the Coast Subdivision to 0.49 along the more inland areas where the Coast and Niles subdivisions join.

## Groundwater

### Groundwater Basins and Subbasins

According to California's Groundwater Bulletin 118 from Department of Water Resources, the proposed Project is located within the East Bay Plain Subbasin (2-9.04) and the Niles Cone Subbasin (2-9.01) of the Santa Clara Valley Groundwater Basin (Figure 3.11-3).

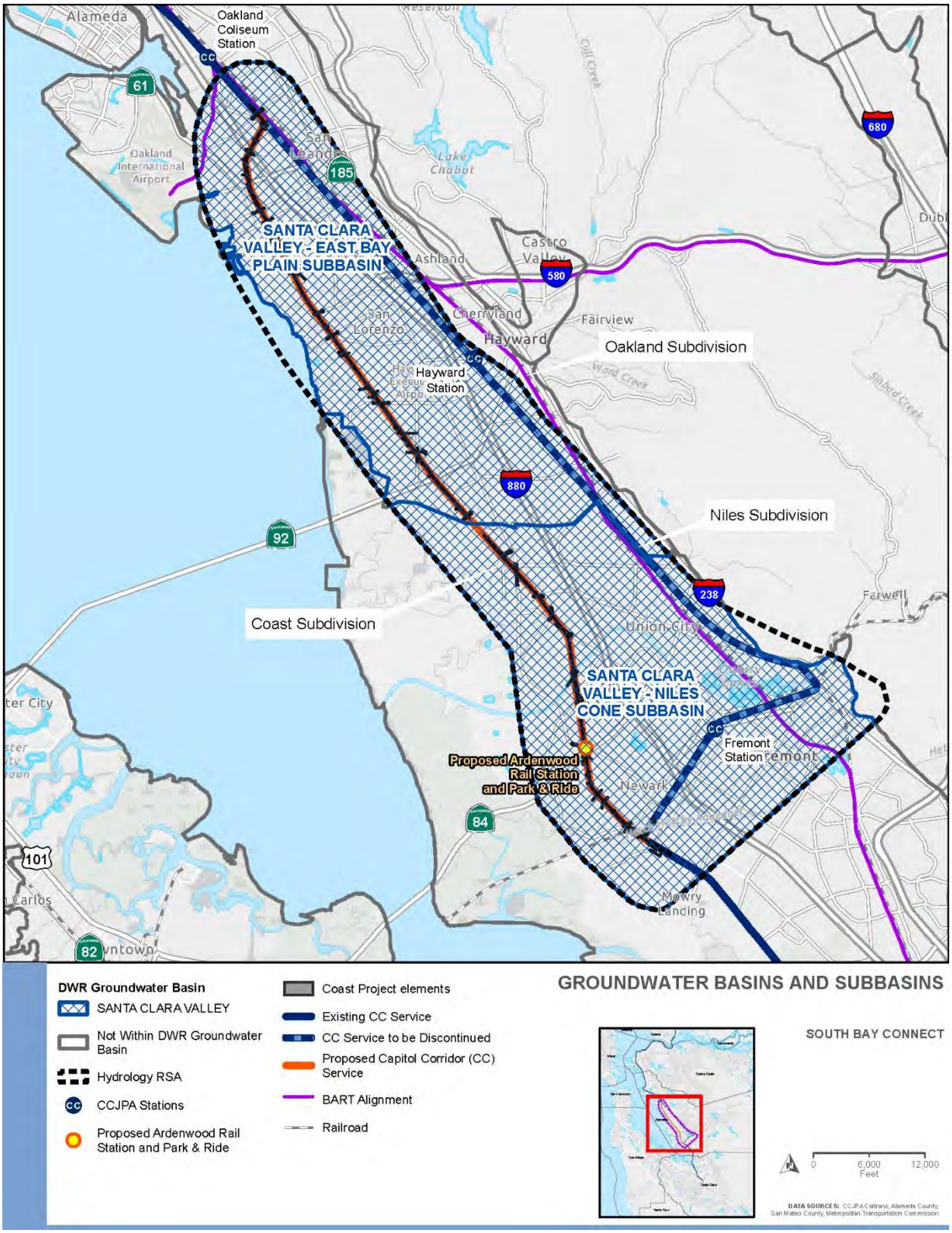
The East Bay Plain Subbasin is a northwest trending alluvial plain bounded by San Pablo Bay, Franciscan Basement rock, and the Niles Cone Subbasin. The water bearing geologic units of this subbasin consists of unconsolidated sediments of quaternary age, including three alluvial fan deposit formations and artificial municipal/construction waste fill along the bay front. Recharge sources include San Pablo Creek, San Leandro Creek, and San Lorenzo Creek.

The Niles Cone Subbasin is bounded by Alameda County lines to the south, the East Bay Plain Subbasin in the north, and the Diablo Range in the east, and the San Francisco Bay in the west. Its principal stream is Alameda Creek. It is separated internally by the Howard Fault, which is largely impermeable. Water bearing geologic materials are quaternary alluvium, most significantly Pleistocene-to-recent-age alluvium, which consists of unconsolidated gravel, silt, and clay.

The Below-Hayward-Fault side of the Niles Cone Subbasin contains a series of four aquifers separated by clay aquitards. These aquifers are (from west to east):

- Newark Aquifer: between 40 and 140 feet below ground surface (bgs); between 20 and 140 feet thick (thicker closer to the Hayward Fault).
- Centerville Aquifer: between 180 and 200 feet bgs, between 10 and 100 feet thick.
- Fremont Aquifer: east of Coyote Hills, between 300 and 390 feet bgs.
- Deep Aquifer: between 400 and 500 feet bgs.

**Figure 3.11-3. Groundwater Basins and Subbasins**



### Groundwater Quality

In the East Bay Plain Subbasin aquifer, water levels are all very near to the surface. The upper 200 feet of groundwater is characterized as calcium bicarbonate type with total dissolved solids (TDS) ranging from 360-1020 milligrams per liter (mg/L), while the lower 200-1000 feet of groundwater is characterized by sodium bicarbonate with TDS ranging from 310-1420 mg/L. Contamination from fuels and solvents has been identified at 13 distinct locations in the upper 50 feet of this subbasin (DWR, 2004).

According to a 2007 Study by the California Groundwater Ambient Monitoring & Assessment (GAMA) Program, at least one out of 12 testing sites in the RSA contained measurable but under threshold concentrations of chloroform, carbon disulfide, tetrachloroethene, and trichloroethene, methyl tert-butyl ether, toluene, benzene, acetone, atrazine, simazine, prometon, caffeine, bentazon, metolachlor, tris (2-cloroethyl) phosphate, perchlorate, and N-nitrosodimethylamine. These compounds are groundwater contaminants related to the discharge and degradation of refrigerants, solvents, gasoline, pesticides, or wastewater. In addition, at least one out of the twelve locations tested above threshold levels of chloride, TDSs, arsenic, manganese, and radon-222. The locations of the wells referenced in this study are shown in Figure 3.11-4 and Figure 3.11-5.

#### *Groundwater Quality Objectives and Beneficial Uses*

The Basin Plan (San Francisco Bay RWQCB, 2023) has water quality objectives listed for all groundwaters of the San Francisco Bay Basin. Groundwater objectives consist primarily of narrative objectives combined with a limited number of numerical objectives. In addition, the SWRCB establishes basin- and/or site-specific numerical groundwater objectives as necessary. Per the Basin Plan, at a minimum, groundwater shall not contain concentrations of bacteria, chemical constituents, radioactivity, or substances producing tastes and odors (San Francisco Bay RWQCB, 2023). The proposed Project RSA has existing beneficial uses of municipal water (MUN), industrial process (PRO), industrial service (IND), and agricultural water supply (AGR). See Table 3.11-9 for the descriptions of the groundwater quality objectives from the Basin Plan.

**Figure 3.11-4. GAMA Groundwater Quality Monitoring Wells (circled in red)**

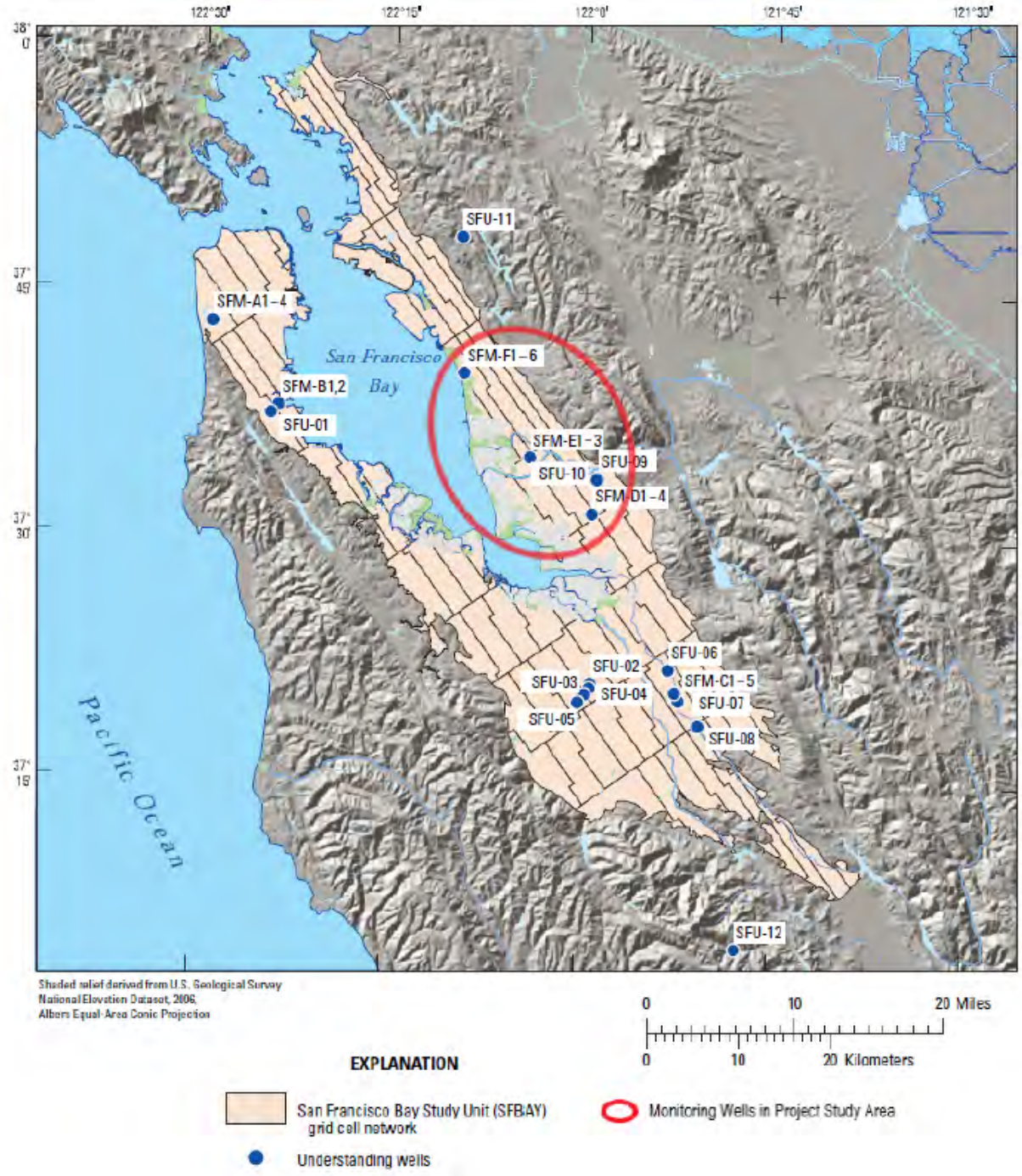


**Figure 3.11-5. GAMA Groundwater Quality Monitoring Wells (circled in red) continued**

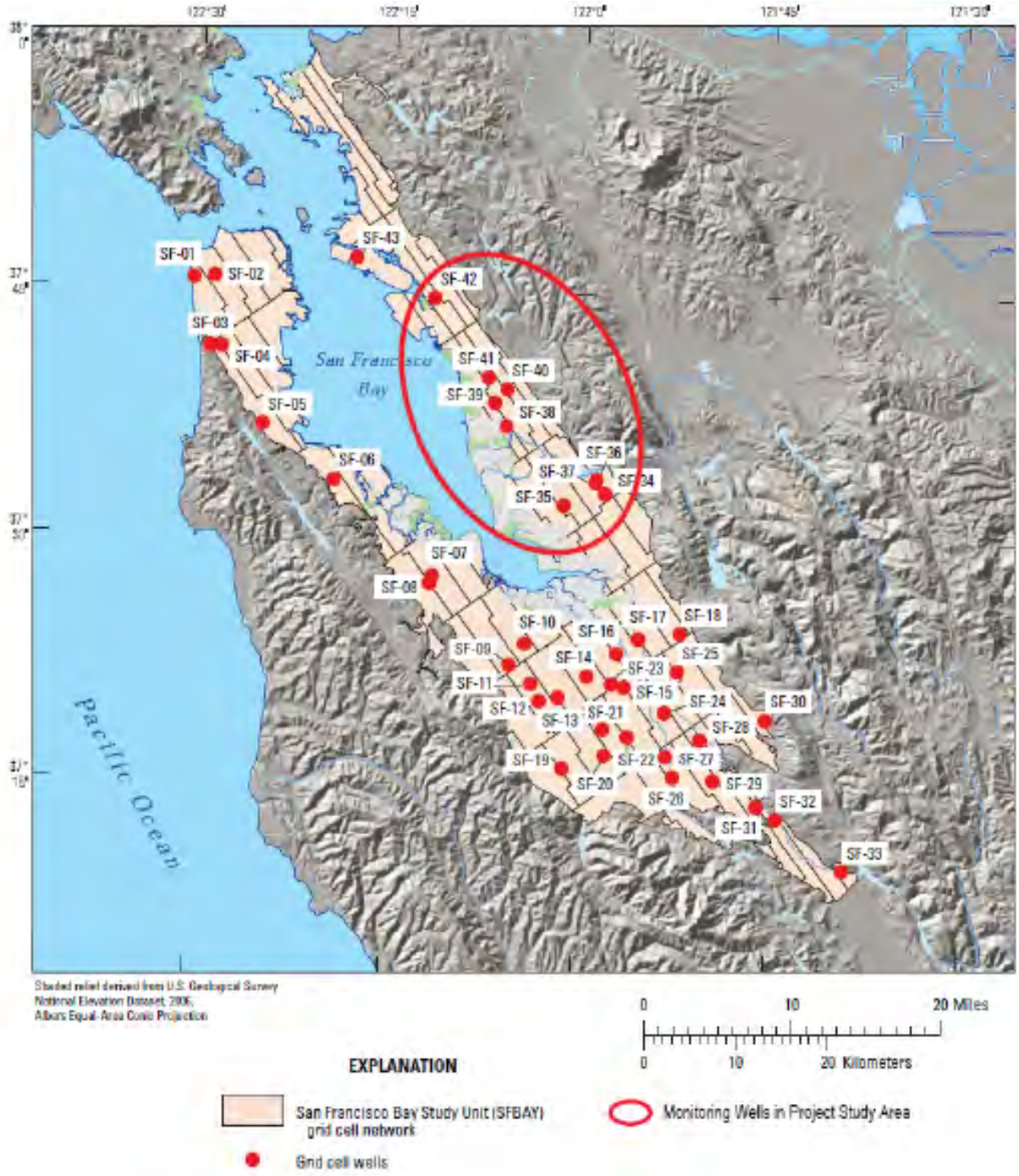


**Table 3.11-9. Groundwater Quality Objectives**

| Parameter | Groundwater Quality Objective |
|---|---|
| Bacteria | For groundwater basins and/or subbasins with the beneficial use of MUN, the median of the most probable number of coliform organisms over any 7-day period shall be less than 1.1 most probable number per 100 milliliters. |
| Organic and Inorganic Chemical Constituents | All groundwater shall be maintained free of organic and inorganic chemical constituents in concentrations that adversely affect beneficial uses.<br>For groundwater basins and/or subbasins with the beneficial use of MUN, shall not contain concentrations of constituents in excess of the maximum or secondary maximum contaminant levels specified in Table 3-5 of the basin plan.<br>For groundwater basins and/or subbasins with the beneficial use of AGR, groundwater shall not contain concentrations of chemical constituents in excess of levels specified in Table 3-6 of the basin plan.<br>For groundwater basins and/or subbasins with the beneficial use of IND, groundwater shall not contain pollutant levels that impair current/potential industrial uses. |
| Radioactivity | For groundwater basins and/or subbasins with the beneficial use of MUN, groundwater shall not contain concentrations of radionuclides in excess of the maximum contaminant levels specified in Table 3-5 of the basin plan and Table 4 (Radioactivity) of Section 64443 of Title 22. |
| Taste and Odor | For groundwater basins and/or subbasins with the beneficial use of MUN, groundwater shall not contain taste- or odor-producing substances in concentrations that cause a nuisance or adversely affect beneficial uses. At a minimum, groundwater shall not contain concentrations in excess of secondary maximum contaminant levels in Table 3-5 of the basin plan. |

*Notes: AGR = agricultural supply; MUN = municipal and domestic supply; IND = industrial service supply*
*Source: San Francisco Bay RWQCB, 2023*

### Depth to Groundwater

According to the groundwater level measurements data from USGS National Water Information System, and groundwater monitoring reports from SWRCB's GeoTracker, groundwater depths of each section of each subdivision are shown in Table 3.11-10. The overall groundwater depth of the Coast Subdivision is 4.2 to 65.0 feet bgs.

**Table 3.11-10. Depth to Groundwater**

| | |
|---|---|
| **Coast – North Section** | 4.2–41 feet bgs |
| **Coast – Central Section** | 8.0–42 feet bgs |
| **Coast – South Section** | 7.2–65 feet bgs |

***Source: USGS. National Water Information System. Groundwater Levels for California, 2021; SWRCB GeoTracker, 2021***

## Floodplains

### Existing Floodplains

#### *Federal Emergency Management Agency Floodplains*

The hydrology and water quality RSA is located within the FEMA FIRMS listed Table 3.11-11. Proposed construction activities are located within the following FEMA Zones: A, AE, AH, AO, Shaded X, and Unshaded X. FEMA Zones A, AE, AH, and AO represent special flood hazard areas. FEMA Zones identified within the proposed Project footprint include:

- Zone A represents areas with a 1 percent annual chance flood, or 100-year floodplain.
- Zone AE represents areas with a 1 percent annual chance flood.
- Zone AH represents areas with a 1 percent annual chance of shallow flooding with average depths of 1 to 3 feet.
- Zone AO represents areas with a 1 percent annual chance of shallow flooding with average depths of 1 to 3 feet.
- Shaded Zone X represents areas that have a moderate flood hazard between the 1 percent annual chance flood and the 0.2 percent annual chance flood.
- Unshaded Zone X represents areas that have a minimal flood hazard, which are the areas outside the 0.2 percent annual chance flood.

For areas in Zone A, AE, AH, AO, and Shaded X, see Table 3.11-11 for the mile posts (MP) and locations of these floodplains. Figure 3.11-6 designates FEMA Flood Hazard Areas within the RSA. Table 3.11-12 provides a summary of existing hydrology and 100-year flood discharges to waterways within the RSA. Refer to Appendix F for a more detailed table of hydrology information that has been published by FEMA for the existing creek crossing within the proposed Project's subdivisions.

**Table 3.11-11. Proposed Project 100-year Flood Hazard (Coast Subdivision – Alignment "Coast Main")**

| Approximate Mile Post From | Approximate Mile Post To | FEMA Flood Zone 1 | FEMA FIRM Number | 100-year Base Flood Elevation 1 (feet, NAVD) | Flood Depth (for Zone AO) 1 (feet) |
|---|---|---|---|---|---|
| 30.85 (Zone 5 Line F-1) | 30.85 (Zone 5 Line F-1) | AE Floodway | 06001C0443G | 19–23 | N/A |
| 29.56 (Zone 5 Line H) | 29.09 (Zone 5 Line H at Jarvis Road) | AO/AE Floodway | 06001C0441G | 14–18 | 3 |
| 27.37 | 27.37 | AE Floodway | 06001C0433G | 17 | N/A |
| 27.00 (ACFCC) | 27.00 (ACFCC) | A | 06001C0433G | N/A | N/A |
| 26.98 (Lowry Road) | 26.98 (Lowry Road) | A | 06001C0433G | N/A | N/A |
| 24.18 (Zone 3A Line A (Old ACFCC)) | 24.18 (Zone 3A Line A (Old ACFCC)) | AE | 06001C0427G | 11–12 | N/A |
| 24.09 (Zone 3A Line A (Old ACFCC)) | 24.09 (Zone 3A Line A (Old ACFCC)) | AE | 06001C0427G | 11–12 | N/A |
| 23.78 (Zone 3A Line A (Old ACFCC)) | 23.78 (Zone 3A Line A (Old ACFCC)) | AE | 06001C0427G | 12 | N/A |

**Table 3.11-11. Proposed Project 100-year Flood Hazard (Coast Subdivision – Alignment "Coast Main")**

| Approximate Mile Post From | Approximate Mile Post To | FEMA Flood Zone 1 | FEMA FIRM Number | 100-year Base Flood Elevation 1 (feet, NAVD) | Flood Depth (for Zone AO) 1 (feet) |
|---|---|---|---|---|---|
| 22.06 (Zone 3A Line A-3 (parallel to UPRR rail; not crossing UPRR crossing)) | 23.68 (Zone 3A Line A-3) | Shaded X/AE | 06001C0426G/ 06001C0427G | 12 | N/A |
| 20.80 (Zone 4 Line A) | 20.80 (Zone 4 Line A) | AE | 06001C0269H | 12.3 | N/A |
| 19.77 (Zone 2 Line K (Sulphur Creek)) | 19.77 (Zone 2 Line K (Sulphur Creek)) | AE | 06001C0267H | 16 | N/A |
| 19.23 (Line N-3, Crossing of an unnamed creek 0.3 m south of Line N) | 19.25 (Line N-3, Crossing of an unnamed creek 0.3 m south of Line N) | AE | 06001C0267H | 10 | N/A |
| 18.97 (Bockman Canal / Line N (tributary to SF Bay)) | 18.97 (Bockman Canal / Line N (tributary to SF Bay)) | AE | 06001C0267H | 10 | 1 |
| 18.24 (Zone 2 Line B (San Lorenzo Creek)) | 18.24 (Zone 2 Line B (San Lorenzo Creek)) | A | 06001C0267H | N/A | N/A |
| 17.13 A crossing of an unnamed creek 0.3 miles south of Zone 2 Line A | 17.13 A crossing of an unnamed creek 0.3 miles south of Zone 2 Line A | AE | 06001C0258H | 10–12 | N/A |

**Table 3.11-11. Proposed Project 100-year Flood Hazard (Coast Subdivision – Alignment "Coast Main")**

| Approximate Mile Post From | Approximate Mile Post To | FEMA Flood Zone 1 | FEMA FIRM Number | 100-year Base Flood Elevation 1 (feet, NAVD) | Flood Depth (for Zone AO) 1 (feet) |
|---|---|---|---|---|---|
| 16.93 (Zone 2 Line A (Estudillo Canal San Leandro Creek)) | 16.93 (Zone 2 Line A (Estudillo Canal San Leandro Creek)) | AE | 06001C0258H | 10–11 | N/A |
| 14.22 (Line N (Stonehurst Creek) / Line P (San Leandro Creek)) | 14.22 (Line N (Stonehurst Creek) / Line P (San Leandro Creek)) | Zone AE Floodway / Shaded X | 06001C0267H | 19–20/N/A | N/A |
| 14.25 (Line N (Stonehurst Creek)) | 14.25 (Line N (Stonehurst Creek)) | Zone AE Floodway | 06001C0267H | 19–20 | N/A |
| 14.00 (Line N (Stonehurst Creek)) | 14.00 (Line N (Stonehurst Creek)) | Zone AE Floodway | 06001C0256H | 21 | N/A |
| 13.75 (Line N (Stonehurst Creek)) | 13.75 (Line N (Stonehurst Creek)) | Zone AE Floodway/A | 06001C0256H | 20–22/N/A | N/A |

**Figure 3.11-6. FEMA Flood Hazard Areas**

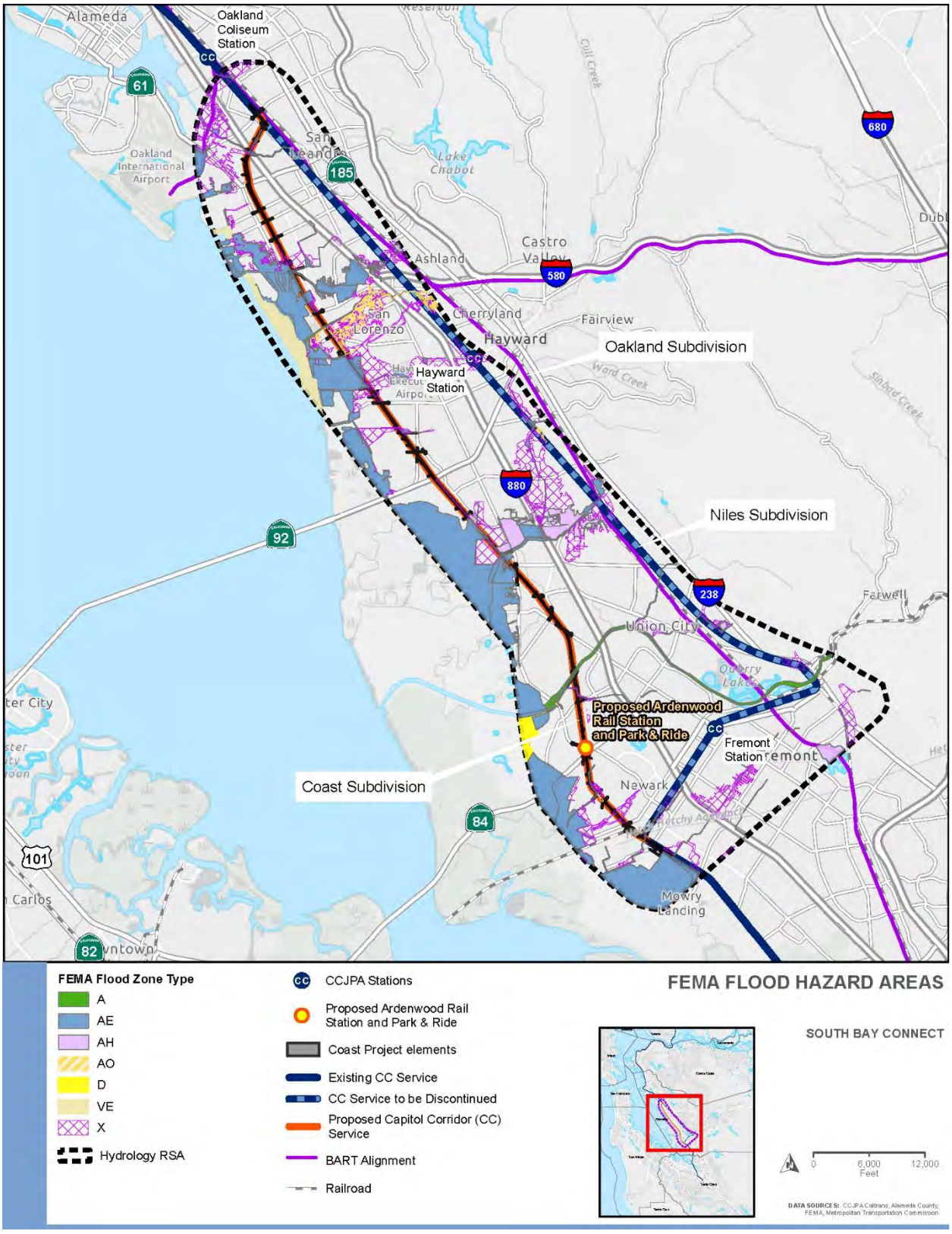


**Table 3.11-12. Existing Hydrology**

| Project's Creeks and Waterbody Crossings | FEMA Zone | Drainage Area (square miles) | 100-year Discharge [1] (cfs) | FEMA Base Elevation (ft, NAVD 88) [1,2] |
|---|---|---|---|---|
| Line P (San Leandro Creek) | Zone AE Floodway | N/A | 2,800 | N/A |
| | Zone AE Floodway | N/A | N/A | 19 |
| Line N (Stonehurst Creek) | Zone AE Floodway | N/A | N/A | 19 |
| Zone 2 Line A | Zone AE | 8.90 | 3,600 [3] | 10.5 |
| A crossing of an unnamed creek 0.2 miles south of Zone 2 Line A (Estudillo Canal / San Leandro Creek | Zone AE | N/A | N/A | N/A |
| Zone 2 Line B (San Lorenzo Creek) | Zone A | N/A | 7,615 [4] | N/A |
| Bochman Canal / Line N (Tributary to SF Bay) | Zone AE | 2.4 | 750 | 10 |
| A crossing of an unnamed creek 0.3 miles south of Bockman Canal / Line N (Tributary to SF Bay) | Zone AE | N/A | N/A | N/A |
| Zone 2 Line K (Sulphur Creek) | Zone AE | 3.9 | 740 [3] | 16 |
| Zone 4 Line A | Zone AE Floodway | 1.53 | 840 | 23.2 |
| Zone 3 Line A-2 | Zone AE Floodway | 2.25 | 960 | 12 |
| Zone 3A Line A (Old ACFCC) | Zone AE Floodway | 20.48 | 3,420 [3] | 12.3 |

**Table 3.11-12. Existing Hydrology**

| Project's Creeks and Waterbody Crossings | FEMA Zone | Drainage Area (square miles) | 100-year Discharge [1] (cfs) | FEMA Base Elevation (ft, NAVD 88) [1,2] |
|---|---|---|---|---|
| ACFCC | Zone A | No Published Data from FEMA | | |
| ACFCC | Zone A | No Published Data from FEMA | | |
| Zone 5 Line K (Crandall Creek) | Zone AE Floodway | 2.7 | 1,200 | 17 |
| Zone 5 Line H | Zone AE Floodway | 2 | 610 | 13 |
| | Zone AE Floodway | N/A | N/A | 14 |
| Ward Creek | Zone AE Floodway | 6 | 1,367 [3] | 49.5 |
| Zone 3A Line D | Zone AE | 3.86 | 1,6811 | 16 |
| Zone 3A Line E | Zone AE | 1.00 [5] | 910 | 50-51 |
| Zone 5 Line M | Zone AH | 2.09 | 720 | 48 |
| | Zone AE | 2.44 | 748 | 42-43 |

***Notes: 1) Per FEMA FIS, with a base flood elevation profile; 2) Per FEMA FIRMs; 3) Decrease in flow with increase in area is result of spill; 4) Decrease in flow without change in area is result of spill; 5) Drainage Area does not include drainage area upstream. The discharges shown include the effects of the flow diversion.***
***Source: FEMA, 2018***

### Tsunamis and Seiche

Tsunami inundation maps of Alameda County indicate that the portions of the floodplain RSA along the Coast Subdivision could be inundated by a tsunami (California Emergency Management Agency, 2021). However, the proposed Project would not change the existing flooding potential due to tsunamis from the Pacific Ocean. Therefore, inundation of the proposed Project from tsunami is not discussed further.

There is also no immediate risk of seiche in the floodplain RSA. Therefore, inundation of the proposed Project due to seiche is not discussed further.

## 3.11.5 Best Management Practices

As noted in Chapter 2, Project Alternatives, CCJPA would incorporate a range of BMPs to avoid and minimize adverse effects on the environment that could result from implementation of the proposed Project. BMPs are included in the proposed Project description in Section 2.2.4, and the impact analyses were conducted assuming application of these practices.

**BMP HYD-1 Construction Stormwater Management.**

**BMP HYD-2 Creek diversion to address in-creek construction.**

**BMP HYD-3 Delineate Environmentally Sensitive Areas near construction areas.**

**BMP HYD-4 Permanent erosion control.**

**BMP HYD-5 Permanent stormwater treatment and pollution prevention.**

**BMP HYD-6 Addressing hydromodification impacts.**

**BMP HYD-7 Dewatering of high groundwater.**

**BMP-HYD-8 Monitoring weather forecast to avoid construction impacts during storm events.**

**BMP-HYD-9 Soffit elevations for new bridges.**

## 3.11.6 Environmental Impacts

This section describes the potential environmental impacts on hydrology and water quality as a result of implementation of the proposed Project. Lettering shown within title for each environmental factor below correlates with CEQA Statute and Guidelines, Appendix G table lettering and numbering. Each of the following threshold discussions provides a significance finding and then discusses relevant factors regarding surface water, groundwater, and floodplains as appropriate.

### 3.11.6.1 (a) Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

State and federal agencies, including EPA, SWRCB, and RWQCBs, have established basin plans, water quality standards, and waste discharge requirements that are relevant to the proposed Project. These standards and requirements have been developed to prevent the degradation of water quality pursuant to the CWA, including changes in hydrology associated with additions of impervious surfaces (hydromodification), as well as erosion and sedimentation that may result from hydromodification, and thus serve as appropriate thresholds for determining the significance of water quality impacts, as well as hydrology impacts related to hydromodification.

#### No Project Alternative

**No Impact.** Under the No Project Alternative, no temporary or permanent impacts are anticipated to the surface or ground water quality within the RSA. The existing railroad tracks are ballasted and self-retaining. There would be no dewatering activities and no changes to current groundwater connections.

## Proposed Project

### Surface Water Hydrology and Water Quality

#### *Construction*

**Less than significant impact.** Proposed Project cut-and-fill, grading, and excavation activities have the potential to increase erosion and result in temporary water quality impacts for the proposed Project. Potential temporary impacts to water quality due to construction-related activities would be reduced or avoided by implementing the following construction BMPs, BMP HYD-1: Construction Stormwater Management and Treatment Plan, BMP HYD-2: Creek diversion to address in-creek construction, and BMP HYD-3: Delineate Environmentally Sensitive Areas near construction areas . These measures would limit impacts to the beneficial uses of the receiving water bodies for the proposed Project and are described in detail in Section 3.11.5.

The proposed Project would disturb at least 1 acre of soil during construction, triggering the requirement to prepare a SWPPP (see Section 3.11.2.2 State Regulatory Section, Construction General Permit). BMP HYD-1 would require a Stormwater Treatment and Management Plan, as well as a SWPPP. Stormwater runoff over disturbed soil areas could potentially cause sediment-laden flows to enter storm drainage facilities, increasing the turbidity, decreasing the clarity, and potentially impacting their beneficial uses. Generally, as the disturbed soil area increases, the potential for temporary water quality impacts also increases. Major areas with grading and earthwork would include at-grade railroad crossings, grade-separated railroad crossings, railroad bridge improvements and the construction of a passenger rail station. Major improvements that are expected to have large areas of disturbed soils are included in Table 3.11-13. Additional sources of sediment that could result in increases in turbidity include uncovered or improperly covered active and non-active stockpiles, un-stabilized slopes and construction staging areas, and construction equipment not properly maintained or cleaned. Increases in sediment-laden flows throughout the Project would be minimized with BMP HYD-1.

Soil erosion, especially during heavy rainfall, can increase the suspended solids, dissolved solids, and organic pollutants in stormwater runoff generated within the Project limits. These risks would persist until completion of construction activities and implementation of long-term erosion control measures implemented as part of BMP: HYD-4 Permanent erosion control. Implementation of BMPs would minimize sediment within the waterways due to soil erosion. With BMPs, the project would not impact the beneficial uses of Groundwater Recharge (GWR) and Municipal and Domestic Supply (MUN) within the receiving waters of the Project. With implementation of BMPs, the proposed Project would not impact the WILD (that is, wildlife habitat) beneficial use, which is a beneficial use for all receiving water bodies for the proposed Project.

**Table 3.11-13. Project Improvements and Potential Construction Impacts**

| Coast Section | Improvement | Location (Mile Post) | DSA | IWW | Receiving Water Body Affected |
|---|---|---|---|---|---|
| **North** | At-Grade Crossing Roadway Surface Improvement | 13.67 to 13.68 "Coast Main" / Edes Avenue | X | | Stonehurst Creek |
| **North** | At-Grade Crossing Roadway Surface Improvement | 15.51 to 15.52 "Coast Main" / Williams Street | X | | San Francisco Bay |
| **North** | At grade Crossing Roadway Surface Improvement | 13.38 to 13.39 "Coast Main" / 98th Avenue | X | | Stonehurst Creek |
| **North** | At grade Crossing Roadway Surface Improvement | 13.99 to 14.00 "Coast Main" / Knight and Kerwin Street | X | X | Stonehurst Creek |
| **North** | At grade Crossing Roadway Surface Improvement | 13.67 to 13.68 "Coast Main" / 105th Street | X | | Stonehurst Creek |
| **North** | Bridge | 14.29 to 14.30 "Coast Main" / Interstate 880 | X | X | San Leandro Creek / Line P |
| **North** | At grade Crossing Roadway Surface Improvement | 15.77 to 15.78 "Coast Main" / Marina Boulevard | X | | San Francisco Bay |
| **North** | At grade Crossing Roadway Surface Improvement | 16.17 to 16.18 "Coast Main" / Fairway Drive | X | | San Francisco Bay |
| **North** | At grade Crossing Roadway Surface Improvement | 16.73 to 16.74 "Coast Main" / Farallon Drive | X | | San Francisco Bay |

**Table 3.11-13. Project Improvements and Potential Construction Impacts**

| Coast Section | Improvement | Location (Mile Post) | DSA | IWW | Receiving Water Body Affected |
|---|---|---|---|---|---|
| **North** | Timber Bridge Replacement | 16.93 to 16.94 "Coast Main" | X | X | Estudillo Canal / San Leandro Creek / Zone 2 Line A |
| **North** | Timber Bridge Replacement or Culvert | 17.13 to 17.14 "Coast Main" | X | X | Estudillo Canal / San Leandro Creek / Zone 2 Line A |
| **North** | At grade Crossing Roadway Surface Improvement | 17.92 to 17.93 "Coast Main" / Bayfront Drive / Lewelling Avenue | X | | Estudillo Canal / San Leandro Creek / Zone 2 Line A |
| **North** | Timber Bridge Replacement | 18.24 to 18.24 "Coast Main" | X | X | San Lorenzo Creek |
| **North** | Timber Bridge Replacement or Fill | 18.37 to 18.38 "Coast Main" | X | X | Bockman Canal |
| **Central** | At grade Crossing Roadway Surface Improvement | 18.48 to 18.49 "Coast Main" / Grant Avenue | X | | Bockman Canal |
| **Central** | Timber Bridge Replacement | 18.97 to 18.98 "Coast Main" | X | X | Bockman Canal |
| **Central** | Timber Bridge Replacement | 19.23 to 19.24 "Coast Main" | X | X | Bockman Canal |
| **Central** | Timber Bridge Replacement | 19.77 to 19.78 "Coast Main" | X | X | Sulphur Creek |

**Table 3.11-13. Project Improvements and Potential Construction Impacts**

| Coast Section | Improvement | Location (Mile Post) | DSA | IWW | Receiving Water Body Affected |
|---|---|---|---|---|---|
| **Central** | At grade Crossing Roadway Surface Improvement | 20.17 to 20.18 "Coast Main" / Winton Avenue | X | | Hayward Landing Canal |
| **Central** | Bridge or Culvert | 20.77 to 20.78 "Coast Main" | X | X | Zone 4 Line A |
| **Central** | At grade Crossing Roadway Surface Improvement | 21.39 to 21.40 "Coast Main" / Depot Road | X | | Hayward Landing Canal |
| **Central** | At grade Crossing Roadway Surface Improvement | 23.08 to 23.09 "Coast Main" / Baumberg Avenue | X | | Old Alameda Creek |
| **Central** | Bridge Replacement | 23.68 to 23.68 "Coast Main" | X | X | Zone 3A<br>Line A-2 |
| **Central** | Timber Bridge Replacement | 24.16 to 24.16 "Coast Main" | X | X | Old Alameda Creek |
| **Central** | At grade Crossing Roadway Surface Improvement | 24.58 to 24.62 "Coast Main" / Union City Boulevard | X | | Old Alameda Creek |
| **Central** | Culvert or Fill | 24.76 to 24.76 "Coast Main" | X | | Old Alameda Creek |
| **Central** | Culvert or Fill | 24.91 to 24.93 "Coast Main" | X | | Old Alameda Creek |
| **Central** | Culvert or Fill | 25.02 to 25.03 "Coast Main" | X | | Old Alameda Creek |

**Table 3.11-13. Project Improvements and Potential Construction Impacts**

| Coast Section | Improvement | Location (Mile Post) | DSA | IWW | Receiving Water Body Affected |
|---|---|---|---|---|---|
| **Central** | At-Grade Crossing Roadway Surface Improvement | 25.25 to 25.26 "Coast Main" / Smith Street | X | | Zone 5 Line B |
| **South** | At grade Crossing Roadway Surface Improvement | 25.25 to 25.27 "Coast Main" / Smith Street | X | | Old Alameda Creek |
| **South** | At grade Crossing Roadway Surface Improvement | 25.72 to 25.74 "Coast Main" / Dyer Street | X | | Alameda Creek |
| **South** | Culvert or Fill | 25.81 to 25.81 "Coast Main" | X | | Alameda Creek |
| **South** | At-Grade Crossing Roadway Surface Improvement | 26.07 to 26.14 "Coast Main" / Alvarado Boulevard | X | | Stonehurst Creek |
| **South** | Retaining Wall | 26.25 to 26.97 "Coast Main" / Alvarado Niles Boulevard | X | | Alameda Creek |
| **South** | Culvert or Fill | 26.80 to 26.81 "Coast Main" | X | | Alameda Creek |
| **South** | Surface Improvements, Bridge Construction | 26.97 to 26.98 "Coast Main" / Lowry Road | X | | Alameda Creek |
| **South** | Bridge Construction | 27.00 to 27.07 "Coast Main" | X | X | ACFCC |

**Table 3.11-13. Project Improvements and Potential Construction Impacts**

| Coast Section | Improvement | Location (Mile Post) | DSA | IWW | Receiving Water Body Affected |
|---|---|---|---|---|---|
| **South** | Clear-span Bridge | 27.35 to 27.37 "Coast Main" / Bardance Street and Stage Coach Street | X | X | Zone 5 Line K (Crandall Creek) |
| **South** | Culvert or Fill | 27.39 to 27.4 "Coast Main" | X | | Zone 5 Line K (Crandall Creek) |
| **South** | Culvert or Fill | 27.52 to 27.52 "Coast Main" | X | | Zone 5 Line K (Crandall Creek) |
| **South** | Retaining Walls | 27.01 to 27.6 "Coast Main" / Paseo Padre Parkway | X | | Zone 5 Line K (Crandall Creek) |
| **South** | Ardenwood Station Platform Pedestrian Overcrossing | 28.58 to 28.79 "Coast Main" / Ardenwood Boulevard | X | | Ardenwood Creek |
| **South** | At-Grade Crossing Roadway Surface Improvement | 29.08 to 29.11 "Coast Main" / Jarvis Avenue | X | | Zone 5 Line H |
| **South** | At-Grade Crossing Roadway Surface Improvement | 29.30 to 29.31 "Coast Main" / Haley Street | X | | Zone 5 Line H |
| **South** | Extension of Triple 60-inch Reinforced Concrete Pipes and Widening of Track Area over Culverts | 29.56 "Coast Main" / Cabernet Street, Birkdale Drive, Indian Wells Drive / Calais Place | X | X | Zone 5 Line H |

**Table 3.11-13. Project Improvements and Potential Construction Impacts**

| Coast Section | Improvement | Location (Mile Post) | DSA | IWW | Receiving Water Body Affected |
|---|---|---|---|---|---|
| **South** | At grade Crossing Roadway Surface Improvement | 30.05 to 30.06 "Coast Main" / Mayhews Landing Road | X | | Zone 5 Line H |
| **South** | Culvert | 30.09 "Coast Main" / Mayhews Landing Road | X | | Zone 5 Line H |
| **South** | At-Grade Crossing Roadway Surface Improvement | 30.42 to 30.44 "Coast Main" / Thornton Avenue | X | | Zone 5 Line I |
| **South** | At grade Crossing Roadway Surface Improvement | 30.51 to 30.53 "Coast Main" / Ash Street | X | | Zone 5 Line H |
| **South** | At-Grade Crossing Roadway Surface Improvement | 30.61 to 30.63 "Coast Main" / Carter Avenue (Filbert Street) | X | | Zone 5 Line F |
| **South** | At grade Crossing Roadway Surface Improvement | 30.85 to 30.86 "Coast Main" / Sycamore Street | X | X | Zone 5 Line F-1 |
| **South** | At grade Crossing Roadway Surface Improvement | 30.85 to 30.86 "Coast Main" / Cherry Street | X | | Zone 5 Line F-1 |
| **South** | Retaining Wall | 31.25 to 31.25 "Coast" Main | X | | Zone 5 Line B |

*DSA=disturbed soils area; IWW=in-water work*

BMP HYD-1 would also avoid and minimize the risk of accidental spills or releases. Fueling or maintenance of construction vehicles would occur within the Project site during construction, so there would be a risk of accidental spills or releases of fuels, oils, or other potentially toxic materials. An accidental release of these materials could pose a threat to water quality if contaminants enter the local receiving waters and storm drains. The magnitude of the impact from an accidental release depends on the amount and type of material spilled. The San Francisco Bay, Lower is a receiving water body throughout the entire Project with several pollutant 303d-listed TMDLs. Pollutants of concern for the Project's receiving water bodies are listed in Table 3.11-7 in Section 3.11.4.1.

The proposed Project would require at-grade crossing roadway surface improvements throughout the RSA. In addition, existing railroad bridges would be replaced or modified to accommodate the addition of a new railroad track between Elmhurst and Newark. Dewatering, drilling, and/or pile driving activities would be required during the replacement or modification of the existing bridges and some of the at-grade crossing roadway surface improvements. In some locations, temporary "shoofly" bridges and tracks may also be required to make space for construction of new bridges. As a result, in-water work, stream diversion, and temporary dewatering would be necessary. Furthermore, temporary dewatering is anticipated to be needed for culvert replacements and modification and deep excavations associated with retaining wall installations along the proposed Project corridor. San Leandro Creek is a receiving water body that is tributary to the San Leandro Bay, a water body with several 303d-listed pollutants that are listed in Table 3.11-7 in Section 3.11.4.1. San Lorenzo Creek is a receiving water body within the Coast Subdivision of the proposed Project with GWR listed as a beneficial use which could be impacted by the potential for increased sediment due to in-water work. potential impacts of this in-water, stream diversion, and temporary dewatering work to the beneficial uses of the receiving water bodies may include destabilizing the bed and banks caused by foot traffic of the contractor's personnel; the operation of equipment in the aquatic resource; and modifications to the banks of an aquatic resource to gain access to aquatic areas. In addition, temporary stream diversions and dewatering would be needed to complete these construction activities in aquatic resources. Temporary stream diversions would result in temporary fluctuations in WSE and flow velocity. Project implementation of BMPs HYD-1 and HYD-2 would avoid and minimize impacts to surface water quality as a result of dewatering or stream diversion.

***Operations***

**Less than Significant Impact.** The proposed Project would have a less than significant impact to water quality standards and waste discharge requirements with incorporation of BMP HYD-4 Permanent erosion control and BMP HYD-5 Permanent stormwater treatment and pollution prevention as project features. The following section details the potential maintenance and operations impacts of the proposed Project to surface water quality.

The proposed Project would result in the creation of additional impervious area, which would increase the amount of runoff and decrease infiltration or dispersion over unpaved surfaces. Table 3.11-14 lists locations of added or replaced impervious area for the proposed Project. While the added impervious area could result in an increase of sediment-laden flow directly discharging into receiving water bodies, stormwater impacts would be minimized through the proper implementation of permanent stormwater treatment measures and design pollution prevention BMPs. The proper implementation of permanent stormwater treatment measures and design pollution prevention BMPs in compliance with relevant MS4 requirements, would address any

potential impacts to the beneficial uses and TMDLs of the receiving water bodies discussed in Section 3.11.4.1. A discussion of BMPs is above in Section 3.11.5.

The ACCWP's *Hydro Modification Susceptibility Map Application* (2019) indicates that the proposed Project within the Coast Subdivision would discharge stormwater runoff into a tidally influenced/ depositional area or an area with earthen channels that flows into the tidally influenced/ depositional area. These earthen channels include Agua Caliente Creek and Laguna Creek. As such, the proposed Project is exempt from the requirement to implement hydromodification management measures. However, CCJPA will implement BMP HYD-6 Addressing hydromodification impacts to further minimize potential impacts to the extent possible.

**Table 3.11-14. Project Hydromodification Summary (New Impervious Surfaces)**

| Mile Post for Added/Replaced Impervious Area and Location | Improvement | Added Impervious Area Due to At-Grade Crossing or Bridge | ROW |
|---|---|---|---|
| **13.67 to 13.68 "Coast Main" / Edes Avenue** | At-Grade Crossing Roadway Surface Improvement | X | Local |
| **15.52 to 15.53 "Coast Main" / Williams Street** | At-Grade Crossing Roadway Surface Improvement | X | Local |
| **25.25 to 25.26 "Coast Main" / Smith Street** | At-Grade Crossing Roadway Surface Improvement | X | Local |
| **26.07 to 26.14 "Coast Main" / Alvarado Boulevard** | At-Grade Crossing Roadway Surface Improvement | X | Local |
| **28.58 to 28.79 "Coast Main" / Ardenwood Boulevard** | Ardenwood Station Platform Pedestrian Overcrossing | X | Local |
| **29.08 to 29.11 "Coast Main" / Jarvis Avenue** | At-Grade Crossing Roadway Surface Improvement | X | Local |
| **30.42 to 30.44 "Coast Main" / Thornton Avenue** | At-Grade Crossing Roadway Surface Improvement | X | Local |
| **30.61 to 30.63 "Coast Main" / Carter Avenue (Filbert Street)** | At-Grade Crossing Roadway Surface Improvement | X | Local |
| **13.38 to 13.39 "Coast Main"/ 98th Avenue** | At-Grade Crossing Roadway Surface Improvement | X | Local |

**Table 3.11-14. Project Hydromodification Summary (New Impervious Surfaces)**

| Mile Post for Added/Replaced Impervious Area and Location | Improvement | Added Impervious Area Due to At-Grade Crossing or Bridge | ROW |
|---|---|---|---|
| **13.99 to 14.00 "Coast Main" / Knight and Kerwin Street** | At-Grade Crossing Roadway Surface Improvement | X | Local |
| **13.67 to 13.68 "Coast Main" / 105th Street** | At-Grade Crossing Roadway Surface Improvement | X | Local |
| **14.29 to 14.29 "Coast Main" / Interstate 880** | Bridge | X | Local |
| **15.77 to 15.78 "Coast Main" / Marina Boulevard** | At-Grade Crossing Roadway Surface Improvement | X | Local |
| **16.17 to 16.18 "Coast Main" / Fairway Drive** | At-Grade Crossing Roadway Surface Improvement | X | Local |
| **16.73 to 16.74 "Coast Main" / Fallon Drive** | At-Grade Crossing Roadway Surface Improvement | X | Local |
| **16.93 to 16.94 "Coast Main"** | Timber Bridge Replacement | X | Local |
| **17.13 to 17.14 "Coast Main"** | Timber Bridge Replacement | X | Local |
| **17.92 to 17.93 "Coast Main" / Bayfront Drive / Lewelling Avenue** | At-Grade Crossing Roadway Surface Improvement | X | Local |
| **18.24 to 18.24 "Coast Main"** | Timber Bridge Replacement | X | Local |
| **18.37 to 18.38 "Coast Main"** | Timber Bridge Replacement or Fill | X | UPRR |
| **18.48 to 18.49 "Coast Main" / Grant Avenue** | At-Grade Crossing Roadway Surface Improvement | X | Local |
| **18.97 to 18.98 "Coast Main"** | Timber Bridge Replacement | X | Local |
| **19.23 to 19.24 "Coast Main"** | Timber Bridge Replacement | X | Local |

**Table 3.11-14. Project Hydromodification Summary (New Impervious Surfaces)**

| Mile Post for Added/Replaced Impervious Area and Location | Improvement | Added Impervious Area Due to At-Grade Crossing or Bridge | ROW |
|---|---|---|---|
| **19.77 to 19.78 "Coast Main"** | Timber Bridge Replacement | X | Local |
| **20.17 to 20.18 "Coast Main" / Winton Avenue** | At-Grade Crossing Roadway Surface Improvement | X | Local |
| **20.77 to 20.78 "Coast Main"** | Bridge or Culvert | X | Local |
| **21.39 to 21.40 "Coast Main" / Depot Road** | At-Grade Crossing Roadway Surface Improvement | X | Local |
| **23.08 to 23.09 "Coast Main" / Baumberg Avenue** | At-Grade Crossing Roadway Surface Improvement | X | Local |
| **23.68 to 23.68 "Coast Main"** | Bridge Replacement | X | Local |
| **24.16 to 24.16 "Coast Main"** | Timber Bridge Replacement | X | Local |
| **24.58 to 24.62 "Coast Main" / Union City Boulevard** | At-Grade Crossing Roadway Surface Improvement | X | Local |
| **24.75 to 24.76 "Coast Main"** | Culvert or Fill | X | Local |
| **24.91 to 24.93 "Coast Main"** | Culvert or Fill | X | Local |
| **25.02 to 25.03 "Coast Main"** | Culvert or Fill | X | Local |
| **25.72 to 25.74 "Coast Main" / Dyer Street** | At-Grade Crossing Roadway Surface Improvement | X | Local |
| **25.81 to 25.81 "Coast Main"** | Culvert or Fill | X | Local |
| **26.25 to 26.97 "Coast Main" / Alvarado Niles Boulevard** | Retaining Wall | X | Local |
| **26.80 to 26.81 "Coast Main"** | Culvert or Fill | X | Local |

**Table 3.11-14. Project Hydromodification Summary (New Impervious Surfaces)**

| Mile Post for Added/Replaced Impervious Area and Location | Improvement | Added Impervious Area Due to At-Grade Crossing or Bridge | ROW |
|---|---|---|---|
| **26.97 to 26.98 "Coast Main" / Lowry Road** | Surface Improvements, Bridge Construction | X | Local |
| **27 to 27.07 "Coast Main"** | Bridge Construction | X | Local |
| **27.35 to 27.37 "Coast Main"** | Clear-span Bridge | X | Local |
| **27.39 to 27.4 "Coast Main"** | Culvert or Fill | X | UPRR |
| **27.52 to 27.52 "Coast Main"** | Culvert or Fill | X | UPRR |
| **27.01 to 27.6 "Coast Main" / Paseo Padre Parkway** | Retaining Walls | X | Local |
| **29.56 to 29.56 "Coast Main" Cabernet Street, Birkdale Drive, Indian Wells Drive / Calais Place** | Extension of Triple 60-inch Reinforced Concrete Pipes and Widening of Track Area over Culverts | X | Local |
| **30.05 to 30.06 "Coast Main" / Mayhews Landing Road** | At-Grade Crossing Roadway Surface Improvement | X | Local |
| **30.51 to 30.53 "Coast Main" / Ash Street** | At-Grade Crossing Roadway Surface Improvement | X | Local |
| **30.85 to 30.86 "Coast Main" / Sycamore Street** | At-Grade Crossing Roadway Surface Improvement | X | Local |
| **30.85 to 30.86 "Coast Main" / Cherry Street** | At-Grade Crossing Roadway Surface Improvement | X | Local |
| **31.25 to 31.25 "Coast" Main** | Retaining Wall | X | Local |

**Groundwater**

***Construction***

**Less than significant impact with mitigation incorporated.** The proposed Project would adhere to the CGP requirements (including implementation of a SWPP), all BMPs implemented during construction would follow standard plans and specifications. This would minimize impacts to groundwater quality during construction of the proposed Project.

Aside from temporary impacts due to dewatering, which are discussed in greater detail under Question b), the other potential impact to the groundwater quality within the proposed Project RSA is for contaminated groundwater, or groundwater that may release contaminated plumes when disturbed, to recharge back into the groundwater subbasins within the proposed Project footprint. If the proposed Project footprint contains contaminated groundwater or groundwater that may release contaminated plumes when disturbed, MM HYD-2 requires a dewatering permit in compliance with the VOC and Fuel General Permit and Groundwater General Permit be obtained prior to construction. Compliance with these permits would prevent the mismanagement of any potentially contaminated groundwater during construction activities. An active treatment system may also be necessary to treat contaminated groundwater exposed during excavation activities. Therefore, with Hydrology and Water Quality BMPs and implementation of MM HYD-2, impacts on groundwater during construction would be less than significant with mitigation incorporated.

***Operations***

**Less than Significant Impact.** Long-term dewatering or other construction impacts is not anticipated. Therefore, no impacts to groundwater quality are expected during operation of the proposed Project.

### 3.11.6.2 (b) Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such the project may impede sustainable groundwater management of the basin?

In 2014, California adopted the SGMA (see Section 3.11.2.2 State Regulatory Setting), which provides a regulatory framework for the management and use of groundwater in a manner that can be maintained through the planning horizon without causing undesirable results. Under this act, undesirable results are defined as the chronic lowering of the groundwater table, reduction of storage capacity, intrusion of seawater, degradation of groundwater quality, subsidence of land, and depletions of interconnected surface water; these conditions must be both significant and unreasonable to be considered an undesirable result. Therefore, compliance with the SGMA and avoidance of undesirable results are appropriate thresholds for determining the significance of groundwater impacts.

#### No Project Alternative

**No Impact.** Under the No-Project Alternative, no temporary or permanent impacts are anticipated to the groundwater recharge or sustainable groundwater management because there are no improvements proposed within these groundwater recharge areas.

## Proposed Project

### Groundwater

#### *Construction*

**Less than significant impact with mitigation incorporated.** Due to anticipated high groundwater elevations, dewatering is anticipated for the proposed Project. This has the potential to result in a temporary decrease of the groundwater table in the localized areas where dewatering activities would occur. As discussed above, the proposed Project would potentially require dewatering for the construction of new bridges over aquatic resources or culvert extension or replacement. Construction dewatering would have minimal impacts on areas with high groundwater elevations because most excavations are anticipated to be shallow and widely spaced throughout the proposed Project corridor. Additionally, the impacts would be temporary, because dewatering would cease once the excavation has been backfilled or the specific task requiring dewatering has been completed. Groundwater depths within the proposed Project area would be confirmed during site investigations in the design phase to estimate dewatering needs and monitored during construction for actual real-time levels. Table 3.11-15 lists locations of improvements for the proposed Project and if proposed Project improvements at these locations are expected to require dewatering.

Temporary dewatering activities within creeks would comply with the most current version of the *Stormwater Best Management Handbook: Construction* (CASQA, 2023), applicable city and Alameda County standards, and ACWD requirements (BMP HYD-2 Creek diversion to address in-creek construction). The Project would also prepare a dewatering plan and comply with relevant groundwater permits (BMP HYD-7) and, if contaminated groundwater is found, prepare a dewatering permit specific to contaminated groundwater (MM HYD-2). If required, a dewatering permit would be obtained from ACWD during construction. Groundwater extracted from temporary dewatering activities would be managed based on the groundwater quality within the Project footprint. Clean groundwater could be used for dust control, collected on-site using desilting basins and/or tanks prior to discharging to receiving waters, and/or transported to a publicly owned treatment works. If the Project footprint contains contaminated groundwater or groundwater that may release contaminated plumes when disturbed, a dewatering permit in compliance with the VOC and Fuel General Permit and Groundwater General Permit would be obtained prior to construction. An active treatment system may also be necessary to treat contaminated groundwater exposed during excavation activities. Since the proposed Project is adhering to the Construction General Permit, all temporary BMPs implemented during construction would follow standard plans and specifications. Therefore, with Hydrology and Water Quality BMPs and implementation of MM HYD-2, impacts on groundwater during construction would be less than significant with mitigation incorporated.

#### *Operations*

**Less than significant impact.** The proposed Project is anticipated to have a less than significant impact to the groundwater recharge. The proposed Project would result in the addition of impervious surface and reduce the available unpaved area that previously allowed runoff to infiltrate into the native soils. The reduction of runoff infiltrating through native soils has the potential to result in loss in volume or amount of water that previously recharged localized aquifers and reduce regional groundwater volumes. The reduction in local aquifer and groundwater recharge also has the potential to impact the beneficial uses of groundwater basins.

**Table 3.11-15. Project Dewatering Summary**

| Section | Improvement | Location (Mile Post) | Depth to Groundwater (bgs) | Dewatering Potentially Required |
|---|---|---|---|---|
| North | At-Grade Crossing Roadway Surface Improvement | 13.67 to 13.68 "Coast Main" / Edes Avenue | 4.2–41 feet | X |
| North | At-Grade Crossing Roadway Surface Improvement | 15.52 to 15.53 "Coast Main" / Williams Street | 4.2–41 feet | X |
| Central | At-Grade Crossing Roadway Surface Improvement | 25.25 to 25.26 "Coast Main" / Smith Street | 8.0–42 feet | |
| South | At-Grade Crossing Roadway Surface Improvement | 26.07 to 26.14 "Coast Main" / Alvarado Boulevard | 7.2–65 feet | |
| South | Ardenwood Station Platform Pedestrian Overcrossing | 28.58 to 28.79 "Coast Main" / Ardenwood Boulevard | 7.2–65 feet | X |
| South | At-Grade Crossing Roadway Surface Improvement | 29.08 to 29.11 "Coast Main" / Jarvis Avenue | 7.2–65 feet | |
| South | At-Grade Crossing Roadway Surface Improvement | 29.30 to 29.31 "Coast Main" / Haley Street | 7.2–65 feet | |
| South | At-Grade Crossing Roadway Surface Improvement | 30.42 to 30.44 "Coast Main" / Thornton Avenue | 7.2–65 feet | |

**Table 3.11-15. Project Dewatering Summary**

| Section | Improvement | Location (Mile Post) | Depth to Groundwater (bgs) | Dewatering Potentially Required |
|---|---|---|---|---|
| South | At-Grade Crossing Roadway Surface Improvement | 30.61 to 30.63 "Coast Main" / Carter Avenue (Filbert Street) | 7.2–65 feet | |
| North | At-Grade Crossing Roadway Surface Improvement | 13.38 to 13.39 "Coast Main"/ 98th Avenue | 4.2–41 feet | |
| North | At-Grade Crossing Roadway Surface Improvement | 13.99 to 14.00 "Coast Main" / Knight Street | 4.2–41 feet | X |
| North | At-Grade Crossing Roadway Surface Improvement | 13.67 to 13.68 "Coast Main" / 105th Street | | |
| North | Bridge | 14.29 to 14.29 "Coast Main" / Interstate 880 | 4.2–41 feet | X |
| North | At-Grade Crossing Roadway Surface Improvement | 15.77 to 15.78 "Coast Main" / Marina Boulevard | 4.2–41 feet | |
| North | At-Grade Crossing Roadway Surface Improvement | 16.17 to 16.18 "Coast Main" / Fairway Drive | 4.2–41 feet | |
| North | At-Grade Crossing Roadway Surface Improvement | 16.73 to 16.74 "Coast Main" / Fallon Drive | 4.2–41 feet | |
| North | Timber Bridge Replacement | 16.93 to 16.94 "Coast Main" | 4.2–41 feet | X |

**Table 3.11-15. Project Dewatering Summary**

| Section | Improvement | Location (Mile Post) | Depth to Groundwater (bgs) | Dewatering Potentially Required |
|---|---|---|---|---|
| North | Timber Bridge Replacement or culvert | 17.13 to 17.14 "Coast Main" | 4.2–41 feet | X |
| North | At-Grade Crossing Roadway Surface Improvement | 17.92 to 17.93 "Coast Main" / Bayfront Drive / Lewelling Avenue | 4.2–41 feet | |
| North | Timber Bridge Replacement | 18.24 to 18.24 "Coast Main" | 4.2–41 feet | X |
| North | Timber Bridge Replacement or Fill | 18.37 to 18.38 "Coast Main" | 4.2–41 feet | X |
| Central | At-Grade Crossing Roadway Surface Improvement | 18.48 to 18.49 "Coast Main" / Grant Avenue | 8.0–42 feet | |
| Central | Timber Bridge Replacement | 18.97 to 18.98 "Coast Main" | 8.0–42 feet | X |
| Central | Timber Bridge Replacement | 19.23 to 19.24 "Coast Main" | 8.0–42 feet | X |
| Central | Timber Bridge Replacement | 19.77 to 19.78 "Coast Main" | 8.0–42 feet | X |
| Central | At-Grade Crossing Roadway Surface Improvement | 20.17 to 20.18 "Coast Main" / Winton Avenue | 8.0–42 feet | |
| Central | Bridge or Culvert | 20.77 to 20.78 "Coast Main" | 8.0–42 feet | X |

**Table 3.11-15. Project Dewatering Summary**

| Section | Improvement | Location (Mile Post) | Depth to Groundwater (bgs) | Dewatering Potentially Required |
|---|---|---|---|---|
| Central | At-Grade Crossing Roadway Surface Improvement | 21.39 to 21.40 "Coast Main" / Depot Road | 8.0–42 feet | |
| Central | At-Grade Crossing Roadway Surface Improvement | 23.08 to 23.09 "Coast Main" / Baumberg Avenue | 8.0–42 feet | |
| Central | Bridge Replacement | 23.68 to 23.68 "Coast Main" | | |
| Central | Timber Bridge Replacement | 24.16 to 24.16 "Coast Main" | 8.0–42 feet | X |
| Central | At-Grade Crossing Roadway Surface Improvement | 24.58 to 24.62 "Coast Main" / Union City Boulevard | 8.0–42 feet | |
| Central | Culvert or Fill | 24.76 to 24.76 "Coast Main" | 8.0–42 feet | X |
| Central | Culvert or Fill | 24.93 to 24.93 "Coast Main" | 8.0–42 feet | X |
| Central | Culvert or Fill | 25.03 to 25.03 "Coast Main" | 8.0–42 feet | X |
| South | At-Grade Crossing Roadway Surface Improvement | 25.72 to 25.74 "Coast Main" / Dyer Street | 7.2–65 feet | |
| South | Culvert or Fill | 25.81 to 25.81 "Coast Main" | 7.2–65 feet | X |

**Table 3.11-15. Project Dewatering Summary**

| Section | Improvement | Location (Mile Post) | Depth to Groundwater (bgs) | Dewatering Potentially Required |
|---|---|---|---|---|
| South | Retaining Wall | 26.25 to 26.97 "Coast Main" / Alvarado Niles Boulevard | | |
| South | Culvert or Fill | 26.81 to 26.81 "Coast Main" | 7.2–65 feet | X |
| South | Surface Improvements, Bridge Construction | 26.97 to 26.98 "Coast Main" / Lowry Road | 7.2–65 feet | X |
| South | Bridge Construction | 27 to 27.07 "Coast Main" | 7.2–65 feet | X |
| South | Clear-span Bridge | 27.35 to 27.37 "Coast Main" | 7.2–65 feet | X |
| South | Culvert or Fill | 27.52 to 27.52 "Coast Main" | 7.2–65 feet | X |
| South | Culvert or Fill | 27.4 to 27.4 "Coast Main" | 7.2–65 feet | X |
| South | Retaining Walls | 27.01 to 27.6 "Coast Main" / Paseo Padre Parkway | 7.2–65 feet | X |
| South | Extension of Triple 60-inch Reinforced Concrete Pipes and Widening of Track Area over Culverts | 29.56 "Coast Main" / Cabernet Street, Birkdale Drive, Indian Wells Drive/ Calais Place | 7.2–65 feet | X |

**Table 3.11-15. Project Dewatering Summary**

| Section | Improvement | Location (Mile Post) | Depth to Groundwater (bgs) | Dewatering Potentially Required |
|---|---|---|---|---|
| South | At-Grade Crossing Roadway Surface Improvement | 30.05 to 30.06 "Coast Main" / Mayhews Landing Road | 7.2–65 feet | |
| South | At-Grade Crossing Roadway Surface Improvement | 30.51 to 30.53 "Coast Main" / Ash Street | 7.2–65 feet | |
| South | At-Grade Crossing Roadway Surface Improvement | 30.85 to 30.86 "Coast Main" / Sycamore Street | 7.2–65 feet | X |
| South | At-Grade Crossing Roadway Surface Improvement | 30.85 to 30.86 "Coast Main" / Cherry Street | | |
| South | Retaining Wall | 31.25 to 31.25 "Coast" Main | | |
| South | At-Grade Crossing Roadway Surface Improvement | 30.51 to 30.53 "Coast Main" / Ash Street | 7.2–65 feet | |
| South | At-Grade Crossing Roadway Surface Improvement | 30.85 to 30.86 "Coast Main" / Sycamore Street | 7.2–65 feet | |

As described under Question a), permanent stormwater measures would be implemented to promote infiltration into the groundwater table and to minimize potential impacts to the groundwater quality within the proposed Project RSA (BMP HYD-5). Long-term dewatering is not anticipated. Therefore, impacts to groundwater recharge capacities from the addition of impervious area are not anticipated under the proposed Project.

### 3.11.6.3 c) Would the project 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 a substantial erosion or siltation on- or off-site;

**No Project**

**No Impact.** Under the No Project Alternative, no temporary or permanent impacts are anticipated to the surface water quality since the current railroad tracks are ballasted and self-retaining.

**Proposed Project**

**Less than Significant.** Please see threshold discussion a) for a detailed analysis of potential erosion in regard to the proposed Project.

#### ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site?

**No Project**

**No Impact.** Under the No-Project Alternative, no temporary or permanent impacts are anticipated to the existing drainage patterns within the proposed Project area because no improvements to drainage systems are proposed.

**Proposed Project**

**Less than significant impact with mitigation incorporated.** The proposed Project would have less than significant impacts with mitigation incorporated with respect to increases in rate or amount of surface water runoff. As discussed in Section 3.11.2, the proposed Project must comply with Executive Order 11988 Floodplain Management: any long- and short-term adverse impacts to the floodplain must be avoided to the greatest extent possible. The proposed Project proposes work within floodplains that either result in an increase to floodplain elevations or occupy the floodplain with a structure. The proposed Project proposes improvements within several floodplains. The following sections detail the hydraulic impacts of the proposed structures to the floodplains.

***Hydraulic Analysis***

This section analyzes hydraulic changes with the proposed Project improvements within existing creek crossings within floodplains or floodways. As noted in Section 3.11.4.1, Environmental Setting, these creeks include:

- Line P (San Leandro Creek).

- Line N (Stonehurst Creek).
- Zone 2 Line A (San Leandro Creek/Estudillo Canal).
- A crossing of an unnamed creek 0.2 miles south of Zone 2 Line A.
- Zone 2 Line B (San Lorenzo Creek).
- Bockman Canal/ Line N (Tributary to SF Bay).
- A crossing of an unnamed Creek 0.3 miles south of Line N.
- Zone 2 Line K (Sulphur Creek).
- Zone 4 Line A.
- Zone 3 Line A-2.
- Zone 3A Line A (Old ACFCC).
- Zone 5 Line K (Crandall Creek).
- Zone 5 Line H.
- Zone 3A Line B (Ward Creek).
- Zone 3A Line E.
- Zone 3A Line D.
- ACFCC.
- Zone 5 Line F-1.
- A crossing of an unnamed creek 0.08 miles south of Dyer Street.
- Zone 2 Line M.

All the listed creeks and waterways are within FEMA regulatory floodways and therefore, FEMA requires proposed work in these areas to not increase in flood levels or alter drainage patterns. The USACE National Levee Inventory and FEMA FIS designate the following locations as part of the USACE's Levee System: Zone 2 Line P (San Leandro Creek), Bockman Canal/Line N, Zone 2 Line K (Sulphur Creek), Zone 2 Line B (San Lorenzo Creek), Zone 3A Line A (Old ACFCC/Ward Creek), Zone 3 Line A-2, and ACFCC. At these locations, proposed Project improvements would require a Section 408 permit and increases in flood levels must be avoided for permit approvals.

Models for the existing creek crossings were requested from FEMA and ACFCWCD. Refer to Table 3.11-2 for a status of the models requested and obtained. For creek crossings where existing models were not available, a qualitative impact analyses will be provided based on general assessments of available information. As shown in Figure 3.11-2, models were obtained for five creeks and were used to quantitatively analyze for hydraulic changes as a result of the proposed Project.

*Alameda Creek Flood Control Channel (ACFCC) Hydraulics*

The proposed Project proposes to replace an existing 18-foot-wide 1-track concrete bridge supported by five 3.5-foot-wide diaphragm bents at an existing UPRR crossing in ACFCC,

approximately 0.6 miles downstream of Alvarado Boulevard, with two parallel 17.5-foot-wide 1-track bridges comprised of steel deck plate girder (DPG) spans supported by three 8-foot diameter piles. The bent caps for the piles would be 7-feet-deep and 9-feet-wide. The parallel bridges would be less than 10 feet apart. The crossing is in a FEMA Zone A. Implementation of BMP HYD-9 Soffit elevations for new bridges, will require that the proposed soffit elevation for a new bridge be matched to existing soffit elevations to limit the potential impact of the bridge replacement on the floodplain.

*Existing Conditions*

Under existing conditions, the 1-track UPRR concrete bridge has a soffit elevation of approximately 29.3 feet near its southern abutment. The Alvarado Boulevard Crossing, approximately 0.6 miles upstream of the UPRR crossing, has a soffit elevation of 32 feet near its southern abutment. The I-880 crossing is approximately 0.2 miles further upstream of Alvarado Boulevard and has a soffit elevation of 33.8 feet. WSE's for ACFCC are provided in Table 3.11-16. The existing model shows a 4.2-foot drop in WSE immediately downstream of the existing UPRR bridge.

*Proposed Conditions*

The proposed bridge replacement results in an increase in WSE of 0.09 feet upstream of the proposed bridge that extends for approximately 2,850 feet. WSEs for both existing and proposed conditions are contained within the existing levees for the extent of the proposed impacts. This alternative would impact the WSE within USACE jurisdiction, which would require a Section 408 permit and discussion with regulatory agencies to determine if mitigation is required. A comparison of hydraulic results showing the rise upstream of the crossing improvements is provided in Table 3.11-16.

**Table 3.11-16. ACFCC Existing and Proposed Conditions 100-year WSE Comparison**

| Cross Section Station[1] | Existing WSE[2] | Proposed WSE[2] | Change in WSE[2] |
|---|---|---|---|
| 30991 | 30.44 | 30.45 | 0.01 |
| 30842 | 30.26 | 30.26 | 0.00 |
| 30755 BR U | 29.90 | 29.91 | 0.01 |
| **30755 BR** | | **I-880** | |
| 30755 BR D | 29.53 | 29.55 | 0.02 |
| 30541 | 29.38 | 29.40 | 0.02 |
| 30391 | 29.20 | 29.22 | 0.02 |
| 29791 | 28.53 | 28.56 | 0.03 |

**Table 3.11-16. ACFCC Existing and Proposed Conditions 100-year WSE Comparison**

| Cross Section Station[1] | Existing WSE[2] | Proposed WSE[2] | Change in WSE[2] |
|---|---|---|---|
| 29570.9 | 28.32 | 28.35 | 0.03 |
| **29487.9 BR** | **Alvarado Boulevard** | | |
| 29371 | 27.87 | 27.91 | 0.04 |
| 29191 | 27.79 | 27.82 | 0.03 |
| 26394.6 | 25.29 | 25.37 | 0.08 |
| 26184 | 25.06 | 25.15 | 0.09 |
| **26058.5 BR** | **Location of Proposed Improvements** | | |
| 26035 | 25.04 | 25.04 | 0.00 |
| 25825.1 | 24.91 | 24.91 | 0.00 |

***1 Order of stations listed from upstream of Alameda Creek to downstream.***
***2 WSE precision increased to the nearest 1/100th of a foot to accurately describe impact of model limitations.***

*Zone 3A Line A (Old ACFCC/Ward Creek) Hydraulics*

The Project proposes to replace an existing 30-foot-wide 1-track timber trestle bridge supported by 11 piers, approximately 2 feet in diameter and spaced 15 feet, at a UPRR crossing in Zone 3A Line A, approximately 0.2 miles downstream of Hesperian Boulevard. The proposed replacement is two 17.5-foot-wide parallel 1-track bridges comprising 30-inch concrete box beams supported by 2-foot diameter piles spaced 30 feet on center, for a total of 5 piers. The proposed piles would have 5-foot-deep bent caps that are 5-feet-wide. The crossing is within FEMA Zone AE and an USACE jurisdiction accredited leveed area. The replacement must cause zero increase in WSE of the base flood. The proposed soffit elevation would be matched to existing soffit elevations to limit the potential impact of the bridge replacement on the floodplain. The proposed bridge would result in a reduced volume of piers within the floodplain, however, since the proposed bent caps would protrude into the floodplain, the overall obstruction volume would remain similar to existing conditions.

*Existing Conditions*

Under existing conditions, the 1-track timber trestle and steel bridge has a soffit elevation of approximately 10.4 feet, NAVD 88. The Hesperian Boulevard crossing has a soffit elevation of approximately 11.8 feet and is a concrete bridge supported by 4 pier walls, 0.8 feet in width and an additional center pier wall that is 4 feet wide. WSE's for Zone 3A Line A is provided in Table 3.11-17. The drop in WSE downstream of the bridges are the result of backwater conditions formed by the

overtopped bridges. Once flows pass over the structure, they start to normalize to the channel slope before experiencing the backwater from the next downstream bridge.

*Proposed Conditions*

With implementation of BMP HYD-9, the soffit elevation for a new bridge will be matched to existing soffit elevations to limit the potential impact of the bridge replacement. The proposed soffit elevation of the bridge replacement would match existing soffit elevation at approximately 10.4 feet. Under proposed conditions, the UPRR bridge structure would continue to be overtopped by the 100-year storm. The model shows no rise in the 100-year WSE upstream and downstream of the proposed UPRR bridge replacement compared to existing conditions. The proposed Project would replace a structure within USACE jurisdiction and would require a Section 408 permit. A comparison of hydraulic results showing no rise around the crossing improvements is provided in Table 3.11-17.

**Table 3.11-17. Zone 3A Line A Existing and Proposed Conditions 100-year WSE Comparison**

| Cross Section Station | Existing WSE[1] | Proposed WSE[1] | Change in WSE[1] |
|---|---|---|---|
| 24524 | 14.8 | 14.8 | 0.0 |
| 24255 | 14.6 | 14.6 | 0.0 |
| **24205 BR** | **Barret Pedestrian Crossing** | | |
| 24155 | 14.5 | 14.5 | 0.0 |
| 23640 | 14.3 | 14.3 | 0.0 |
| 23017 | 14.1 | 14.1 | 0.0 |
| **22990 BR** | **Location of Proposed Improvements** | | |
| 22963 | 13.6 | 13.6 | 0.0 |
| 22913 | 13.6 | 13.6 | 0.0 |

***1 WSE values rounded to the nearest 1/10th of a foot.***

*Zone 5 Line H Hydraulics*

The proposed Project proposes to widen an existing triple 60-inch culvert at the UPRR crossing of Zone 5 Line H, approximately 600 feet downstream of Haley Street, to support the expansion from a 1-track to a 2-track line. The improvements consist of widening a triple 60-inch reinforced concrete pipe culvert and the deck approximately 11.0 feet in the upstream direction. The crossing is in a FEMA Zone AE within a regulated floodway and therefore must not increase the WSE. The deck

elevation, pipe slope, pipe diameter, and number of pipes were retained to limit the impact of the culvert widening on the floodplain.

*Existing Conditions*

Under existing conditions, the triple-barrel culvert is 40-feet-long with a slope of 0.65% and an upstream deck elevation of 14.2 feet. Haley Street, 600 feet upstream of the UPRR crossing, has an upstream deck elevation of 15.3 feet, and the crossing contains a box culvert with a 6-foot span and 5-foot rise. WSE's for Zone 5 Line H are provided in Table 3.11-18. The large drop in WSE is due to a significant backwater effect upstream of the existing UPRR crossing. Flows normalize downstream of the crossing. The UPRR crossing is submerged 2.1 feet and Haley Street is submerged 1.4 feet under existing conditions.

*Proposed Conditions*

Head loss is the reduction in head, or pressure, that occurs as fluid flows through a pipe or other hydraulic system due to friction, turbulence or other factors. Head loss results in a reduction of pipe capacity. Due to the large diameter of the pipes, the increase in head loss due to friction against the lengthened inside wall would not be significant. The model shows no rise in the 100-year WSE upstream and downstream of the proposed UPRR crossing widening in comparison to existing conditions. The crossings continue to be overtopped under proposed conditions. A comparison of hydraulic results showing no rise around the crossing improvements is provided in Table 3.11-18.

**Table 3.11-18. Zone 5 Line H Existing and Proposed Conditions 100-year WSE Comparison**

| Cross Section Station | Existing WSE[1] | Proposed WSE[1] | Change in WSE[1] |
|---|---|---|---|
| 6557 | 16.8 | 16.8 | 0.0 |
| 6542 | 16.7 | 16.7 | 0.0 |
| **6503 BR** | **Haley Street** | | |
| 6464 | 16.5 | 16.5 | 0.0 |
| 6463 | 16.5 | 16.5 | 0.0 |
| 5185 | 16.4 | 16.4 | 0.0 |
| 5147 | 16.3 | 16.3 | 0.0 |
| 5135 | 16.3 | 16.3 | 0.0 |
| **5115 BR** | **UPRR Crossing (Triple 60-inch reinforced concrete pipes)** | | |
| 5095 | 14.3 | 14.3 | 0.0 |

**Table 3.11-18. Zone 5 Line H Existing and Proposed Conditions 100-year WSE Comparison**

| Cross Section Station | Existing WSE[1] | Proposed WSE[1] | Change in WSE[1] |
|---|---|---|---|
| 5080 | 14.2 | 14.2 | 0.0 |
| 5030 | 14.2 | 14.2 | 0.0 |

***1 WSE values rounded to the nearest 1/10th of a foot.***

*Zone 5 Line K (Crandall Creek) Hydraulics*

The proposed Project proposes to widen an existing 18-foot-wide 1-track timber trestle bridge supported by 3 piers approximately 4.5 feet in diameter, at a UPRR crossing in Zone 5 Line K, approximately 0.3 miles downstream of Paseo Padre Parkway. The improvements consist of replacing the existing bridge with two 22-feet-wide parallel clear-span bridges. The parallel bridges would be less than 10 feet apart. The centerline of the proposed structures would be located 16.5 feet east of the existing bridge in the upstream direction and 10 feet west of the existing bridge in the downstream direction. The crossing is in FEMA Zone AE within a regulated floodway and must not increase the WSE. The proposed soffit elevation would be maintained to reduce the impact on the floodplain.

*Existing Conditions*

Under existing conditions, the 1-track timber trestle bridge has an upstream deck elevation of approximately 20 feet. WSE's for Zone 5 Line K (Crandall Creek) are provided in Table 3.11-19.

*Proposed Conditions*

The proposed bridge is a clear-span structure that would remove the existing piers within the floodplain. The model shows removal of the wooden piers reduces WSEs by up to 0.2 feet compared to existing conditions. The reduction in WSE propagates upstream until the grade control structure at Deep Creek Road, approximately 2,960 feet upstream of the proposed improvements. The decrease in WSE results in a slight increase in freeboard at the UPRR crossing of 7.5 feet. The removal of the piers also results in a minor increase to the peak velocity of approximately 0.1 ft/s within the extent of the WSE reduction. Channel velocities range from 12.6 ft/s to 14.0 ft/s within the extent of the WSE reduction. The increase in velocity is considered negligible. With implementation of BMP HYD-9, the soffit elevation for a new bridge will be matched to existing soffit elevations to limit the potential impact of the bridge replacement.

The proposed Project would reduce the WSEs within a Zone AE regulatory floodway. A comparison of hydraulic results showing no increase in WSE around the bridge replacement is provided in Table 3.11-19.

**Table 3.11-19. Zone 5 Line K Existing and Proposed Conditions 100-year WSE Comparison**

| Cross Section Station | Existing WSE[1] | Proposed WSE[1] | Change in WSE[1] |
|---|---|---|---|
| **13509** | | **Deep Creek Road** | |

**Table 3.11-19. Zone 5 Line K Existing and Proposed Conditions 100-year WSE Comparison**

| Cross Section Station | Existing WSE[1] | Proposed WSE[1] | Change in WSE[1] |
|---|---|---|---|
| 13420 | 13.8 | 13.8 | 0.0 |
| 12602 | 13.9 | 13.9 | 0.0 |
| 11650 | 13.0 | 12.9 | -0.1 |
| 10640 | 12.6 | 12.5 | -0.1 |
| 10560 | 12.6 | 12.4 | -0.2 |
| **10550** | **Location of Proposed Improvements** | | |
| 10540 | 12.4 | 12.4 | 0.0 |
| 10510 | 12.4 | 12.4 | 0.0 |
| **10492.5** | **Existing Pedestrian Crossing** | | |
| 10475 | 12.4 | 12.4 | 0.0 |
| 10460 | 12.4 | 12.4 | 0.0 |

***1 WSE values rounded to the nearest 1/10th of a foot.***

*Zone 2 Line B (San Lorenzo Creek) Hydraulics*

The proposed Project proposes to replace an existing 22-foot-wide 1-track timber trestle and steel through plate girder (TPG) bridge, supported by two 6-foot diameter piles and four 1-foot diameter piles, at a UPRR crossing in Zone 2 Line B, approximately 0.5 mile upstream of where San Lorenzo Creek discharges to San Francisco Bay. The replacement consists of two 17.5-foot-wide parallel 1-track bridges comprising 20-inch concrete slab beams supported by two 2-foot diameter piles and a center steel TPG span supported by two 4-foot diameter piles. The caps for the 2-foot diameter piles would be 4.5 feet-deep and for the 4-foot diameter piles would be 6-feet-deep; the pile cap width is 4 feet and 5 feet, respectively. The soffit of the steel TPG span would be 1 foot lower than adjacent spans. The parallel bridges would be less than 10 feet apart. The crossing is within FEMA Zone A and USACE jurisdiction. The replacement must cause zero increase in WSE of the base flood. The proposed soffit elevation would be matched to existing to limit the impact of the bridge replacement on the floodplain.

*Existing Conditions*

Under existing conditions, the 1-track timber trestle and steel bridge has a soffit elevation of approximately 16.5 feet where its center steel TPG span is approximately 1 foot lower than adjacent spans. The Barret Pedestrian Crossing, approximately 1,200 feet upstream of the UPRR crossing, has a soffit elevation of 20.7 feet and is a clear-span bridge. WSE's for Zone 2 Line B (San Lorenzo Creek) are provided in Table 3.11-20.

*Proposed Conditions*

The proposed soffit of the center TPG span and adjacent spans are at the same elevation as the existing conditions. Replacing the existing four 1.17-foot piers and two 6-foot piers, with two 2-foot piers and two 4-foot piers, reduces pier volume in the floodplain, but does not result in an impact to the WSE. The model shows no rise in the 100-year WSE upstream and downstream of the proposed UPRR bridge replacement compared to existing conditions. The proposed Project would replace a structure within USACE jurisdiction and would require a Section 408 permit. A comparison of hydraulic results showing no rise around the crossing improvements is provided in Table 3.11-20.

**Table 3.11-20. Zone 2 Line B Existing and Proposed Conditions 100-year WSE Comparison**

| Cross Section Station | Existing WSE[1] | Proposed WSE[1] | Change in WSE[1] |
|---|---|---|---|
| 4552.75 | 18.0 | 18.0 | 0.0 |
| 4152.75 | 17.5 | 17.5 | 0.0 |
| **3952.75 BR** | **Barret Pedestrian Crossing** | | |
| 3752.75 | 17.1 | 17.1 | 0.0 |
| 3352.75 | 16.7 | 16.7 | 0.0 |
| 2952.75 | 16.0 | 16.0 | 0.0 |
| 2852.75 | 15.3 | 15.3 | 0.0 |
| **2752.75 BR** | **Location of Proposed Improvements** | | |
| 2702.75 | 15.3 | 15.3 | 0.0 |
| 2552.75 | 13.0 | 13.0 | 0.0 |

***1 WSE values rounded to the nearest 1/10th of a foot.***

*Zone 2 Line K (Sulphur Creek) Hydraulics*

The proposed Project proposes to replace an existing 20-foot-wide 1-track timber clear-span bridge at a UPRR crossing in Zone 2 Line K, approximately 0.5 miles downstream of the Hayward Airport. The replacement consists of two 22-foot-wide parallel 1-track bridges comprising steel TPG clear-spans; similar to Zone 5 Line K. The parallel bridges would be less than 10 feet apart. The crossing is within FEMA Zone AE and USACE jurisdiction. The replacement must not cause an increase in the base flood. The soffit elevation would be maintained to reduce the impact on the floodplain.

*Existing Conditions*

Under existing conditions, the 1-track timber clear-span bridge has a deck elevation of approximately 15.4 feet. The Hayward Airport Culvert, approximately 0.5 mile upstream of the UPRR crossing, has a deck elevation of approximately 25.0 feet, and is a double box culvert each with a span of 8.5 feet and a rise of 6.5 feet. WSE's for Zone 2 Line K (Sulphur Creek) are provided in Table 3.11-21. The subcritical conditions[2] of Sulphur Creek and overtopping of structures create backwater conditions[3] within the floodplain. This condition results in immediate drops in WSE across the overtopped structures. The gradual decreases in WSE between structures are the result of flows normalizing with the channel slope.

*Proposed Conditions*

The proposed soffit of the parallel TPG spans is at the same elevation as under existing conditions. Due to the proposed addition of a parallel span, the additional span would also be submerged. The proposed structure would be submerged for an additional 24 feet further downstream than under existing conditions. The impacts dissipate after flowing over the structure. As a result, the model shows no rise in the 100-year WSE upstream and downstream of the proposed UPRR bridge replacement compared to existing conditions. The proposed Project would replace a structure within USACE jurisdiction and would require a Section 408 permit. A comparison of hydraulic results showing no rise around the crossing improvements is provided in Table 3.11-21.

**Table 3.11-21. Zone 2 Line K Existing and Proposed Conditions 100-year WSE Comparison**

| Cross Section Station | Existing WSE[1] | Proposed WSE[1] | Change in WSE[1] |
|---|---|---|---|
| 8768 | 27.4 | 27.4 | 0.0 |
| 8241 | 26.7 | 26.7 | 0.0 |
| **8192 CU** | | **Hayward Airport Culvert** | |

[2] Under subcritical (also known as submerged) flow conditions, a change in the flow depths (WSE) downstream of a flow constriction (e.g., bridge, pier, other in water structure) also affects the flow conditions upstream of the in-water constriction. Alternatively, under supercritical flow conditions changes in WSE downstream of a flow constriction has no effect on flow conditions upstream of the in-water constriction.

[3] Backwater is water that is stagnant (unmoving) and out of the flow current. This results from increases in water surface levels that causes water to move into the floodplains.

**Table 3.11-21. Zone 2 Line K Existing and Proposed Conditions 100-year WSE Comparison**

| Cross Section Station | Existing WSE[1] | Proposed WSE[1] | Change in WSE[1] |
|---|---|---|---|
| 8143 | 20.4 | 20.4 | 0.0 |
| 8142 | 21.1 | 21.1 | 0.0 |
| 8126 | 21.0 | 21.0 | 0.0 |
| 7746 | 20.7 | 20.7 | 0.0 |
| 7206 | 20.2 | 20.2 | 0.0 |
| 6671 | 19.6 | 19.6 | 0.0 |
| 6130 | 19.2 | 19.2 | 0.0 |
| 5630 | 18.8 | 18.8 | 0.0 |
| **5560 BR** | **Location of Proposed Improvements** | | |
| 5450 | 15.6 | 15.6 | 0.0 |
| 5083 | 15.1 | 15.1 | 0.0 |

***1 WSE values rounded to the nearest 1/10th of a foot.***

*Qualitative Analysis of Hydraulics at Proposed Structures*

The following 13 existing creek crossings and 1 lateral encroachment are within a FEMA Zone AE floodway with known BFEs; see Table 3.11-11. The proposed structures must not increase the base flood WSE by more than 1 foot. Model data is unavailable for these crossings and the lateral encroachment and therefore impacts of the proposed improvements are analyzed qualitatively at this time.

- Zone 3A Line A-2: 1-track timber trestle.
- Zone 4 Line A: multi-track concrete box culvert.
- Line P (San Leandro Creek): 1-track concrete bridge.
- Line N (Stonehurst Creek): 1-track concrete bridge.
- Unnamed crossing 0.3 miles south of Line N: 1-track bridge.
- Unnamed crossing 0.2 miles south of Zone 2, Line A: 1-track bridge.

- Zone 2 Line A: 1-track timber trestle.
- Zone 3A Line D: 1-track timber trestle.
- Zone 3A Line E: 1-track longitudinal encroachment.
- Bockman Canal/Line N (tributary to SF Bay): 1-track timber trestle.
- Unnamed crossing 0.08 miles south of Dyer Street: 1-track timber trestle.
- Zone 5 Line M: 1-track culvert.
- Zone 5 Line F-1: multi-track culvert.

Removal of a 1-track timber trestle in favor of a 2-track bridge would reduce or maintain the existing pier volume in the floodplain and lead to a lower or similar WSEs upstream of the bridge as seen in the hydraulic analysis for Zone 3A Line A. This scenario applies to the Zone 2 Line A, Bockman Canal/Line N (tributary to SF Bay), Zone 3A Line A-2, Zone 3A Line B (Ward Creek), Zone 3A Line D, and unnamed crossing 0.08 miles south of Dyer Street proposed improvements. The subcritical assumption is backed by the shallow slopes in these creeks and that timber trestles generally are not safe to install under supercritical conditions.

Widening of an existing culvert or multi-track culvert crossing by extension of the culvert while maintaining culvert size would generally have minimal impact on WSEs in shallow sloped creeks with large culverts. Major headloss through the culvert is related to the ratio of flow to culvert diameter and culvert length, while minor headloss is related to the shape of entrance and exit. If both remain mostly unchanged, impacts to the floodplain would be minimal, as seen in the hydraulic analysis for Zone 5 Line H. This scenario applies to Zone 4 Line A, Zone 5 Line M, and Zone 5 Line F-1.

Widening a 1-track bridge to a 2-track bridge would place additional piers in the floodplain, possibly of larger diameter. Placing the piers in line with existing ones would help minimize the impacts. Replacing a 1-track bridge with a 2-track bridge would likely replace the piers in the floodplain with fewer, but larger diameter piers. The result would be either no rise or a small rise in WSE that would require implementation of MM-HYD-2 Balancing cut and fill and increasing flow and detention capacity. This scenario applies to Line P (San Leandro Creek), Line N (Stonehurst Creek), the unnamed crossing 0.3 mile south of Line N, and the unnamed crossing 0.2 miles south of Zone 2 Line A.

Zone 3A Line E is a longitudinal encroachment. At crossing locations or encroachments, where fill is proposed, an equal amount of cut would be provided through grading or storage to maintain the volume of the floodplain. Implementation of MM-HYD-2 Balancing cut and fill and increasing flow and detention capacity, would maintain existing volume of floodplain. Additional mitigation measures for crossings that propose piers within the floodplain are presented in Section 3.5, Biological Resources, regarding in-water and floodplain work.

***Construction***

Construction of the proposed Project would require temporary fill due to grading work within the 100-year floodplains regulated by FEMA. Depending upon the specific construction methods selected by the contractor, temporary fill within floodplains during the construction phase could include temporary structures, such as formworks (temporary molds for new concrete structures), falseworks (temporary supports for new structures), and trestles (temporary elevated working

surfaces); equipment, including excavators; and construction materials. When floodwaters are present, temporary fill reduces the storage capacity of the floodplain, resulting in localized changes in WSE, flow velocity, flood flow patterns, or extents of the floodplain. The proposed Project would also involve construction of a bridge over Alameda Creek. Constructing of a bridge would potentially increase the WSE temporarily due to the presence of construction machinery and structures. The proposed Project would minimize the temporary impacts to extent practicable with the inclusion of BMP HYD-8, Monitoring weather forecast to avoid construction impacts during storm events. In addition to floodplains along or in proximity to aquatic resources, floodplains in the proposed Project footprint occur on local roadways or in isolated areas that are not associated with aquatic resources. Refer to the sections below for discussion of each specific temporary impacts for each subdivision and section.

The proposed Project crosses the following 100-year floodplains: Zone A, AE, AO, and Shaded X. The locations of the temporary fill and construction work in 100-year floodplains on the Coast Subdivision are discussed below.

- Temporary at-grade work would include grading within the 100-year floodplain (as mentioned in Table 3.11-13) at approximately MP 13.75 near Knight Street in the city of Oakland and MP 16.73 near Fallon Drive in the city of San Leandro.
- Grading, placing SWPPP measures for construction, removing old piles and other temporary work within this section would occur at approximately MP 23.09 at Baumberg Avenue due to proposed work in the 100-year floodplain. Bockman Canal crosses the proposed Project at approximately MP 18.97, Line N-3 at approximately MP 19.23, Sulphur Creek at approximately MP 23.619.77, Zone 4 Line A at approximately MP 20.77, Zone 3A Line A-2 at approximately MP 23.68, and Old ACFCC at approximately MP 24.16.
- Grading, placing SWPPP measures for construction, removing old piles and other temporary work would occur at approximately MP 27.00, 27.35, and 29.09 to 29.56 in the city of Newark due to proposed work in the 100-year floodplain. Zone 5 Line H is located parallel to the railroad from MP 29.09 to 29.56 and is a Zone AE floodway. ACFCC cross the proposed Project at approximately MP 27.00 between Lowry Road and Caliban Drive/Bunkhouse Street in the city of Fremont. Temporary at-grade work would occur in the city of Newark near MP 29.31 near Haley Street and MP 30.06 near Mayhews Landing Road due to grading in the 100-year floodplain.

The proposed Project on the Coast Subdivision alignment would also have bridge construction over Alameda Creek near MP 27.00 and at Zone 5 Line K (Crandall Creek) near MP 27.35. The construction of new bridges at both of these locations would replace the existing bridges and have temporary impacts such that temporary structures, formworks, falsework, and construction equipment could potentially block flows in the creek.

The proposed improvements would widen the track area over the existing triple 60-inch reinforced concrete pipes and lengthen the culverts for Zone 5 Line H at MP 29.57. Temporary impacts would include temporary structures, formworks, falsework, and construction equipment could potentially block flows in the creek.

Additionally, the proposed Project would widen the track area over Zone 5 Line H near MP 29.56 on the Coast Subdivision, over the confluence of Line N (Stonehurst Creek) and Line P (San Leandro Creek) at MP 14.29, Zone 2 Line A (Estudillo Canal (San Leandro Creek) at MP 16.93, a crossing of a unnamed creek 0.2 miles south of Zone 2 Line A (Estudillo Canal) (San Leandro Creek) at MP 17.13,

Zone 2 Line B (San Lorenzo Creek) at MP 18.24, Line N at MP 18.97, Line N-3, a crossing of a unnamed creek 0.3 miles south of Line N at MP 19.23, Sulphur Creek at MP 19.77, Zone 4 Line A at MP 20.77, Zone 3A Line A-2 at MP 23.68, and Zone 3A Line A (old ACFCC) at MP 24.61. The construction of new bridges over these creek crossings would replace the existing bridges and have temporary impacts because the temporary structures, formworks, falsework, and construction equipment could potentially block creek flows.

The proposed Project would also potentially include a construction culvert through Zone 4 Line A at MP 20.77 and multiple culvert construction at MP 30.09 in a Shaded Zone X area. The construction of culverts would result in head losses through the extended cross culvert that has a potential to increase the upstream WSE.

Due to temporary work within the floodplains during construction and implementation of BMP HYD-8, the proposed Project would have a less than significant impact with respect to substantially altering the stream or course of a river during construction.

***Operations***

The net new impervious area within the proposed Project is minimal and would have minimal impacts on a 100-year floodplain. The proposed Project would manage stormwater runoff from impervious surfaces by implementing BMPs HYD-5 and HYD-6 to maintain pre-Project hydrology through on-site stormwater management measures, such as infiltration and retention of stormwater runoff, where appropriate. Accordingly, the proposed Project would not increase flooding on- or off-site as a result of new or reworked impervious surfaces.

As discussed above in the Hydraulic Analysis section, the proposed Project would cross the 100-year floodplains at zones A, AE, AO, and Shaded X. Permanent impacts on the 100-year floodplains would result from development in the floodplain, including new bridges, earthwork, and increases in impervious area. For new siding tracks and areas of shifted tracks within the 100-year floodplain, the new top of rail elevation would be 2 to 8 feet above the original top of rail elevation. This could potentially affect the 100-year WSE. The proposed Project would also involve construction of new bridges and culverts within creeks. Constructing a bridge would potentially increase the WSE and impact the 100-year floodplain. The proposed Project would minimize the impacts to extent practicable. The locations of the permanent fill in 100-year floodplains along the Coast Subdivision are discussed below.

- North Section
    - As a result of grading in the 100-year floodplain and as mentioned in Table 3.11-13, permanent fill and track work would occur at approximately MP 13.67 near Edes Avenue through MP 14.29 near the confluence of Line N (Stonehurst Creek) and Line P (San Leandro Creek) in the city of Oakland. Permanent fill and track work locations are also located at approximately MP 16.17 near Fairway Drive in the city of San Leandro to MP 18.38 near Grant Avenue in the unincorporated area of San Lorenzo. Permanent fill and track work at those locations is due to grading in the 100-year floodplain.
    - The proposed Project would also have bridge construction over the following crossings:
        - The confluence of Line N (Stonehurst Creek) and Line P (San Leandro Creek) at MP 14.29;

- Zone 2 Line A (Estudillo Canal (San Leandro Creek) at MP 16.93;
- a crossing of an unnamed creek 0.2 miles south of Zone 2 Line A (Estudillo Canal) (San Leandro Creek) at MP 17.13; and
- Zone 2 Line B (San Lorenzo Creek) at MP 18.24.

The construction of new bridges over these creek crossings would replace the existing bridges and have permanent impacts to the creek including partial blockage of flows.

- Central Section
  - As mentioned in Table 3.11-13, permanent fill and track work would occur at approximately MP 18.38 near Grant Avenue in the unincorporated area of San Lorenzo to MP 20.17 near Winton Avenue in the city of Hayward due to grading in the 100-year floodplain. Permanent fill and track work would also be needed at approximately MP 20.77 near Zone 4 Line A in the city of Hayward due to grading in the 100-year floodplain. Permanent fill and track work would occur at approximately MP 22.06 at State Route 92 in the city of Hayward to MP 24.58 at Union City Boulevard in the city of Union City due to grading in the 100-year floodplain.
  - The proposed Project would also have bridge construction over the following crossings:
    - Bockman Canal/Line N (tributary to SF Bay) at MP 18.97;
    - Line N-3, a crossing of an unnamed creek 0.3 miles south of Line N at MP 19.23;
    - Zone 2 Line K (Sulphur Creek) at MP 19.77, Zone 4 Line A at MP 20.77; and
    - Zone 3A Line A-2 at MP 23.68, and Zone 3A Line A (old ACFCC) at MP 24.61.

    The construction of new bridges over these creek crossings would replace the existing bridges and have permanent impacts to the creek including partial blockage of flows.
  - The proposed Project would also potentially construct a culvert through Zone 4 Line A at MP 20.77. The construction of a new bridge over Zone 4 Line A would replace the existing bridge and have permanent impacts to the creek including partial blockage of flows.
- South Section
  - As mentioned in Table 3.11-13, permanent fill in the 100-year floodplain would occur at approximately MP 27.01, 27.35, and 29.09 to 29.56 in the city of Newark. ACFCC crosses the proposed Project at approximately MP 27.00 between Lowry Road and Caliban Drive/ Bunkhouse Street in the city of Fremont. Zone 5 Line H is located parallel to the railroad from MP 29.09 to 29.56 and is a Zone AE floodway between Jarvis Avenue and Indian Wells Drive/Calais Place in the city of Fremont. Per FEMA, there must be no increase in flood elevations within floodways. Detailed hydraulic analysis might be needed in later phase to support permitting and confirm that final design is consistent with the impacts described below. Permanent at-grade work would occur in the city of Newark near MP 29.31 near Haley Street, MP 30.06 near Mayhews Landing Road, MP 30.85 near Sycamore Street, and MP 30.85 near Cherry Street due to grading in the 100-year floodplain.

The proposed Project would also include bridge construction over Alameda Creek near MP 27.00 on the Coast Subdivision. The construction of a new bridge over Alameda Creek would replace the

existing bridge and have permanent impacts to the creek including partial blockage of flows. The proposed improvements would replace the existing bridge with two separate bridges on either side that would be constructed while the existing bridge remains in operation. The proposed bents and piers of the new bridges would not be at the same location as existing bents and piers; there would be four proposed bents and piers for both new bridges each with singular piers of approximately 7 feet in diameter oriented in the direction of creek flow. The existing bridge contains five piers, each with a width of 3 feet. The proposed bridge soffit would match the soffit of the existing bridge. The proposed bridge would avoid placement of piers in the existing low flow channel and levee embankment. The proposed improvements would impact the floodplain; and mitigation measures that address these impacts are included in Section 3.5, Biological Resources. Further, implementation of MM-HYD-1 Balancing cut and fill and increasing flow and detention capacity, would maintain existing volume of floodplain.

The proposed Project would also have bridge construction over Zone 5 Line K (Crandall Creek) near MP 27.35 on the Coast Subdivision. The construction of a new bridge over Zone 5 Line K (Crandall Creek) would replace the existing bridge and have permanent impacts to the creek including partial blockage of flows. The proposed improvements would replace the existing bridge with a clear-span bridge.

The proposed Project would widen the track area over Zone 5 Line H near MP 29.56 on the Coast Subdivision. The proposed improvements would widen the track area over the existing triple 60-inch reinforced concrete pipes and lengthen the culverts. This would result in head losses through the extended cross culvert, which has a potential to increase the upstream WSE. The existing triple 60-inch culvert was recently upsized from a double 60-inch culvert. Since FEMA did not have the third 60-inch culvert modeled, it is unknown how WSE has changed with the additional 60-inch culvert. The mapped floodplain does not account for the recent expansion of the crossing from double 60-inch culverts to triple 60-inch culverts.

The proposed Project would also potentially construct multiple culverts at MP 30.09 in a Shaded Zone X area. The construction of culverts would result in head losses through the extended cross culvert, which has a potential to increase the upstream WSE. With implementation of BMP HYD-9, the soffit elevations for all proposed bridges will be matched to existing soffit elevations to limit the potential impact of the bridge replacement.

Impacts within an existing floodplain or floodway will be mitigated by balancing cut and fill of earthwork, installing equalizer pipes to perpetuate flood flows, or implementing underground storage or add detention basins to provide more flood flow storage. Potential impacts would be blockage of flows and implementation of MM-HYD-1 Balancing cut and fill and increasing flow and detention capacity, would maintain existing volume of floodplain so that the potential impacts are less than significant.

## 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

### No Project

**No Impact.** Under the No Project Alternative, no temporary or permanent impacts are anticipated to the surface water quality since the current railroad tracks are ballasted and self-retaining.

**Proposed Project**

**Less than Significant.**

***Construction and Operations***

As discussed in the analysis for threshold (a), the proposed Project would result in an increase in impervious surface area, potentially increasing runoff during significant weather events. Application of BMP HYD-1, BMP HYD-4, and BMP HYD-5 would ensure that runoff from construction or operation of the proposed Project would not cause an impact.

In addition, the proposed Project discharges stormwater runoff into a tidally influenced/depositional area. As runoff from the project would flow into water bodies that regularly interact with the ocean, the proposed Project would be exempt from implementation of hydromodification management measures and would have no impact.

### iv) impede or redirect flood flows

**No Project**

**No Impact.** Under the No-Project Alternative, no temporary or permanent impacts are anticipated to the surface water quality since the current railroad tracks are ballasted and self-retaining.

**Proposed Project**

**Construction and Operations**

**No Impact.** As addressed in the Hydraulic Analysis under threshold c(ii), regulated waterways within the proposed Project's footprint would be within the jurisdiction of FEMA and ACFCWCD. USACE would have jurisdiction for those regulated waterways with levees that are managed by USACE. Any change to WSE must be permitted with ACFCWCD and the USACE and controlled for during improvements. As ACFCWCD already oversees the floodplains, ACFCWCD requirements ensure that projects do not unintentionally change the level of obstruction so as to significantly change WSE. Therefore, it would have no impact in regard to impeding or redirecting flood flows. Contractors would also apply BMP HYD-1 which would reduce potential for impacts.

## 3.11.6.4 d) Would the project, in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

For impacts related to flood hazards, the analysis relies on standards established by FEMA and local agencies. FEMA oversees federal floodplain management policies and runs the NFIP adopted under the National Flood Insurance Act of 1968. FEMA prepares FIRMs that delineate the regulatory floodplain to assist local governments with land use and floodplain management decisions to avoid flood-related hazards. To avoid impacts related to flooding, FEMA and the local agencies require that an encroachment into a floodplain not increase the WSE of the 100-year flood by more than 1 foot in floodplains and have no increase in regulatory floodways.

### No Project Alternative

**No Impact.** Under the No Project Alternative, no temporary or permanent impacts are anticipated to the risk of release of pollutants due to flood hazards, tsunami, or seiche zones.

## Proposed Project

### Floodplains

#### *Construction*

**Less than significant impact.** The proposed Project would pose a less than significant impact regarding the risk of release of pollutants due to project inundation within any flood hazard, tsunami, or seiche zones. Construction activities associated with the proposed Project could result the potential release of pollutants in the event of flooding. If flooding of construction areas occurs, stockpiles of construction materials could be inundated and result in pollution of on-site or off-site downstream surface waters. The impact would be addressed by implementing BMP HYD-1, which includes creation of a SWPPP that would define materials storage outside of floodplains. Implementation of this BMP would also prevent construction materials from being exposed to storm flooding hazards and, therefore, reduce potential construction-related impacts from substantial sources of additional polluted runoff and the release of pollutants due to proposed Project inundation to a less than significant level. Further, implementing BMP-HYD-8 Monitoring weather forecast to avoid construction impacts during storm events, would provide information needed daily to determine potential for flooding. As discussed in Section 3.11.3, the proposed Project would not change flooding patterns during a tsunami and there is no immediate risk of seiche anywhere throughout the proposed Project RSA.

#### *Operations*

**No impact.** There would be a no impact by the proposed Project to the risk of release of pollutants due to project inundation within any flood hazard, tsunami, or seiche zones.

# 3.11.6.5 e) Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

## No Project Alternative

**No Impact.** The No Project Alternative would not conflict with or obstruct the implementation of the water quality control plan for the region.

## Proposed Project

### Less Than Significant Impact.

### Surface Water Hydrology and Water Quality

#### *Construction*

As discussed under Question a), the proposed Project would be implementing the appropriate temporary BMPs (BMP HYD-1) in response to any potential temporary impacts from construction activities. Hydrology and Water Quality BMPs are fully described in Section 3.11.5. With the implementation of appropriate construction BMPs for the proposed Project, the Project would meet NPDES CGP conditions and would not impact the beneficial uses or water quality objectives

specified in the Basin Plan. Therefore, the construction of the proposed Project would not conflict with or obstruct the implementation of the water quality control plan for the region.

#### *Operations*

As discussed under Question a), the proposed Project would implement the appropriate temporary BMPs per NPDES requirements to minimize any potential permanent impacts from Project design (BMP HYD-4 and BMP HYD-5). Hydrology and Water Quality BMPs are fully described in Section 3.11.5. With the implementation of appropriate permanent BMPs for the proposed Project, the proposed Project meets NPDES permit conditions and would not impact the beneficial uses or water quality objectives specified in the Basin Plan. Therefore, operation of the proposed Project would not conflict with or obstruct the implementation of the water quality control plan for the region.

### Groundwater

#### *Construction*

As discussed under Questions a) and b), the proposed Project would implement the appropriate temporary BMPs (BMP HYD-1 and BMP HYD-7) to minimize any potential temporary impacts to groundwater from construction activities. Hydrology and Water Quality BMPs are fully described in Section 3.11.5. With the implementation of appropriate construction BMPs for the proposed Project, there would not be a significant impact to groundwater quality or quantity. Therefore, the proposed Project would not conflict with or obstruct the implementation of the sustainable groundwater management plan as a result of temporary proposed Project impacts.

#### *Operations*

As discussed under Questions a) and b), the proposed Project is anticipated to have less than significant impact to the groundwater recharge as well as the groundwater quality. Therefore, the proposed Project is not anticipated to conflict with or obstruct the implementation of the sustainable groundwater management plan for the proposed Project.

## 3.11.7 Mitigation Measures

**MM-HYD-1 Balancing cut and fill and increasing flow and detention capacity.**

Impacts within an existing floodplain or floodway will be mitigated by balancing cut and fill of earthwork, installing equalizer pipes to perpetuate flood flows, or implementing underground storage or add detention basins to provide more flood flow storage.

**MM-HYD-2 Dewatering permit in case of contaminated groundwater.**

If the groundwater is found to be contaminated, a dewatering permit will be obtained from the Regional Water Quality Control Board directly, or through an application with the local Sewer company. An Active Treatment Systems may be specified by the permit conditions if the quality of the groundwater warrants their use.

# 3.11.8 Cumulative Impact Analysis

There may be cumulative impacts from a combination of the proposed Project and other nearby projects. However, because each project would be subject to NPDES requirements, implement BMPs, and adhere to federal floodplain regulations the cumulative impacts from the proposed Project and all nearby projects would be minimal. The proposed Project's Cumulative Impact Map and Project List are included in Chapter 1.

## Surface Water Hydrology and Surface Water Quality

**Less Than Significant Impact**. This analysis is focused on potential cumulative impacts of the proposed Project in addition to other planned projects within the proposed Project corridor on surface water quality.

The proposed Project would implement the required temporary and permanent BMP measures as detailed in the Phase II MRP for non-traditional permittees. As such, the proposed Project itself would not contribute to any cumulative temporary or permanent impacts to the surface water hydrology and water quality within the proposed Project area. The impact under CEQA would be less than significant for the proposed Project because proposed Project activities would not result in a substantial alteration of the existing drainage patterns, substantially increase the rate or amount of surface runoff, result in substantial erosion or siltation on- or off-site, or create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems. Temporary impacts on drainage patterns and stormwater runoff would result from the following activities: grading, construction staging areas, temporary roadways, temporary stream diversion, temporary dewatering, and temporary drainage systems.

Nearby Projects are also anticipated to have a less than significant impact on the surface water hydrology and water quality of the surrounding proposed Project area as they are also bound by the region's MRP and subsequent NPDES permits whether traditional or non-traditional permittees and must maintain drainage patterns to the fullest extent possible and implement both temporary and permanent BMPs should there be any increases to the impervious surface area greater than 5,000 square feet. Related projects within the proposed Project's Hydrology and Water Quality RSA that could have potential impacts to the surface water hydrology and water quality are listed below.

- **I-5: 4150 Point Eden Way Industrial Development Project.** This project proposes the construction of a new industrial building and the creation of an open space/wetland preserve within the city of Hayward and west of the Coast Subdivision of the proposed Project. Potential stormwater impacts from this project would result from the increase in impervious area due to the construction of the new industrial building. Less than significant impact is anticipated to the surface water hydrology and water quality due to the inclusion of bioretention areas that would capture and treat stormwater runoff prior to discharging into the existing storm drain system.
- **D-1: Bay Area 2050.** This is a long-range regional plan that outlines 35 integrated strategies across four key issues – housing, the economy, transportation, and the environment. The Plan proposes mitigating anticipated population growth and subsequent development by promoting compliance with the existing state and local regulations regarding LID and stormwater management. These state and local regulations stipulate that new construction must maintain pre-project hydrology and incorporate proper pollutant source controls, therefore less than significant impact is anticipated as a result of the regional plan.

The proposed Project features include maintaining existing drainage patterns (BMP HYD-4 and BMP HYD-5) to the extent feasible and developing and implementing an SWPPP (BMP HYD-1) that would prescribe the BMPs necessary to effectively control erosion and sedimentation. Nearby Projects are also anticipated to have a minimal impact on the surface water hydrology and water quality of the surrounding proposed Project area as they are also bound by the region's MRP and subsequent NPDES permits whether traditional or non-traditional permittees and must maintain drainage patterns to the fullest extent possible and implement both temporary and permanent BMPs should there be any increases to the impervious surface area greater than 5,000 square feet. Through effective management and control measures and compliance with the CGP and municipal/regional NPDES permits, project features would avoid substantial temporary impacts on drainage patterns and stormwater runoff. In combination with other projects, the proposed Project would not have a significant cumulative impact with respect to surface waters.

## Groundwater

**Less Than Significant Impact with Mitigation Incorporated.** No cumulative temporary or permanent impacts related to groundwater are anticipated during construction or operations of the proposed Project in combination with nearby current and proposed projects because regulatory standards (e.g., Sustainable Groundwater Management Act and local well ordinances) and conditions of individual project approvals (e.g., CWA § 401, § 404) would minimize impacts on groundwater associated with construction. On this basis the proposed Project would not result in cumulatively considerable contributions to construction or operational impacts on groundwater under CEQA; therefore, CEQA does not require any mitigation.

As detailed under Project D-1: Plan Bay Area 2050, nearby planned development and transportation projects throughout the proposed Project RSA would result in construction of new impervious surfaces, dewatering, and subsurface construction activities, which would affect both groundwater quantity and quality. Many of the planned development projects are anticipated to increase the imperviousness of the RSA. New impervious surfaces associated with planned development would result in potential impacts on groundwater recharge by minimizing opportunities for infiltration. Further, many of these planned developments are entirely in areas designated for groundwater recharge in the Santa Clara Subbasin. Projects that propose to widen existing roadways and modify existing roadway interchanges and new transit centers are anticipated to result in new impervious surfaces.

The increase in impervious surfaces from planned development of nearby projects, would affect groundwater in the RSA. Planned development is expected to comply with existing laws, regulations, and agencies that protect groundwater resources, including the SGMA. Groundwater sustainability plans prepared under or consistent with the SGMA for the Santa Clara subbasin would provide a pathway for sustainable groundwater management by 2040.

## Floodplains

**Less Than Significant Impact with Mitigation Incorporated.** No temporary or permanent cumulative impacts related to floodplains are anticipated during construction of the proposed Project in combination with nearby current and proposed projects because regulatory standards (e.g., National Flood Insurance Act with local floodplain management ordinances), conditions of individual project approvals (e.g., permits from local floodplain managers and coordination with the USACE), and implementation of BMPs (HYD-1 through HYD-9) and mitigation (Biological Resources

MMs, HYD-1 and HYD-2) would avoid substantial impacts on floodplains associated with construction.

The Cumulative Project List includes numerous residential and transportation projects. Many of these projects are within or adjacent to 100-year floodplains delineated by FEMA. These projects could include the construction or modification of existing culverts, bridges, roadways, structures, and other temporary and permanent impacts within existing 100-year floodplains. Such improvements could require the placement of temporary and permanent fill inside of floodplains and floodways, which can alter existing WSE, footprints, and peak flows of 100-year floodplains. Development of the projects included in the Project List is anticipated to comply with floodplain management regulations that minimize impacts on floodplains, or these projects would include various forms of mitigation to address impacts on floodplains. Projects of note within the proposed Project RSA that may require coordination are listed below.

- **T-7: Interstate 880 Interchange Improvements (Whipple Road/Industrial Parkway Southwest and Industrial Parkway West).** This project proposes improvements along I-880 from 0.6 miles south of the I-880/Whipple Road-Industrial Parkway Southwest Interchange to 0.3 miles north of the I-880/Industrial Parkway West Interchange within the cities of Hayward and Union City. Improvements would include interchange on- and off-ramp reconfigurations, modifications and/or replacement of bridge structures, local roadway realignments and restriping, and bicycle and pedestrian improvements. Potential floodplain impacts from this project would result from the realignment of approximately 1,000 linear feet of the Zone 3A Line D channel. Less than significant impacts are anticipated from this realignment as the realigned portion of the channel would remain earthen and similar in size to the existing dimensions. Coordination with ACFCD would be recommended during the construction of both projects to limit any potential cumulative impacts (**BMP UT-1: Utility Verification and Coordination with Utility Providers and CPUC)**.
- **T-10: State Route 84 Intermodal Bus Facility.** This project proposes the construction of an Intermodal Bus Facility to be located on SR-84 near the Ardenwood Park and Ride Facility to improve access and travel times for regional buses along the SR-84 corridor. Improvements include construction of westbound and eastbound bus stop platforms on SR-84. The SR-84 Intermodal Bus Facility project is located within the cities of Fremont and Newark and crosses UPRR ROW along the Coast Subdivision for the proposed Project. The SR-84 project would be adjacent to and potentially impact a ACFCD channel within the Newark Slough watershed. Both projects are being sponsored by CCJPA and coordination would be recommended to limit any potential cumulative impacts (**BMP UT-1: Utility Verification and Coordination with Utility Providers and CPUC)**.

Mitigation strategies for the proposed Project crossings (MM HYD-1), balancing cut and fill within the proposed Project floodplains, addition of underground storage, and implementation of flood protection plans, among others, are listed and described in Section 3.11.5. With the implementation of these mitigation measures, as well as BMPs HYD-1 through HYD-9, no cumulative permanent impacts to the floodplains are anticipated by the proposed Project.

Given the proposed Project features and mitigation proposed by the proposed Project to address the proposed Project impacts to surface water quality, groundwater, and floodplains, the proposed Project would not contribute to a significant cumulative impact in combination with nearby Projects. Given the proposed mitigation measures (Section 3.11.5) for the proposed Project, it would not

result in cumulatively considerable contributions to construction or operational impacts on floodplains under CEQA; therefore, CEQA does not require any additional mitigation specifically to address cumulative impacts.

## 3.11.9 CEQA Significance Findings Summary Table

Table 3.11-22 summarizes the hydrology and water quality impacts of the proposed Project.

**Table 3.11-22. Hydrology Impacts Summary**

| Impact | Level of Significance Before Mitigation | Incremental Project Contribution to Cumulative Impacts | Mitigation | Level of Significance with Mitigation Incorporated | Incremental Project Cumulative Impact after Mitigation |
|---|---|---|---|---|---|
| **(a) Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?** | SI | NCC | MM HYD-2 | S/M | NCC |
| **(b) Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such the project may impede sustainable groundwater management of the basin?** | SI | NCC | MM HYD-2 | S/M | NCC |
| **c) Would the project 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:**<br>**(i) result in a substantial erosion or siltation on- or off-site?** | LTS | NCC | N/A | LTS | NCC |
| **(ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site?** | SI | NCC | MM HYD-1 | S/M | NCC |

**Table 3.11-22. Hydrology Impacts Summary**

| Impact | Level of Significance Before Mitigation | Incremental Project Contribution to Cumulative Impacts | Mitigation | Level of Significance with Mitigation Incorporated | Incremental Project Cumulative Impact after Mitigation |
|---|---|---|---|---|---|
| **(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** | LTS | NCC | N/A | LTS | NCC |
| **(iv) impede or redirect flood flows?** | NI | NCC | N/A | NI | NCC |
| **d) Would the project in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?** | LTS | NCC | N/A | LTS | NCC |
| **e) Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?** | LTS | NCC | N/A | LTS | NCC |

*Notes: LTS = Less than Significant Impact, NI = No Impact, N/A = Not Applicable, SI = Significant Impact, S/M = Significant Impact but Mitigable to a Less than Significant Level, CC = Cumulatively Considerable, NCC = Not Cumulatively Considerable.*

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# 3.12 Land Use and Planning

## 3.12.1 Introduction

This section describes the regulatory setting and affected environment for land use designations and planning characteristics in the land use and planning RSA, and describes the potential impacts on land use and planning during construction and operation of the proposed Project. This section also identifies the potential for cumulative impacts of the proposed Project on land use and planning resources when considered in combination with other relevant projects.

## 3.12.2 Regulatory Setting

This section identifies the applicable federal, state, regional, and local laws, regulations, and orders that are relevant to the analysis of land use and planning. This section also addresses the proposed Project's consistency with the regulations described herein.

Federal, state, regional, and local regulations provide guidance for conducting land use impact analyses. Specific federal land use regulations apply to federally owned, federally controlled, or federally protected lands, areas, or parcels. Because there are minimal federal lands, areas, or parcels within the immediate vicinity of the proposed Project, the following discussion focuses primarily on state, regional, and local laws, regulations, and orders that are relevant to the proposed Project.

Land use is regulated primarily at regional and local levels in accordance with state planning and zoning laws, Government Code Section 65000 et seq. For the proposed Project, the Alameda County Transportation Commission (Alameda CTC) defines the regional vision and planning principles (such as integrating land use and transportation) but does not have land use approval authority. Alameda County and the cities within the RSA define and regulate local land uses through their general plans, community plans, and zoning. These agencies' plans and policies regulate the types of uses allowed and the intensity of development permitted on public and private property.

Corridor projects, such as the proposed Project, can influence the timing, layout, demographics, and intensity of local land uses in communities and neighborhoods over time, although these changes must be approved by the local land use authority. These changes often occur near stations and result in beneficial or adverse physical and indirect impacts. Such projects, however, rarely cause substantial changes in land use character of the region.

### 3.12.2.1 Federal

#### Americans with Disabilities Act of 1990

The ADA prohibits the discrimination of people with disabilities in several areas, which includes transportation and public accommodations. While the ADA is not directly within the scope of land use and planning regulations, the proposed Project would include at-grade crossing improvements to comply with the ADA.

## 3.12.2.2 State

### 2018 California State Rail Plan

The 2018 California State Rail Plan is a plan to strategize the state's operational and capital investments toward its statewide travel system. The 2018 California State Rail Plan is considered an important element in the comprehensive planning and analysis of statewide transportation investment strategies illustrated in the California Transportation Plan 2040. Specifically, the 2018 California State Rail Plan calls for rerouting passenger rail service from the Niles Subdivision to the Coast Subdivision and rerouting freight operations from the Coast Subdivision to the Niles Subdivision to facilitate faster travel times. Although considered in the 2018 California State Rail Plan, the proposed Project does not reroute freight services, but does reroute Capitol Corridor passenger rail service to the Coast Subdivision.

### California Transportation Plan 2040

The California Transportation Plan 2040 is a plan that outlines the goals and recommendations to achieve a vision for a safe, sustainable, universally assessable, and globally competitive transportation system in order to provide reliable and efficient mobility for people, goods, and services. The California Transportation Plan 2040 will also concurrently help the state to meet its greenhouse gas emission reduction goals and preserve the unique character of communities within the state. The California Department of Transportation recently completed the updated California Transportation Plan 2050; however, the California Transportation Plan 2040 is utilized in order to be analyzed in parallel with the 2018 California State Rail Plan.

### California State Planning and Zoning Law (Gov. Code 65000 to 66037)

The California State Planning and Zoning Law delegates most of the state's local land use and development decisions to the respective city or county and describes the laws that pertain to the land use regulations set by the local government's general plan requirements, specific plans, and zoning.

### California Sustainable Communities and Climate Protection Act (Senate Bill [SB] 375, Chapter 728)

The California Sustainable Communities and Climate Protection Act, or SB 375, requires regional planning agencies to develop sustainable communities strategies and/or relevant regional land use plans in order to meet the greenhouse gas emissions reduction goals set by the California Global Warming Solutions Act, or AB 32. These strategies address the reduction of VMT by the development of shortened and more efficient travel.

### San Francisco Bay Conservation and Development Commission

The San Francisco Bay Conservation and Development Commission (BCDC) is a state planning and regulatory agency, with regional authority over the San Francisco Bay, the Bay's shoreline band, and the Suisun March. The BCDC's authority derives from the following statute:

- **McAteer-Petris Act (Gov. Code 66600-66694)**: Under the McAteer-Petris Act, the jurisdiction of the BCDC of the San Francisco Bay includes the San Francisco Bay itself (including all areas that are subject to tidal actions), a shoreline band of land extending inland for 100 feet from the

shoreline of the San Francisco Bay, salt ponds, managed wetlands, and certain waterways consisting of all areas that are subject to tidal action on named tributaries that flow into the Bay.

### 3.12.2.3 Regional

#### Plan Bay Area 2050

The Plan Bay Area 2050 is a 30-year plan that connects the elements of housing, economy, transportation, and environment through 35 strategies that will make the Bay Area more equitable for residents and resilient toward unexpected challenges. It provides action items for the MTC, ABAG, and several partner organizations to follow in order to meet the goals outlined in the Plan Bay Area 2050. The proposed Project is a key element toward the Plan Bay Area 2050's goals and objectives (MTC 2021).

#### 2020 Alameda Countywide Transportation Plan

The 2020 Alameda Countywide Transportation Plan (2020 CTP) establishes near-term priorities, projects, programs, and strategic priorities and guides long-term decision-making for the Alameda CTC. The 2020 CTP establishes a vision for Alameda County's residents, businesses, and visitors through a connected and integrated multimodal transportation system that supports vibrant and livable communities. The CTP is updated every four years to accommodate changing conditions and demands on existing transportation systems with the current 2020 CTP covering transportation projects, policies, and programs out to 2050.

The 2020 CTP includes two companion documents: the Community-Based Transportation Plan and the New Mobility Roadmap. The Community-Based Transportation Plan is an assessment of transportation needs in Alameda County's low-income communities and communities of color with a focus on input collected via community engagement activities. The New Mobility Roadmap provides a foundation for agency policy, advocacy, and funding decisions to advance new mobility technologies and services for the Alameda CTC and partner agencies, as well as the private sector. The New Mobility Roadmap contains seven initiatives, each of which has a list of potential actions that could be taken to address and implement new mobility technologies and services in Alameda County. Specific goals and policies as applicable to the proposed Project are identified in Table 3.12-3 in Section 3.12.6.2.

#### Alameda Countywide Transit Plan

In 2016, the Alameda CTC developed the Alameda Countywide Transit Plan (2016 Alameda CTP) in close coordination with local transit providers and local jurisdictions to better align transit needs with land use characteristics, commuting patterns, population density, population growth, and economic conditions. The 2016 Alameda CTP identifies near-term and long-term transit capital and operating priorities aimed at creating a transit system that is dependable, easy to use, safe, affordable, and competitive with travel by other modes. Specific goals and policies as applicable to the proposed Project are identified in Table 3.12-3 in Section 3.12.6.2.

#### County of Alameda Eden Area General Plan

Chapter 3, Land Use Element, of the County of Alameda Eden Area General Plan (County of Alameda 2010) includes the following policies that are relevant to the proposed Project:

- **Goal LU-7.** Create attractive Corridors with a mix of uses throughout the Eden Area.
    - **Policy P7.** Public transit amenities shall be included, where appropriate, with the approval of new development project.
    - **Policy P8.** New projects should maintain and strengthen pedestrian connections to major transit facilities such as ABRT, Amtrak, and bus stops.
- **Goal LU-12.** Improve the visual quality of the Eden Area.
    - **Policy P1.** The County should not approve projects that have a substantial adverse effect on scenic vistas, substantially damage scenic resources, or substantially degrade the existing visual character or quality of the Eden Area.
- **Goal LU-17.** Preserve and improve air quality in the Eden Area.
    - **Policy P1.** New development projects shall be analyzed in accordance with the BAAQMD CEQA Guidelines. Appropriate mitigation measures to reduce vehicle trips and vehicle miles traveled should be applied to projects.
    - **Policy P2.** New development that would emit air toxic contaminants or odors shall provide adequate buffers and screening to protect sensitive land uses from unhealthy levels of air pollution or objectionable odors.

## 3.12.2.4 Local

### City of Fremont General Plan

The City of Fremont General Plan establishes a 25-year vision for the city and sets the foundation for how the auto-oriented suburb can evolve into a sustainable, strategically urban modern city. The goals and priorities identified in the City of Fremont General Plan are aimed at encouraging a flourishing downtown, increasing jobs to match an increasing resident workforce, developing pedestrian-oriented commercial districts and transit-oriented development, and meeting climate change objectives for the future. Specific goals and policies as applicable to the proposed Project are identified in Table 3.12-3 in Section 3.12.6.2 (City of Fremont 2011).

### City of Hayward General Plan

The City of Hayward 2040 General Plan establishes a community-based vision for the future of the City and establishes goals, policies, and programs to help the city and its community achieve the vision. To accommodate future population and employment growth, the City of Hayward 2040 General Plan contains goals and policies aimed at smart growth and sustainability in improving, revitalizing, and developing land uses that create a healthy balance between a manufacturing-based economy and an information- and technology-based economy. Specific goals and policies as applicable to the proposed Project are identified in Table 3.12-3 in Section 3.12.6.2 (City of Hayward 2021).

### City of Newark General Plan

The City of Newark General Plan provides the City's official goals, policies, and actions on land use, transportation, housing, natural resources, parks, environmental hazards, economic development, public health, and community services. The City of Newark General Plan establishes a 20- to 25-year

vision for the City of Newark that will guide future growth and conservation. The City of Newark General Plan is intended to help respond to changes in technology, transportation, demographics, the environment, and the economy during the coming decades. Specific goals and policies as applicable to the proposed Project are identified in Table 3.12-3 in Section 3.12.6.2 (City of Newark 2013).

### City of Oakland General Plan

The City of Oakland General Plan focuses on community priorities, values, and includes supporting goals, policies, and implementation measures to achieve the City of Oakland's vision for housing, jobs, and public facilities. Specific goals and policies as applicable to the proposed Project are identified in Table 3.12-3 in Section 3.12.6.2 (City of Oakland 1998).

### City of San Leandro General Plan

The City of San Leandro General Plan contains and establishes the vision for the City's future over the next 20 years. The City of San Leandro General Plan identifies those areas of the city where change will be encouraged and those areas where the existing land use pattern will be maintained and enhanced. These policies and strategies include meeting the transportation challenges of the future via an efficient multimodal transportation system. Specific goals and policies as applicable to the proposed Project are identified in Table 3.12-3 in Section 3.12.6.2.

Union City 2040 General Plan (City of Union City 2019) provides the long-term vision for the physical, economic, and social evolution in Union City and outlines the policies, standards, and programs to guide city development decisions. Specific goals and policies as applicable to the proposed Project are identified in Table 3.12-3 in Section 3.12.6.2.

### San Lorenzo Village Center Specific Plan

The San Lorenzo Village Center Specific Plan provides guidance for future public and private actions within the San Lorenzo Census Designated Place (CDP) area. The Specific Plan describes the County's development policies and regulations but does not include pertinent land use goals and policies as they relate to the proposed Project (San Lorenzo CDP 2004).

### California Nursery Historical Park Master Plan

The primary purpose of the California Nursery Historical Park Master Plan is to tell the story of the California Nursery Company to current and future generations through the sharing of the site's remaining historic buildings and arboricultural resources. The Master Plan aims to provide a tangible, long-term planning tool to increase activity at the site and to generate income to support ongoing maintenance and operations for future generations (City of Fremont 2017).

## 3.12.2.5 Other Guidance

### 2016 Capitol Corridor Vision Implementation Plan

The 2016 Capitol Corridor Vision Implementation Plan is a plan for the implementation of capital improvements that are needed in order to accommodate future trends such as population increase, business demands, and climate change trends. The Plan also calls for relocating the Capitol Corridor service between Oakland and Newark to the Coast Subdivision to provide a shorter and more direct

route from Oakland to San Jose. The proposed Project is a key element toward the Plan's goals and objectives.

### 2014 Capitol Corridor Vision Plan Update

The 2014 Capitol Corridor Vision Plan Update outlines the long-term investment strategies and options for improving the speed and reliability of Capitol Corridor. It also addresses the effects of climate change and sea-level rise. The proposed Project is a key element toward the Plan's goals and objectives.

### 3.12.2.6 Consistency with Plans, Policies, and Regulations

Section 15125(d) of the CEQA Guidelines requires an EIR to discuss "any inconsistencies between the proposed Project and applicable general plans, specific plans, and regional plans." Applicable plans, policies, and regulations were considered during the preparation of this analysis and were reviewed to assess whether the proposed Project would be consistent with the plans of relevant jurisdictions. A detailed evaluation of consistency with applicable plans, policies, and regulations is provided in Table 3.12-3 in Section 3.12.6.2.

## 3.12.3 Methods for Evaluating Environmental Impacts

This section defines the RSA for land use and planning and describes the methods used to analyze land use and planning impacts within the RSA. A desktop analysis was completed to collect and analyze data related to land use and planning characteristics in the RSA, including land use designations and zoning data. Geographic information system (GIS) data and aerial imagery were utilized in order to identify the land uses that encompass the RSA. The following methods were utilized to evaluate the potential impacts from construction and operation of the proposed Project on land use designations:

- The GIS data, aerial imagery, and static and interactive maps were utilized in order to pinpoint the land use designations and zoning within the RSA.
- Analysis of construction methods, rights-of-way, and staging areas and their potential to divide established communities.
- Analysis of the proposed Project's consistency with the requirements of plans, policies, and regulations listed in the regulatory setting of the technical memorandum.

The analysis of environmental effects focuses on foreseeable changes to the existing land use and planning characteristics in the context of effects listed in Section 3.12.3, *Methods for Evaluating Environmental Impacts*. The analysis of land use and planning characteristics considers the potential for the proposed Project to affect any land use designation by physically dividing a community and/or causing conflict with any relevant land use plans, policies, and regulations.

### 3.12.3.1 Resource Study Area

As defined in Section 3.1, Introduction, RSAs are the geographic boundaries within which the environmental analyses specific to each resource topic were conducted.

The RSA for land use and planning encompasses the areas directly and indirectly affected by the construction and operation of the proposed Project, which is defined as the Project footprint plus a

quarter-mile buffer to account for potential indirect impacts on land use. See Figure 3.12-1 and Figure 3.12-2.

The land use and planning RSA includes the cities of San Leandro, Oakland, Hayward, Union City, Fremont, and Newark, and the CDP of San Lorenzo. The land use and planning RSA also includes the area surrounding the Ardenwood Station improvements, areas that would have the installation of siding tracks, all areas with at-grade crossing improvements, and new grade separation structures.

### 3.12.3.2 Data Sources

Data were collected using GIS maps, which provide land use designation and zoning information for each respective jurisdiction. If a jurisdiction did not have a GIS map available, a static land use designation or zoning map was utilized and found via the respective general plan. In addition to the GIS maps, aerial imagery and project construction methods were utilized in order to analyze land use impacts from the proposed Project. The following GIS resources were utilized for data collection:

- City of Fremont eGIS Public Map (City of Fremont 2021).
- City of Hayward Web Map (City of Hayward 2021).
- City of Oakland Planning and Zoning Map (City of Oakland 2021).
- City of San Leandro Interactive Zoning Map (City of San Leandro 2021).
- City of Union City Community View GIS Map (City of Union City 2021).

Additionally, the following key resources were utilized for data collection and for determining significance associated with the potential for conflict with applicable land use plans, policies, or regulations:

- City of Fremont General Plan (which includes the community of Ardenwood).
- City of Hayward General Plan.
- City of Oakland General Plan.
- City of Newark General Plan and Land Use Designation Map.
- City of San Leandro General Plan.
- City of Union City General Plan.
- San Lorenzo CDP Specific Plan.
- Alameda County Housing Element.
- California Nursery Historical Park Master Plan.

**Figure 3.12-1. Land Use and Planning Resource Study Area**

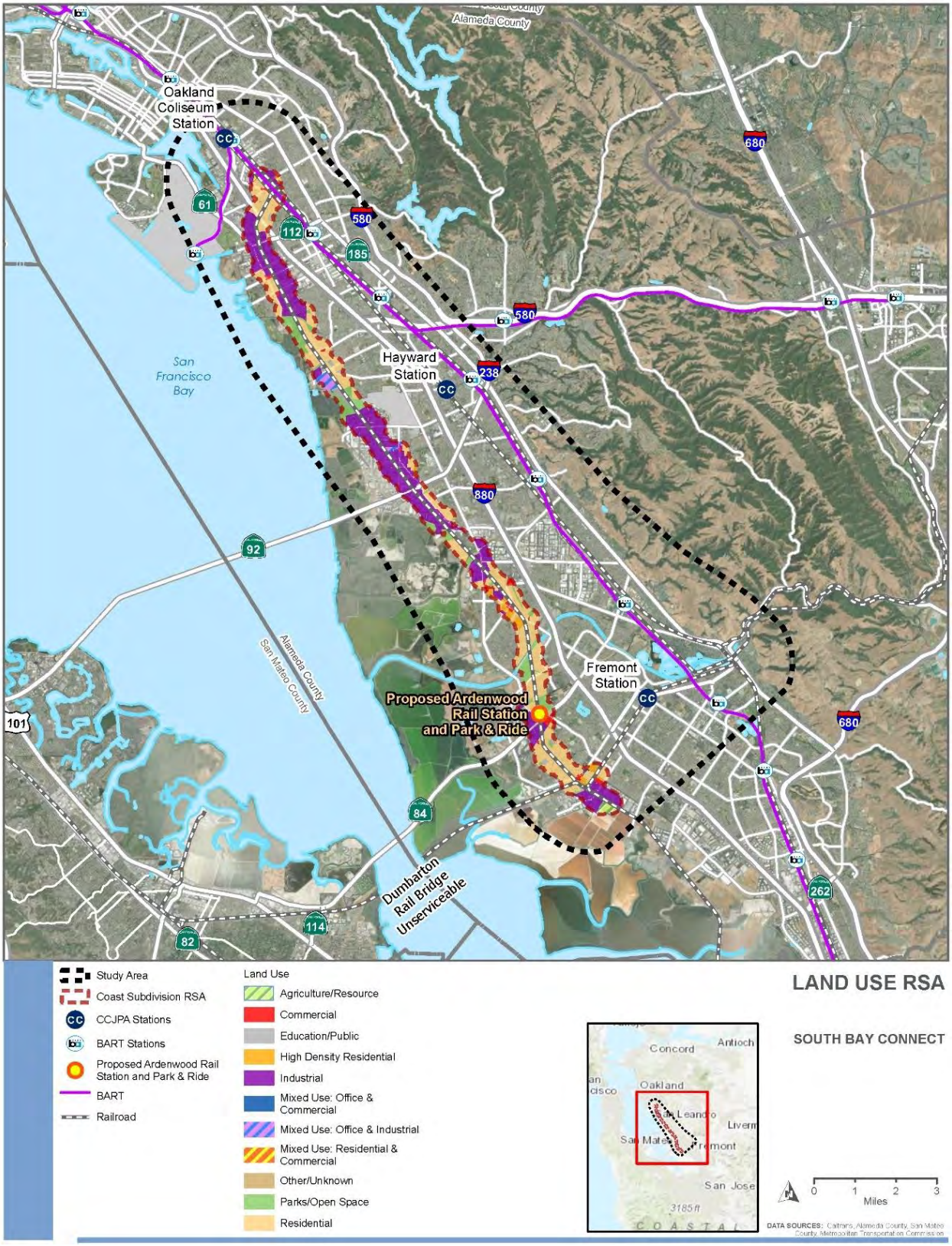
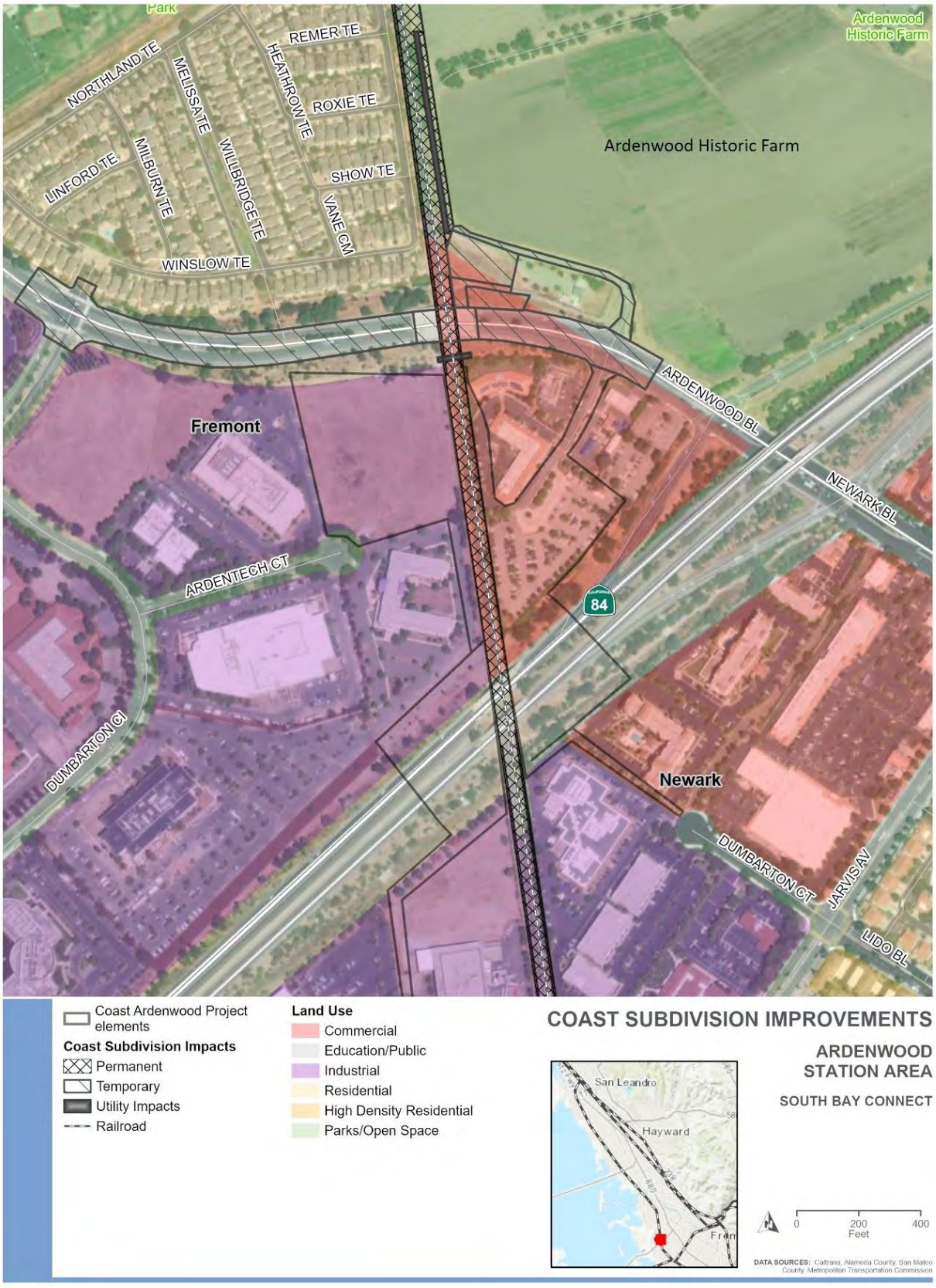


**Figure 3.12-2: Land Uses Adjacent to Proposed Ardenwood Station**



### 3.12.3.3 CEQA Thresholds

To satisfy CEQA requirements, land use and planning impacts were analyzed in accordance with Appendix G of the CEQA Guidelines. According to the CEQA Guidelines, CCR, Title 14, Section 15002(g), "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project. "As stated in CEQA Guidelines Section 15064(b)(1), the significance of an activity may vary with the setting. The impact analysis identifies and analyzes construction (short-term) and operation (long-term) impacts, as well as direct and indirect impacts (see PRC Section 21065). The proposed Project would have significant land use and planning impacts under CEQA if it would:

a. Physically divide an established community; or

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.

Potential land use effects during construction and operation of the proposed Project were evaluated by identifying Project elements that have the potential to introduce new physical barriers that would physically divide existing communities. The land use analysis also examined the proposed Project compatibility with existing land uses within the RSA and the proposed Project's consistency with applicable goals, objectives, and policies of adopted plans of the regional and local jurisdictions in which the proposed Project is located, as identified in Table 3.12-3 in Section 3.12.6.2. Land use impacts were qualitatively analyzed based on land use and planning information gathered and presented for existing conditions.

## 3.12.4 Affected Environment

### 3.12.4.1 Environmental Setting

#### Regional Setting

The proposed Project is located in Alameda County. Within the RSA, the jurisdictions are the cities of Fremont, Hayward, Oakland, Newark, San Leandro, and Union City as well as the CDP of San Lorenzo. These respective jurisdictions and their land use designations within the Project Study Area are discussed in the Local Setting below. At the regional level, existing land uses within the RSA vary widely in character and density with the Coast Subdivision and Niles Subdivision tracks highly constrained by the existing built environment. The rail corridors travel through heavy and light industrial uses, factories and storage areas, commercial uses, low-, medium-, and high-density residential uses, recreational uses, and areas of designated open space.

#### Local Setting

The discussion below provides an overview of the general plan land use designations for the proposed Project by jurisdiction.

##### City of Fremont

Within the City of Fremont's jurisdiction, the proposed Project falls within commercial, industrial, residential, public facility, open space, and railroad/right-of-way (ROW) land use designations.

### City of Newark

Within the City of Newark's jurisdiction, the proposed Project falls within resource production, industrial (limited, special, and general), open space conservation, parks and recreational facilities, residential (low density, low-medium density, medium density, and high density), public institutional, and commercial (neighborhood, community, commercial mixed, office, and regional) land use designations.

### City of Union City

Within the City of Union City's jurisdiction, the proposed Project falls within single-family residential, multifamily residential, public, public utilities, parks and recreation, open space agriculture, mixed-use, industrial, and commercial land use designations.

### City of Hayward

Within the City of Hayward's jurisdiction, the proposed Project falls within industrial technology and innovation corridor, mixed industrial, residential (rural estate density, suburban density, low density, mobile home park, limited medium density, medium density, and high density), retail and office commercial, general commercial, mixed-use, public, parks and recreation, baylands, and limited open space land use designations.

### City of San Leandro

Within the City of San Leandro's jurisdiction, the proposed Project falls within commercial, mixed-use, industrial, open space, professional office, public and semipublic, and residential (multifamily, single-family, outer) land use designations.

### City of Oakland

Within the City of Oakland's jurisdiction, the proposed Project falls within general industry and transportation, light industry, resource conservation, regional commercial, business mix, urban park and open space, mixed housing residential, detached unit residential, hillside residential, urban residential, community commercial, and institutional land use designations.

## 3.12.5 Best Management Practices

As noted in Chapter 2, Project Alternatives, CCJPA would incorporate a range of BMPs to avoid and minimize adverse effects on the environment that could result from implementation of the Proposed Project. BMPs are included in the Proposed Project description, and the impact analyses were conducted assuming application of these practices. The BMPs relevant to land use and planning are listed below. Full descriptions of the BMPs are provided in Chapter 2, Project Alternatives.

**BMP TR-1 Transportation Management Plan (TMP).**

## 3.12.6 Environmental Impacts

This section describes the potential environmental impacts on land use and planning as a result of implementation of the proposed Project. Lettering shown within title for each environmental factor below correlates with CEQA Statute and Guidelines, Appendix G table lettering and numbering.

## 3.12.6.1 (a) Would the project physically divide an established community?

### No Project Alternative

**No Impact.** Under the No Project Alternative, the Capitol Corridor passenger rail service between Oakland and San Jose would not be relocated from the Niles Subdivision to the Coast Subdivision. Capitol Corridor passenger trains and UPRR freight trains would continue to operate based on current routes with no changes to connectivity or rail efficiency. Therefore, the No Project Alternative would not result in direct impacts or changes to existing land uses. Areas within the RSA would experience a continuation of current development patterns and trends, but with more limited transit options. In turn, the transportation system may not fully support planned transit-oriented land uses. With the No Project Alternative, development and redevelopment within the RSA would be anticipated to occur pursuant to local land use plans and programs with less focus on proposed station areas and at a much slower rate. Therefore, the No Project Alternative would not result in impacts associated with incompatible local land use and development within the Project Corridor and would not result in the physical division of an established community.

### Proposed Project

#### Construction and Operations

**Less Than Significant Impact.** The proposed Project would not result in direct permanent and temporary impacts to current land uses. Direct permanent impacts to land uses would result from the conversion of existing non-transportation land uses to a transportation or public institutional land use. As such, where changes in land use occur, the applicable city's general plan would require an amendment to reflect the new land use designations. Direct temporary impacts to land uses would occur as a result of staging areas and TCEs needed during the construction phase; however, these temporary impacts would not affect the existing uses located on the impacted properties and the land would be restored to original conditions once construction is complete. Table 3.12-1 provides a summary of permanent ROW acquisitions and TCEs for the proposed Project.

**Table 3.12-1. Proposed Project Acquisitions and Easements Summary**

| Acquisition Type | Proposed Project |
|---|---|
| ***Niles Subdivision*** | |
| **Full Permanent Acquisitions** | 0 |
| **Partial Permanent Acquisitions** | 0 |
| **Temporary Construction Easement** | 0 |
| **Permanent Easement** | 0 |

**Table 3.12-1. Proposed Project Acquisitions and Easements Summary**

| Acquisition Type | Proposed Project |
|---|---|
| ***Coast Subdivision*** | |
| **Full Permanent Acquisitions** | 2 |
| **Partial Permanent Acquisitions** | 79 |
| **Temporary Construction Easement** | 131 |
| **Permanent Easement** | 0 |

The majority of the proposed improvements would occur within or adjacent to the existing UPRR ROW. The Project proposes track improvements, grade-separated crossing improvements, bridge and structure improvements, and new or extended sidings. In addition, the proposed Project would have at-grade crossing work that would include safety improvements for pedestrians, bicyclists, and motorists as well as ADA compliance improvements. Outside of the UPRR ROW, the proposed Project would construct a new passenger rail station adjacent to the existing Ardenwood Park & Ride facility, along the Coast Subdivision. A pedestrian overcrossing is proposed to allow access from the existing Ardenwood Park & Ride on the east side of Coast Subdivision and from the west side of the Coast Subdivision (where a proposed station parking facility is located) to the passenger train platforms. A second pedestrian overcrossing is proposed south of SR-84 to allow access to the new Ardenwood Station from adjacent business and commercial areas. The proposed parking facility supports the anticipated increase in rail service as a result of the new station and would accommodate overflow parking at the existing Ardenwood Park & Ride facility. The proposed parking facility would be constructed within an industrial area and adjacent to industrial and commercial land uses. Table 3.12-2 provides a summary of the permanent ROW acquisitions for the proposed Project.

**Table 3.12-2. Proposed Project Permanent Right-of-Way Acquisitions**

| Assessor Parcel Number (APN) | Existing Land Use | Jurisdiction | Permanent Right-of-Way Acquisition (Full or Partial) |
|---|---|---|---|
| ***Niles Subdivision*** | | | |

No partial or full permanent right-of-way acquisitions would be required on the Niles Subdivision.

**Table 3.12-2. Proposed Project Permanent Right-of-Way Acquisitions**

| Assessor Parcel Number (APN) | Existing Land Use | Jurisdiction | Permanent Right-of-Way Acquisition (Full or Partial) |
|---|---|---|---|
| ***Coast Subdivision*** | | | |
| 439-10-11-1 | Industrial Light/Manufacturing | Hayward | Partial |
| 439-10-12-1 | Warehouse | Hayward | Partial |
| 439-10-13-2 | Warehouse | Hayward | Partial |
| 439-10-14 | Industrial Light/Manufacturing | Hayward | Partial |
| 439-10-31-1 | Warehouse | Hayward | Partial |
| 439-10-44-3 | Warehouse | Hayward | Partial |
| 439-10-6-4 | Industrial Light/Manufacturing | Hayward | Partial |
| 439-10-9-3 | Industrial Light/Manufacturing | Hayward | Partial |
| 439-13-1 | Industrial Light/Manufacturing | Hayward | Partial |
| 439-13-2 | Warehouse | Hayward | Partial |
| 439-13-26 | Exempt Public Agency | Hayward | Partial |
| 439-13-27 | Exempt Public Agency | Hayward | Partial |
| 439-20-11-3 | Exempt Public Agency | Hayward | Partial |
| 439-20-17 | Warehouse | Hayward | Partial |
| 439-20-2-3 | Warehouse | Hayward | Partial |
| 439-20-2-4 | Heavy industrial | Hayward | Partial |
| 439-20-3-2 | Heavy industrial | Hayward | Partial |

**Table 3.12-2. Proposed Project Permanent Right-of-Way Acquisitions**

| Assessor Parcel Number (APN) | Existing Land Use | Jurisdiction | Permanent Right-of-Way Acquisition (Full or Partial) |
|---|---|---|---|
| 439-20-4-8 | Misc. industrial | Hayward | Partial |
| 456-95-10-7 | Exempt Public Agency | Union City | Partial |
| 456-95-16 | Property owned by a public utility | Union City | Full |
| 456-95-17-9 | Medical - Dental building | Union City | Partial |
| 456-95-7 | Property owned by a public utility | Union City | Full |
| 461-35-5-2 | Exempt Public Agency | Hayward | Partial |
| 463-91-118 | Property owned by a public utility | Union City | Partial |
| 463-91-92 | Property owned by a public utility | Union City | Partial |
| 463-91-93 | Vacant residential land, zoned 4 units or less | Union City | Partial |
| 463-94-44 | Property owned by a public utility | Union City | Partial |
| 482-96-16-1 | Vacant industrial land | Union City | Partial |
| 483-102-163-5 | Townhouse - Planned Development, Common Area or use | Union City | Partial |
| 483-103-213-2 | One-story store | Union City | Partial |
| 483-5-1 | Exempt Public Agency | Union City | Full |
| 537-460-14 | Heavy industrial | Newark | Partial |

**Table 3.12-2. Proposed Project Permanent Right-of-Way Acquisitions**

| Assessor Parcel Number (APN) | Existing Land Use | Jurisdiction | Permanent Right-of-Way Acquisition (Full or Partial) |
|---|---|---|---|
| 537-460-15 | Heavy industrial | Newark | Partial |
| 537-460-26 | Industrial Light/Manufacturing | Newark | Partial |
| 537-460-27 | Warehouse | Newark | Partial |
| 537-460-6-11 | Exempt Public Agency | Newark | Partial |
| 537-460-6-8 | Exempt Public Agency | Fremont | Partial |
| 537-460-6-9 | Exempt Public Agency | Fremont | Partial |
| 537-521-14 | Industrial Light/Manufacturing | Newark | Partial |
| 537-521-15 | Industrial Light/Manufacturing | Newark | Partial |
| 537-521-1-8 | Exempt Public Agency | Newark | Partial |
| 537-521-2-30 | Exempt Public Agency | Newark | Partial |
| 537-521-31 | Exempt Public Agency | Fremont | Partial |
| 537-521-32 | Exempt Public Agency | Fremont | Partial |
| 537-521-33-1 | One-story store | Fremont | Partial |
| 537-521-34 | School | Fremont | Partial |
| 537-521-45 | Hotel | Newark | Partial |
| 537-521-46 | Hotel | Newark | Partial |
| 537-751-7-1 | Heavy industrial | Newark | Partial |
| 537-751-8 | Heavy industrial | Newark | Partial |

**Table 3.12-2. Proposed Project Permanent Right-of-Way Acquisitions**

| Assessor Parcel Number (APN) | Existing Land Use | Jurisdiction | Permanent Right-of-Way Acquisition (Full or Partial) |
|---|---|---|---|
| 543-201-4-1 | Property owned by a public utility | Union City | Partial |
| 543-211-10 | Property owned by a public utility | Union City | Partial |
| 543-226-1-3 | Exempt Public Agency | Fremont | Partial |
| 543-226-1-9 | Property owned by a public utility | Fremont | Partial |
| 543-236-1-1 | Exempt Public Agency | Fremont | Partial |
| 543-236-1-10 | Exempt Public Agency | Fremont | Partial |
| 543-236-1-3 | Property owned by a public utility | Fremont | Partial |
| 543-406-117 | Church | Fremont | Partial |
| 543-408-138 | Single family residential (tract) common area or use | Fremont | Partial |
| 543-409-15 | Single-family residential (tract) common area or use | Fremont | Partial |
| 543-439-143 | Industrial Flex/R&D use | Fremont | Partial |
| 543-439-144 | Vacant industrial land | Fremont | Partial |
| 543-439-145 | Other institutional property | Fremont | Partial |
| 543-450-233 | SFR - Planned Development Tract, Common Area or use | Fremont | Partial |
| 543-476-7 | SFR - Planned Development Tract, Common Area or use | Fremont | Partial |

**Table 3.12-2. Proposed Project Permanent Right-of-Way Acquisitions**

| Assessor Parcel Number (APN) | Existing Land Use | Jurisdiction | Permanent Right-of-Way Acquisition (Full or Partial) |
|---|---|---|---|
| 77A-644-10 | Property owned by a public utility | San Leandro | Partial |
| 77A-644-2-3 | Heavy industrial | San Leandro | Partial |
| 77A-646-34 | Warehouse | San Leandro | Partial |
| 77B-851-65 | Industrial Light/Manufacturing | San Leandro | Partial |
| 77B-851-72 | Vacant industrial land | San Leandro | Partial |
| 79A-395-2-28 | Warehouse | San Leandro | Partial |
| 79A-395-3 | Property owned by a public utility | San Leandro | Partial |
| 92-155-6 | Exempt Public Agency | Newark | Partial |
| 92-64-11 | Exempt Public Agency | Newark | Partial |
| 92A-621-55 | Exempt Public Agency | Newark | Partial |
| 92A-621-56 | Exempt Public Agency | Newark | Partial |

*Source: HDR Right-of-way Impact Tables (December 2023), HNTB Right-of-way Impact Tables (December 2023)*

Construction activities associated with the proposed Project would also result in temporary impacts to circulation within the RSA due to temporary lane closures, road detours, and access restrictions. These construction activities would cause temporary traffic delays for local residents, businesses, and commuters. Construction staging areas would be located primarily within UPRR ROW and within identified construction limits throughout the RSA to provide work areas and construction access, as well as locations to store equipment and materials. Both temporary staging and TCE areas would be returned and restored to pre-construction conditions once the Project construction is completed.

The preparation and adoption of a construction road traffic control plan (**BMP TR-1: Transportation Management Plan**) would include strategies to reduce potential impacts from street or lane closures and detours during construction activities. It would also include strategies that would maintain local circulation and traffic flow and limit any pedestrian and bicycle transit

access closures. Construction activities would be temporary and would cease after construction is complete, and alternative routes for any existing sidewalks would be provided during construction to maintain connectivity. Therefore, with the implementation of **BMP TR-1**, the proposed Project would not result in permanent or temporary impacts to public access that would create a barrier or permanent disruption in connectivity within the RSA. Impacts would be considered less than significant and no mitigation is required.

As previously stated, the majority of the proposed improvements would occur within or adjacent to the existing UPRR ROW. The proposed Project would not require any full parcel acquisitions of residential-zoned property. However, the proposed Project would require a partial parcel acquisition of industrial zoned land adjacent to the Coast Subdivision, which may impact an existing building on site.

As shown in Table 3.12-2, APN 439-10-13-2 is identified as a partial acquisition parcel. This parcel currently contains one business specializing in welding services. While the proposed Project would permanently convert a portion of this existing land use from non-transportation uses to transportation uses, these changes would not physically divide an established community and are not likely to require the relocation of the business elsewhere. If during the course of Project development, it is determined that the partial acquisition of the property would require the relocation of the business, the proposed Project would follow the necessary regulations and would incorporate BMPs during construction work and acquisition as part of the acquisition process. .

With implementation of **BMP TR-1**, these impacts would be less than significant.

### 3.12.6.2 (b) Would the project 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?

Table 3.12-3 provides a detailed evaluation of the proposed Project's consistency with applicable plans, policies, and regulations. CEQA requires that an EIR consider whether the proposed Project would 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. It is important to note that an inconsistency with regional and local plans and policies is not necessarily considered a significant impact under CEQA, unless it is related to a physical impact on the environment that is significant in its own right.

**Table 3.12-3. Consistency with Applicable Plans, Policies, and Regulations**

| Plan, Policies, Regulations | No Project Alternative | Proposed Project |
|---|---|---|
| **2018 California State Rail Plan** | **Inconsistent.** The No Project Alternative would not result in any changes to existing conditions. As a result, the No Project Alternative would not increase transit mode share or increase the effectiveness of inter-regional transit travel along the Project Corridor, while reducing automobile use and traffic congestion. | **Consistent.** The proposed Project intends to improve service by enhancing connections between high-demand destinations and overcoming existing geographic service gaps between job centers and affordable housing. Additionally, the Plan specifically calls for the rerouting of passenger rail service from the Niles Subdivision to the Coast Subdivision to facilitate faster travel times. |
| **California Sustainable Communities and Climate Protection Act** | **Inconsistent.** The No Project Alternative would not result in any changes to existing conditions. As a result, the No Project Alternative would not increase transit mode share or increase the effectiveness of inter-regional transit travel along the Project Corridor, while reducing automobile use and traffic congestion. | **Consistent.** The proposed Project would support the State's climate goals by helping reduce greenhouse gas emissions through coordinated transportation, housing, and land use planning. |
| **California Transportation Plan 2040** | **Inconsistent.** The No Project Alternative would not result in any changes to existing conditions. As a result, the No Project Alternative would not increase transit mode share or increase the effectiveness of inter-regional transit travel along the Project Corridor, while reducing automobile use and traffic congestion. | **Consistent.** The proposed Project intends to improve transit services by creating a more direct passenger rail route and reducing the passenger rail travel time and would promote environmental sustainability by reducing greenhouse gas emissions. |
| **Plan Bay Area 2050** | **Inconsistent.** The No Project Alternative would not result in any changes to existing | **Consistent.** The proposed Project intends to increase ridership on transit, which would |

**Table 3.12-3. Consistency with Applicable Plans, Policies, and Regulations**

| Plan, Policies, Regulations | No Project Alternative | Proposed Project |
|---|---|---|
| | conditions. As a result, the No Project Alternative would not increase transit mode share, increase the effectiveness of inter-regional transit travel, or improve access to work, education, services, and recreation along the Project Corridor, while reducing automobile use and traffic congestion. | ease congestion on roadways. It also intends to improve connections between high-demand destinations. |
| **2014 Capitol Corridor Vision Plan Update** | **Inconsistent.** The No Project Alternative would not result in any changes to existing conditions. As a result, the No Project Alternative would not increase transit mode share, increase the effectiveness of inter-regional transit travel, or improve access to work, education, services, and recreation along the Project Corridor. The No Project Alternative would be inconsistent with the goals of the 2014 Capitol Corridor Vision Plan Update. | **Consistent.** The proposed Project is a key element toward the Plan's policies and objectives to improve the speed and reliability of Capitol Corridor. |
| **2016 Alameda Countywide Transit Plan** | **Inconsistent.** The No Project Alternative would not result in any changes to existing conditions. As a result, the No Project Alternative would not increase transit mode share, increase the effectiveness of inter-regional transit travel, or improve access to work, education, services, and recreation along the Project Corridor. The No Project Alternative would be inconsistent with the goals of the 2016 Alameda CTP. | **Consistent.** The proposed Project intends to improve service by enhancing connections between high-demand destinations and overcoming existing geographic service gaps between job centers and affordable housing. |

**Table 3.12-3. Consistency with Applicable Plans, Policies, and Regulations**

| Plan, Policies, Regulations | No Project Alternative | Proposed Project |
|---|---|---|
| **2020 Alameda Countywide Transportation Plan** | **Inconsistent.** The No Project Alternative would not result in any changes to existing conditions. As a result, the No Project Alternative would not increase transit mode share, increase the effectiveness of inter-regional transit travel, or improve access to work, education, services, and recreation along the Project Corridor. The No Project Alternative would be inconsistent with the goals of the 2020 Alameda CTP. | **Consistent.** The proposed Project intends to improve service by enhancing connections between high-demand destinations and overcoming existing geographic service gaps between job centers and affordable housing. |
| **San Francisco Bay Conservation and Development Commission** | **Not Applicable.** The No Project Alternative would not result in any changes to existing conditions. Therefore, changes to lands protected under the McAteer-Petris Act would not be applicable. | **Consistent.** The proposed Project would not encroach on lands that are protected under the McAteer-Petris Act. |
| ***City of Fremont General Plan*** | | |
| **Goal 2-1. A city transformed from an auto-oriented suburb into a distinctive community known for its walkable neighborhoods, dynamic city center, transit-oriented development at focused locations, attractive shopping and entertainment areas, thriving work places, and harmonious blending of the natural and built environments.** | **Inconsistent.** The No Project Alternative would not result in any changes to existing conditions. As a result, the No Project Alternative would not increase transit mode share, increase the effectiveness of inter-regional transit travel, or improve access to work, education, services, and recreation along the Project Corridor. | **Consistent.** The proposed Project would encourage an increase in transit mode sharing, a more efficient system for inter-regional transit travel, and improvements to access to work, education, services, and recreation along the Project Corridor. |

**Table 3.12-3. Consistency with Applicable Plans, Policies, and Regulations**

| Plan, Policies, Regulations | No Project Alternative | Proposed Project |
|---|---|---|
| **Policy 2-1.7. Plan for Fremont's transition to a community that includes a mix of established lower-density neighborhoods and new higher-density mixed-use neighborhoods with access to high-quality transit.** | **Inconsistent.** The No Project Alternative would not result in any changes to existing conditions. As a result, the No Project Alternative would not improve access to work, education, services, and recreation along the Project Corridor. | **Consistent.** The proposed Project would improve transit services by creating a more direct passenger rail route and allow for greater access to work, education, services, and recreation along the Project Corridor. |
| **Policy 2-2.2. Ensure that land use decisions consider the characteristics of the transportation network, including road capacity, the quality of the streetscape, and the availability of public transportation and other modes of travel.** | **Inconsistent.** The No Project Alternative would not result in any changes to existing conditions. As a result, the No Project Alternative would not increase transit mode share, increase the effectiveness of inter-regional transit travel, or improve access to work, education, services, and recreation along the Project Corridor. | **Consistent.** The proposed Project considers the existing transportation network and how proposed improvements would be made to that existing transportation network along the Project Corridor. |
| **Policy 2-2.3. Incorporate sustainability into land use planning decisions and procedures to the greatest extent feasible.** | **Not Applicable.** The No Project Alternative would not result in any changes to existing conditions. Therefore, this policy would not be applicable. | **Consistent.** The proposed Project would promote environmental sustainability by reducing greenhouse gas emissions through an increase in transit mode sharing along the Project Corridor. |
| **Policy 2-2.4. Ensure that future land use decisions are fully consistent with the General Plan Land Use Map.** | **Not Applicable.** The No Project Alternative would not result in any changes to existing conditions. Therefore, this policy would not be applicable. | **Consistent.** The proposed Project would result in converting existing non-transportation land uses (e.g., residential, commercial, industrial) to transportation land uses. However, it is anticipated that any required General Plan amendments would be implemented to ensure that future land use |

**Table 3.12-3. Consistency with Applicable Plans, Policies, and Regulations**

| Plan, Policies, Regulations | No Project Alternative | Proposed Project |
|---|---|---|
| | | decisions are fully consistent with the General Plan Land Use Map. |
| **Policy 1.02. Identify and program the construction of basic neighborhood improvements (sidewalks, street trees, etc.) and public facilities (roads, lighting, etc.) in areas where they are lacking or substandard.** | **Not Applicable.** The No Project Alternative would maintain existing conditions within the Project Corridor. Any improvements and public facilities identified and programmed would occur as a separate process at the City level. | **Consistent.** The proposed Project would incorporate safety improvements and infrastructure at all at-grade crossings along the Niles and Coast Subdivisions within the Project Corridor. These improvements include but are not limited to ADA sidewalk improvements. |
| **Policy 1.05. Preserve the existing supply of affordable housing, rental apartments, and mobile homes.** | **Consistent.** The No Project Alternative would not result in any changes to existing conditions and the existing supply of affordable housing, rental apartments, and mobile homes would not change. | **Consistent.** The proposed Project would not require any full parcel acquisitions of residential zoned properties. The majority of proposed improvements would occur within or adjacent to the existing UPRR right-of-way. |
| ***City of Newark General Plan*** | | |
| **Policy LU-1.4. Coordinate land use and development decisions with the capacity of the transportation system and plans for future transportation improvements.** | **Inconsistent.** The No Project Alternative would not result in any changes to existing conditions. As a result, the No Build Alternative would not increase transit mode share, increase the effectiveness of inter-regional transit travel, or improve access to work, education, services, and recreation along the Project Corridor, while reducing automobile use and traffic congestion. | **Consistent.** Infrastructure improvements associated with the proposed Project would be required to consider applicable development and design criteria of the local jurisdiction. |

**Table 3.12-3. Consistency with Applicable Plans, Policies, and Regulations**

| Plan, Policies, Regulations | No Project Alternative | Proposed Project |
|---|---|---|
| **Policy LU-2.1. Protect single-family neighborhoods from substantial increases in density and new land uses which would adversely affect the character of the neighborhood.** | **Consistent.** The No Project Alternative would not result in any changes to existing conditions. Therefore, no changes to existing neighborhoods would occur. | **Consistent.** The proposed Project would not require the acquisition of residential housing or residential zoned land within the City of Newark. Therefore, the proposed Project would not adversely affect the character of neighborhoods within the City of Newark. |
| **Policy LU-2.2. Require that new structures, additions, and major renovations are aesthetically compatible with existing structures and the surrounding context, and contribute positively to the visual quality of neighborhoods.** | **Consistent.** The No Project Alternative would not result in any changes to existing conditions. Therefore, no visual changes to existing neighborhoods would occur. | **Consistent.** Infrastructure improvements associated with the proposed Project would be required to consider applicable development and design criteria of the local jurisdiction as identified in Section 3.2, Aesthetics. |
| **Policy ED-4.5. Continue to support transportation improvements between Newark and major regional job centers, including better access to Caltrain and BART.** | **Inconsistent.** The No Project Alternative would not result in any changes to existing conditions. As a result, the No Project Alternative would not increase transit mode share, increase the effectiveness of inter-regional transit travel, or improve access to work, education, services, and recreation along the Project Corridor, while reducing automobile use and traffic congestion. | **Consistent.** The proposed Project would enhance efficiency and effectiveness of transit within the Project Corridor through improving connections between high-demand destinations, increasing ridership on transit, and easing congestion on roadways. |
| **Housing Priority 1. Preserve, rehabilitate, and enhance existing housing and neighborhoods.** | **Consistent.** The No Project Alternative would not result in any changes to existing conditions. Therefore, no changes to existing housing or neighborhoods would occur. | **Consistent.** The proposed Project would not require residential acquisitions resulting in the removal of existing housing within the City of Newark. |

**Table 3.12-3. Consistency with Applicable Plans, Policies, and Regulations**

| Plan, Policies, Regulations | No Project Alternative | Proposed Project |
|---|---|---|
| ***City of Oakland General Plan*** | | |
| **Policy C 3.4. The vitality of existing neighborhood mixed use and community areas should be strengthened and preserved.** | **Consistent.** The No Project Alternative would not result in any changes to existing conditions. | **Consistent.** The proposed Project would not require additional property acquisition within the City of Oakland. Any identified improvements would occur within the existing UPRR right-of-way. Therefore, no changes to existing neighborhoods within the City of Oakland would occur. |
| **Policy T 2.1. Transit-oriented development should be encouraged at existing or proposed transit nodes, defined by the convergence of two or more modes of public transit such as BART, bus, shuttle service, light rail or electric trolley, ferry, and inter-city or commuter rail.** | **Not Applicable.** The No Project Alternative would not result in any changes to existing conditions. Therefore, this policy would not be applicable. | **Consistent.** The proposed Project intends to improve transit services by creating a more direct passenger rail route and reducing the passenger rail travel time. |
| **Policy T 2.4. Encourage transportation improvements that facilitate economic development.** | **Inconsistent.** The No Project Alternative would not result in any changes to existing conditions. As a result, the No Project Alternative would not increase the effectiveness of inter-regional transit travel, or improve access to work, education, services, and recreation along the Project Corridor. | **Consistent.** The proposed Project would improve service by enhancing connections between high-demand destinations and overcoming existing geographic service gaps between job centers and affordable housing along the Project Corridor. |
| **Policy T 2.5. Link transportation facilities and infrastructure improvements to** | **Inconsistent.** The No Project Alternative would not result in any changes to existing | **Consistent.** The proposed Project would improve service by enhancing connections |

**Table 3.12-3. Consistency with Applicable Plans, Policies, and Regulations**

| Plan, Policies, Regulations | No Project Alternative | Proposed Project |
|---|---|---|
| **recreational uses, job centers, commercial nodes, and social services.** | conditions. As a result, the No Project Alternative would not increase transit mode share, increase the effectiveness of inter-regional transit travel, or improve access to work, education, services, and recreation along the Project Corridor. | between high-demand destinations and overcoming existing geographic service gaps between job centers and affordable housing. |
| **Goal 4. Conserve and improve older housing and neighborhoods.** | **Consistent.** The No Project Alternative would not result in any changes to existing conditions. Therefore, no changes to older housing or neighborhoods would occur. | **Consistent.** The proposed Project would not require residential acquisitions resulting in the removal of existing housing within the City of Oakland. |
| ***City of San Leandro General Plan*** | | |
| **Policy LU-1.12 Encroachment of Incompatible Uses. Protect residential neighborhoods from the impacts of incompatible non-residential uses and disruptive traffic to the extent possible. Zoning and design review should ensure that compatibility issues are fully addressed when non-residential development is proposed near or within residential areas.** | **Consistent.** The No Project Alternative would not result in any changes to existing conditions and no encroachment of incompatible uses would occur. | **Consistent.** The proposed Project would not require acquisitions that would result in incompatible non-residential uses to residential neighborhoods within the City of San Leandro. |
| **Policy LU-1.14 Construction Impacts. Ensure that construction activities are regulated and monitored in a manner that minimizes the potential for adverse off-site impacts such as noise, dust, erosion,** | **Not Applicable.** The No Project Alternative would not result in any changes to existing conditions and no construction activities would occur. Therefore, this policy would not be applicable. | **Consistent.** the proposed Project would be required to implement mitigation measures and BMPs during construction activities to minimize impacts to adjacent land uses. These include but are not limited to |

**Table 3.12-3. Consistency with Applicable Plans, Policies, and Regulations**

| Plan, Policies, Regulations | No Project Alternative | Proposed Project |
|---|---|---|
| **exposure to hazardous materials, and truck traffic.** | | mitigation measures and BMPs associated with noise, air quality, hazardous materials, and traffic. |
| **Policy LU-2.1 Complete Neighborhoods. Strive for "complete neighborhoods" that provide an array of housing choices; easy access to retail stores, commercial services, and medical care; quality public schools; great parks and open spaces; affordable transportation options; and civic amenities.** | **Inconsistent.** The No Project Alternative would not result in any changes to existing conditions. As a result, the No Project Alternative would not increase transit mode share, increase the effectiveness of inter-regional transit travel, or improve access to work, education, services, and recreation along the Project Corridor. | **Consistent.** The proposed Project would enhance connections between high-demand destinations and overcoming existing geographic service gaps between job centers and affordable housing. |
| **Goal 56. Encourage the preservation and rehabilitation of the existing affordable housing stock.** | **Consistent.** The No Project Alternative would not result in any changes to existing conditions and the existing supply of affordable housing stock within the City of San Leandro would not change. | **Consistent.** The proposed Project would not reduce the existing supply of housing stock within the City of San Leandro. |
| **Goal 57. Create a healthy environment in all San Leandro homes and sustainable development which reduced greenhouse gas emissions and household utility and transportation costs.** | **Inconsistent.** The No Project Alternative would not result in any changes to existing conditions. As a result, the No Project Alternative would improve access to work, education, services, and recreation along the Project Corridor, while reducing automobile use and traffic congestion. | **Consistent.** The proposed Project would promote environmental sustainability by reducing greenhouse gas emissions through increased effectiveness of inter-regional transit travel and improved access to work, education, and services along the Project Corridor. |
| **Goal ED-6. Increase access to quality jobs, stable employment, and career advancement for all San Leandro residents.** | **Inconsistent.** The No Project Alternative would not result in any changes to existing conditions. As a result, the No Project | **Consistent.** The proposed Project would improve transit service by enhancing connections between high-demand |

**Table 3.12-3. Consistency with Applicable Plans, Policies, and Regulations**

| Plan, Policies, Regulations | No Project Alternative | Proposed Project |
|---|---|---|
| | Alternative would not increase transit mode share, increase the effectiveness of inter-regional transit travel, or improve access to work, education, services, and recreation along the Project Corridor. | destinations and overcoming existing geographic service gaps between job centers and affordable housing. |
| ***City of Union City General Plan*** | | |
| **Goal LU-4. To preserve and enhance residential neighborhoods so they remain desirable places to live, maintain a variety of housing types, and contribute to the quality of life for Union City residents.** | **Consistent.** The No Project Alternative would not result in any changes to existing conditions and the existing supply of housing within the City of Union City would not change. | **Consistent.** The proposed Project would not require residential housing acquisitions within the City of Union City. |
| **Goal D. To maintain healthy neighborhoods by improving the condition of the existing housing stock and by ensuring new development is compatible with the existing character and integrity of residential neighborhoods.** | **Consistent.** The No Project Alternative would not result in any changes to existing conditions and the existing supply of housing within the City of Union City would not change. | **Consistent.** The proposed Project would not require residential housing acquisitions within the City of Union City. |
| **Policy LU-2.2. The City shall ensure that future land use and development decisions are in balance with the capacity of the City's transportation system and consistent with the City's goal of reducing greenhouse gas emissions.** | **Inconsistent.** The No Project Alternative would not result in any changes to existing conditions. As a result, the No Project Alternative would not increase the effectiveness of inter-regional transit travel or improve access to work, education, services, and recreation along the Project Corridor, while reducing automobile use and traffic congestion. | **Consistent.** The proposed Project would improve transit services by creating a more direct passenger rail route and reducing the passenger rail travel time. The increase of effectiveness to the existing transit system would improve access to work, education, services, and recreation along the Project Corridor, while reducing reliance on |

**Table 3.12-3. Consistency with Applicable Plans, Policies, and Regulations**

| Plan, Policies, Regulations | No Project Alternative | Proposed Project |
|---|---|---|
| | | automobile use and a decrease in greenhouse gas emissions generated. |
| ***City of Hayward General Plan*** | | |
| **Policy LU-1.1. The City shall support efforts to improve the jobs and housing balance of Hayward and other communities throughout the region to reduce automobile use, regional and local traffic congestion, and pollution.** | **Inconsistent.** The No Project Alternative would not result in any changes to existing conditions. As a result, the No Project Alternative would not increase transit mode share, increase the effectiveness of inter-regional transit travel, or improve access to work, education, services, and recreation along the Project Corridor, while reducing automobile use and traffic congestion. | **Consistent.** The proposed Project would encourage an increase in ridership on transit and increase the effectiveness of inter-regional transit travel, which would ease congestion on roadways. |
| **Goal H-1-1. Maintain and enhance the existing viable housing stock and neighborhoods within Hayward.** | **Consistent.** The No Project Alternative would not result in any changes to existing conditions and the existing supply of housing stock in the City of Hayward would not change. | **Consistent.** The proposed Project would not reduce the existing supply of housing stock within the City of Hayward. |

## No Project Alternative

**Significant Impact**. Many of the transportation land use goals and policies identified for the areas that would be traversed by the proposed Project would not be realized under the No Project Alternative. The goals of these policies, which aim to reduce automobile usage, increase intensity of development along transit corridors, seek cooperation and joint-development opportunities, enhance regional connectivity, minimize environmental Impacts, and maximize transit ridership, would not be achieved under the No Project Alternative. As identified in Table 3.12-3 in Section 3.12.6.2, the No Project Alternative would conflict with State and regional goals and some policies identified at the local level. In this specific context, the No Project Alternative would be inconsistent with regional transportation plans, and this inconsistency would be considered a significant impact.

## Proposed Project

### Construction and Operations

**Less Than Significant Impact.** As previously stated, Section 15125(d) of the CEQA Guidelines requires an EIR to discuss "any inconsistencies between the proposed Project and applicable general plans, specific plans, and regional plans…" As detailed in Table 3.12-3, the proposed Project would be generally consistent with the applicable goals, policies, and objectives related to land use and planning. This includes compliance with state, regional, and local goals and policies set forth by Alameda County and all respective cities within the RSA (that is, Fremont, Hayward, Oakland, Newark, San Leandro, and Union City).

Implementation of the proposed Project would create a more efficient and reliable passenger rail route and significantly reduce rail travel time, which would facilitate a more auto-competitive travel time for intercity rail trips. The proposed Project would also create new connections to Transbay transit services and destinations. The following goals and objectives would be accomplished with implementation of the proposed Project and are relevant for the land use and planning analysis:

- Reduce passenger rail time between Oakland and San Jose and throughout the area to increase ridership on transit, ease congestion on the Bay Area's stressed roadways, and reduce lengthy auto commutes.
- Improve service between Northern California markets by enhancing connections between high demand destinations, overcoming existing geographic service gaps between job centers and affordable housing projects on the San Francisco Peninsula and along the Capitol Corridor route.
- Promote environmental sustainability by reducing greenhouse gas emissions through a reduction in auto traffic.

The proposed Project would increase connectivity and transportation options for the cities and jurisdictions within the RSA. This would support the plans and policies of complete neighborhoods and transit-oriented development. Additionally, the proposed Project would encourage fewer VMT. This would comply with SB 375 by supporting the reduction of greenhouse gas emissions, one of the proposed Project's identified needs. This would also follow CCJPA's 2014 Vision Plan Update and 2016 Vision Implementation Plan, and the State's 2018 California State Rail Plan. As stated in Section 3.12.2, Regulatory Setting, these plans all call for the relocation of the Capitol Corridor service to provide more efficient and direct passenger and freight routes, and significantly reduce rail travel time.

Therefore, impacts would be less than significant.

## 3.12.7 Mitigation Measures

No mitigation measures for land use and planning are required for the proposed Project.

## 3.12.8 Cumulative Impact Analysis

### Resource Study Area

The cumulative RSA for land use and planning is defined as the area within two miles of the Project footprint. The cumulative RSA would capture impacts generated from the proposed Project's construction and potential regional impacts on land use and planning. A cumulatively considerable impact to land use would occur if the proposed Project when combined with past, present, and reasonably foreseeable projects, results in cumulatively considerable impact to the land use in the Project area.

### Cumulative Condition and Contribution of the Proposed Project

As identified in Table 3.1 in Section 3.1, multiple past, present, and reasonably foreseeable projects were considered for the purpose of this cumulative impact analysis. These cumulative projects include infrastructure projects, transportation and transit projects, recreational and community facility projects, and other private development projects within the proposed Project's RSA. Based on a review of environmental documents available for these cumulative projects, none of the projects identifies a cumulative land use impact.

The proposed Project, in combination with planned projects under the cumulative condition, would result in temporary changes in the pattern and density of land uses during construction if construction of the proposed Project occurs at the same time as construction of other planned projects. This could result in a cumulative effect on various land uses if they become part of, or are near, a temporary construction easement, such as a staging area. These types of impacts, which could include visual changes, lighting and glare, increased air pollutant emissions, noise and vibration, and increased traffic, would be limited to the construction activities and would be temporary. Generally, affected parcels would be returned to previous/existing land use functions in the same or better condition as before their use.

Operation of the proposed Project could result in an increase in rail activity at new station facilities. These effects could result in a cumulative impact if combined with additional operational impacts from other projects. However, growth is projected in the cities and communities along the proposed Project alignment. Under the cumulative condition, local land use plans and projects are planned to accommodate that growth. Generally, development would occur in the framework of existing general or specific plans of the municipality in which it occurs. Planning documents relevant to the municipalities (including land use elements of general plans, community plans, and other planning documents) generally encourage infill and higher-density development near transit corridors to provide more travel choices. Local jurisdictions are implementing these policies regardless of whether a project is constructed.

As identified in Table 3.12-3 in Section 3.12.6.2, the proposed Project is consistent with applicable land use and planning goals and policies identified in regional and local planning documents that

promote transit ridership, reduced automobile dependence, and enhance connections between job centers and affordable housing within the RSA. All development projects, including the identified cumulative projects, would be required to comply with applicable regulations and planning standards and would be subject to the local jurisdiction planning process and environmental review as applicable. Therefore, the cumulative projects would also be subject to compliance with relevant land use plans, policies, or regulations and would otherwise require the approval of Alameda County and the respective local jurisdictions. In addition, growth and development would continue to occur within the RSA consistent with existing zoning regulations that would not be changed by the proposed Project.

The proposed Project, including the identified cumulative projects, would not result in a physical division of an established community. The proposed Project would follow the necessary regulations and would incorporate BMPs during construction work and acquisition as part of the acquisition process. Additionally, the cumulative projects consist of railroad crossing and safety improvements, complete street improvements, site remediation, and park improvements. All of these projects would be within the existing land and infrastructure. Many projects on the project list are park improvement and development projects; however, none of the park development projects would physically divide any community. Conversely, such projects would create more community cohesion. As a result, there would be no conflicts to the existing land use and there would be no physical division of an established community.

### Conclusion

Implementation of the proposed Project, combined with other foreseeable projects in the surrounding area, is not expected to result in significant cumulative impacts on land use and planning resources.

## 3.12.9 CEQA Significance Findings Summary Table

Table 3.12-4 summarizes the land use and planning impacts of the proposed Project.

**Table 3.12-4. Land Use and Planning Impacts Summary**

| Impact | Level of Significance Before Mitigation | Incremental Project Contribution to Cumulative Impacts | Mitigation | Level of Significance with Mitigation Incorporated | Incremental Project Cumulative Impact after Mitigation |
|---|---|---|---|---|---|
| **(a) Would the project physically divide an established community?** | LTS | NCC | N/A | LTS | NCC |
| **(b) Would the project 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?** | LTS | NCC | N/A | LTS | NCC |

Notes: LTS = Less than Significant Impact, NI = No Impact, N/A = Not Applicable, SI = Significant Impact, S/M = Significant Impact but Mitigable to a Less than Significant Level, CC = Cumulatively Considerable, NCC = Not Cumulatively Considerable.

## 3.12.10 References

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# 3.13 Mineral Resources

## 3.13.1 Introduction

Under CEQA, rocks, ores, and geologic minerals are all considered to be mineral resources. Mineral resources include, but are not limited to, fuel minerals (coal and oil shale), metallic minerals (gold, silver, and iron), industrial/chemical minerals (salt, boron, clay, limestone, gypsum, and shale), and construction materials (sand, gravel, and crushed stone).

This section describes the regulatory setting and affected environment for mineral resources. It addresses mineral resources that are known to occur or have the potential to occur in the proposed mineral resources RSA and describes the potential impacts on those resources during construction and operation of the proposed Project. Cumulative impacts of the proposed Project on mineral resources are also discussed.

## 3.13.2 Regulatory Setting

This section identifies federal, state, regional and local laws, regulations, and orders that are relevant to the analysis of mineral resources. This section also addresses the proposed Project's consistency with the regulations described herein.

### 3.13.2.1 Federal

#### Surface Mining Control and Reclamation Act

The Surface Mining Control and Reclamation Act (SMCRA) of 1977 regulates surface mining activities and reclamation of closed mines. SMCRA implemented environmental standards that mining companies are required to follow and requires permit applicants to conduct reclamation efforts following the completion of mining activities. SMCRA is administered by the Department of Interior's Office of Surface Mining.

### 3.13.2.2 State

#### Surface Mining and Reclamation Act

The Surface Mining and Reclamation Act (SMARA) of 1975 encourages the production, conservation, and protection of mineral resources. It is administered by the California Department of Conservation and regulates all mines that disturb more than one acre and/or remove more than 1,000 cubic yards of material. SMARA requires the minimization of adverse environmental impacts associated with mining, as well as the reclamation of mined lands to a beneficial land use (open space, wildlife habitat, agriculture, or residential/commercial development).

## 3.13.2.3 Regional

### Alameda County Surface Mining Ordinance

The Alameda County Community Development Agency (CDA) is the county's lead agency under SMARA. CDA's Neighborhood Preservation and Sustainability (NPS) Department administers new and existing mines located on unincorporated lands in Alameda County. NPS implements the Surface Mining Ordinance as required under SMARA Section 2774. This ordinance covers the issuance of permits for mining operations, approval of reclamation plans, and financial assurances required from mining operations.

## 3.13.2.4 Local

### City of Oakland General Plan

The City of Oakland's Open Space, Conservation, and Recreation Element (1996) supports conservation of minerals under SMARA and specifically cites volcanic rock deposits (rhyolite) in the Oakland Hills between Claremont Canyon and San Leandro. These deposits are classified as a regionally significant resource, which are mineral resources of prime importance for future regional needs.

### City of San Leandro General Plan

The Open Space, Parks, and Conservation Element of the City of San Leandro's General Plan (2016) also references volcanic rock deposits (rhyolite, basalt, and andesite). However, per the City's general plan, no active quarries are located within the city limits. While mineral resources may remain at the closed quarries, future mining of these resources was rated as unlikely.

### City of Hayward General Plan

The City of Hayward's General Plan (2014) discusses historic mineral resources (stone, clay, and salt) that were mined within the city limits. The City's only designated mineral resource of regional significance is a quarry located east of Mission Boulevard and Tennyson Road that previously produced crushed rock.

### City of Fremont General Plan

The City of Fremont's General Plan (2011) discusses several mineral resources (sand, gravel, crushed rock, and salt). Although several of these mineral resources have been designated as regionally significant, no active mining operations are underway within the City. Environmental constraints, such as steep slopes, wetlands, and park and public facilities, were discussed in the general plan as being prohibitive for future mineral resource extraction within the City of Fremont.

### City of Newark General Plan

The City of Newark's General Plan (2013) notes no mineral recovery sites within the City. Based upon the extent of urban development, and the City's proximity to sensitive environmental resources (such as the Don Edwards San Francisco Bay National Wildlife Refuge), future mineral extraction within Newark was rated as unlikely.

### Union City General Plan

Per its 2040 General Plan (2019), there are no known mineral resources within Union City.

### 3.13.2.5 Consistency with Plans, Policies, and Regulations

The proposed Project is consistent with federal, state, and local plans/policies/regulations. There are no active mining operations within the RSA. No alternatives propose ROW acquisition from active mines or closed mines undergoing reclamation. Therefore, the proposed Project would be consistent with SMCRA and SMARA.

City general plans generally support the conservation of mineral resources within their jurisdictions. Because the proposed Project would not impact mineral resources, the proposed Project would be consistent within applicable city general plans.

## 3.13.3 Methods for Evaluating Environmental Impacts

This section defines the RSA for mineral resources and describes the methods used to analyze the impacts on mineral resources within the RSA.

### 3.13.3.1 Resource Study Area

As defined in Section 3.1, Introduction, RSAs are the geographic boundaries within which the environmental investigations specific to each resource topic were conducted.

Mineral deposits can extend over a wide geographic area. To account for potential mineral resources, the urban planning boundary for all cities located within the Project Study Area was reviewed (Oakland, San Leandro, Hayward, Fremont, Newark, and Union City). Unincorporated areas located within a 2-mile radius from the Project footprint were also included in the RSA.

### 3.13.3.2 Data Sources

State and local data sources were reviewed to identify regionally-significant or locally-important mineral resources within the RSA. Records from the California Geological Survey and Alameda County were reviewed to identify existing and historic mining operations. For cities within the RSA, relevant portions of each city's general plan were reviewed to identify any locally-important mineral resources. Finally, aerial imagery was reviewed to identify active mining operations.

### 3.13.3.3 CEQA Thresholds

To satisfy CEQA requirements, mineral resource impacts were analyzed in accordance with Appendix G of the CEQA Guidelines. According to the CEQA Guidelines, CCR, Title 14, Section 15002(g), "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in CEQA Guidelines Section 15064(b)(1), the significance of an activity may vary with the setting. The impact analysis identifies and analyzes construction (short-term) and operation (long-term) impacts, as well as direct and indirect impacts (see PRC Section 21065). The proposed Project would have significant mineral resource impacts under CEQA if it would:

1. 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; or
2. 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.

# 3.13.4 Affected Environment

## 3.13.4.1 Environmental Setting

### Regional Setting

California is one of the largest producers of non-fuel minerals in the United States (California Geological Survey 2018a). Construction aggregate is the state's most important mined commodity in regard to both tonnage and value (California Department of Conservation 2021). The demand for aggregate is forecast to increase as California's population grows.

Statewide, approximately 90 percent of aggregate materials are transported by truck (California Department of Conservation 2021). High-volume, low-cost construction minerals, such as aggregate, are expensive to transport. Because of this, construction minerals are typically extracted in close proximity to growing communities to allow local sourcing.

Alameda County has few construction mineral mines (California Geological Survey 2018a). Currently, CDA NPS regulates 10 quarries countywide (CDA 2019), including two large-scale mining operations. None of these 10 quarries is located within, or adjacent to, the RSA. Three quarries are located in the Pleasanton-Livermore area, while the other seven quarries are located east of Fremont (near the Sunol area). The closest mining operation is located in an unincorporated portion of Alameda County (approximately 6.5 miles east of the Coast Subdivision). One of the large-scale mining operations is located near the City of Livermore (approximately 15.5 miles northeast of the Coast Subdivision) and has an annual production of more than 5 million tons per year. The remaining large-scale mining operation is located near Sunol (approximately 9.5 miles east of the Coast Subdivision) and has an annual production between 3 and 5 million tons per year.

Based on the projected 50-year demand for aggregate in the southern San Francisco Bay Area, the region does not have sufficient permitted reserves to meet forecast demand (California Geological Survey 2018b). This suggests that new aggregate mines may be needed within the region, including Alameda County.

### Local Setting

No active mining operations were identified within the RSA after reviewing relevant city general plans (Section 3.5.1). Several general plans discuss historic mineral resources within their jurisdictions. However, extensive urban development within the RSA and/or existing environmental constraints make it unlikely that remaining mineral resources would be targeted for future extraction. The locally identified mineral resources within the RSA are as follows:

- The City of Oakland has volcanic rock deposits in the Oakland Hills, which are located several miles from the Project footprint. No active mining operations are underway in this area.

- Hayward has a quarry of regional significance. This facility is located within the RSA, approximately 0.5 mile east of the Niles Subdivision. Based on aerial imagery, it appears that this mine has been reclaimed and a residential subdivision has been constructed in its place. The City of Hayward has proposed a 50-acre hillside park, La Vista Park, in the reclaimed mine area, as well.

## 3.13.5 Best Management Practices

As noted in Chapter 2, Project Alternatives, CCJPA would incorporate a range of BMPs to avoid and minimize adverse effects on the environment that could result from implementation of the proposed Project. BMPs are included in the proposed Project description, and the impact analyses were conducted assuming application of these practices.

No BMPs for mineral resources are included in the proposed Project.

## 3.13.6 Environmental Impacts

This section describes the potential environmental impacts on mineral resources as a result of implementation of the proposed Project. Lettering shown within title for each environmental factor below correlates with CEQA Statute and Guidelines, Appendix G table lettering and numbering.

### 3.13.6.1 (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?

#### No Project Alternative

**No Impact.** Under the No Project Alternative, the Capitol Corridor passenger rail service between Oakland and San Jose would not be relocated from the Niles Subdivision to the Coast Subdivision associated with the proposed Project. Improvements proposed for the Coast and Niles Subdivisions associated with the proposed Project would not occur. Capitol Corridor passenger trains would continue to operate based on current routes with no changes. Therefore, the No Project Alternative would not result in the loss of availability of a known mineral resource of regional or statewide value, resulting in no impact.

#### Proposed Project

##### Construction and Operations

**No Impact.** No active mining operations were identified within the RSA. A reclaimed mine was identified near Hayward, but the construction of residential units (and a future park) would likely prohibit additional mineral extraction at this location. No proposed ROW would be acquired from any active or reclaimed mine. Because of this, no conversion of land from a mineral extraction use to transportation use would occur. With no active mining operations in the RSA, there would be no direct impacts to mining operations. No indirect impacts are anticipated to the access or operation of mines as a result of changes to local traffic patterns. Freight rail service operations are not expected to change as a result of the proposed Project. Based on this, the proposed Project is not expected to affect the transportation of construction minerals, which are largely transported to

market using trucks. Therefore, the proposed Project would not result in the loss of availability of a known mineral resource, resulting in no impact.

### 3.13.6.2 (b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

#### No Project Alternative

**No Impact.** Under the No Project Alternative, the Capitol Corridor passenger rail service between Oakland and San Jose would not be relocated from the Niles Subdivision to the Coast Subdivision associated with the proposed Project. Improvements proposed for the Coast and Niles Subdivisions associated with the proposed Project would not occur. Capitol Corridor passenger trains would continue to operate based on current routes with no changes. Therefore, the No Project Alternative would not result in the loss of availability of a locally-important mineral resource recovery site, resulting in no impact.

#### Proposed Project

##### Construction and Operation

**No Impact.** No active mining operations for locally-important mineral resources were identified within the RSA. Existing environmental constraints within the RSA would likely discourage future extraction of the remaining mineral resources. No proposed ROW would be acquired from any active or reclaimed mine, so no conversion of land use from mineral extraction use to transportation use would occur. No indirect impacts to mining operations are anticipated. Therefore, construction and operation of the proposed Project would not result in the loss of availability of locally-important mineral resource recovery sites, resulting in no impact.

## 3.13.7 Mitigation Measures

No mitigation measures for mineral resources are required for the proposed Project.

## 3.13.8 Cumulative Impact Analysis

The proposed Project would not impact mineral resources. Because no impacts are anticipated, a cumulative impact analysis is not warranted for mineral resources.

## 3.13.9 CEQA Significance Findings Summary Table

Table 3.13-1 summarizes the mineral resources impacts of the proposed Project.

**Table 3.13-1. Mineral Resources Impacts Summary**

| Impact | Level of Significance Before Mitigation | Incremental Project Contribution to Cumulative Impacts | Mitigation | Level of Significance with Mitigation Incorporated | Incremental Project Cumulative Impact after Mitigation |
|---|---|---|---|---|---|
| (a) Result in the loss of availability of a known mineral resources that would be of value to the region and the residents of the state | NI | NCC | N/A | NI | NCC |
| (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 | NI | NCC | N/A | NI | NCC |

Notes: LTS = Less than Significant Impact, NI = No Impact, N/A = Not Applicable, SI = Significant Impact, S/M = Significant Impact but Mitigable to a Less than Significant Level, CC = Cumulatively Considerable, NCC = Not Cumulatively Considerable.

## 3.13.10 References

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# 3.14 Noise and Vibration

## 3.14.1 Introduction

This section describes the regulatory setting and affected environment for noise and vibration. It addresses noise and vibration sources known to occur or that have the potential to occur in the noise RSA and describes the potential impacts on sensitive land uses during construction and operation of the proposed Project. This section also identifies the potential for cumulative impacts of the proposed Project related to noise and vibration when considered in combination with other relevant projects.

### 3.14.1.1 Noise Fundamentals

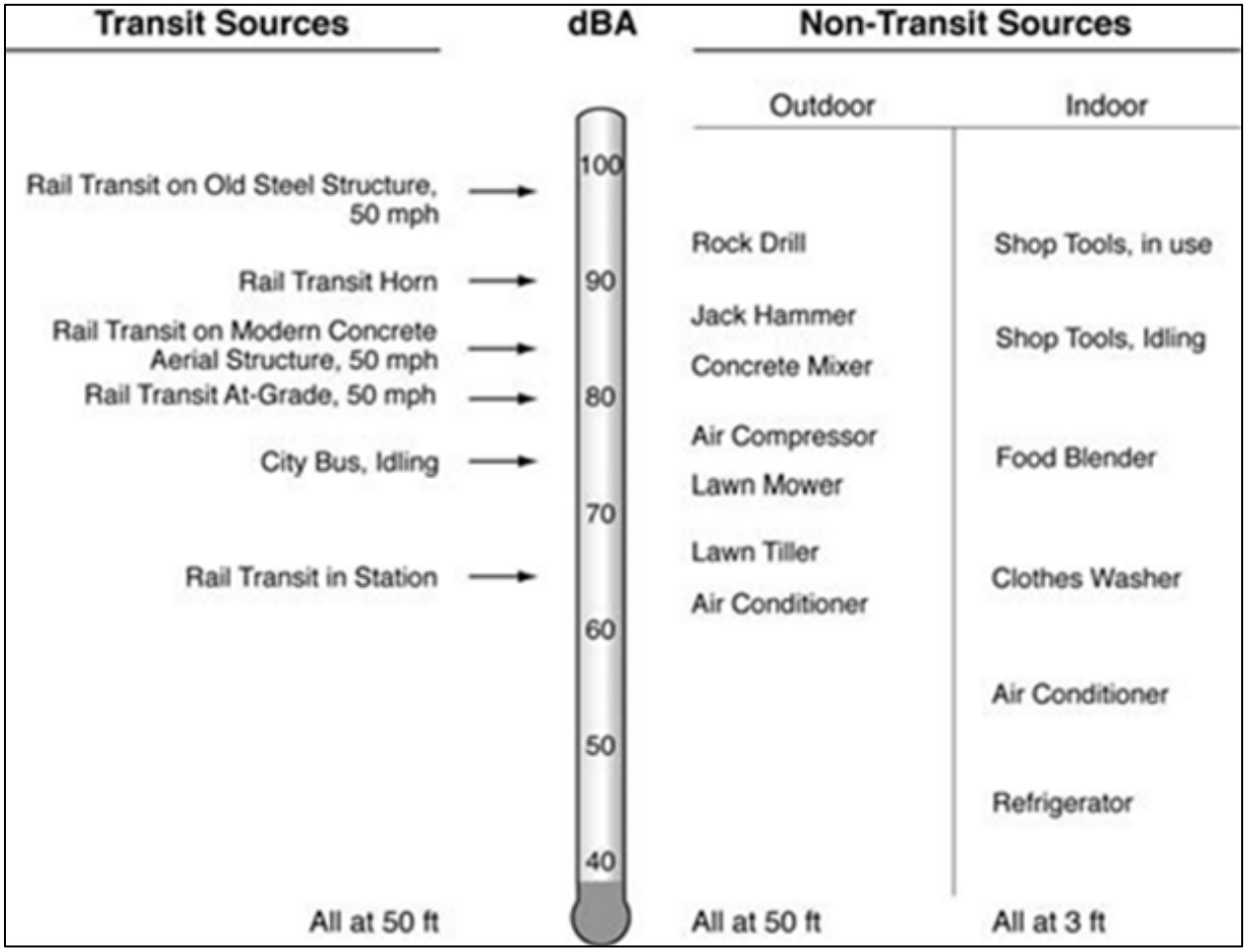
Sound is defined as small changes in air pressure above and below the standard atmospheric pressure and noise is usually considered to be unwanted sound. The three parameters that define noise include:

- **Level:** The level of sound is the magnitude of air pressure change above and below atmospheric pressure and is expressed in decibels (dB). Typical sounds fall within a range between 0 dB (the approximate lower limit of human hearing) and 120 dB (the highest sound level generally experienced in the environment). A 3 dB change in sound level is perceived as a barely noticeable change outdoors and a 10 dB change in sound level is perceived as a doubling (or halving) of loudness.
- **Frequency:** The frequency (pitch or tone) of sound is the rate of air pressure change and is expressed in cycles per second, or Hertz (Hz). Human ears can detect a wide range of frequencies from around 20 Hz to 20,000 Hz; however, human hearing is not as sensitive at high and low frequencies, and the A weighting system, which measures what humans hear in a more meaningful way by reducing the sound levels of higher and lower frequency sounds, is used to provide a measure (dBA) that correlates with human response to noise. Figure 3.14-1 shows typical maximum A-weighted sound levels for transit and non-transit sources. The A-weighted sound level has been widely adopted by acousticians as the most appropriate descriptor for environmental noise.
- **Time Pattern:** Because environmental noise is constantly changing, it is common to condense all of this information into a single number, called the "equivalent" sound level ($L_{eq}$). The $L_{eq}$ represents the changing sound level over a period of time, typically 1 hour or 24-hours in transit noise assessments. For assessing the noise impact of rail projects at residential land use, the Day-Night Sound Level ($L_{dn}$) is the noise descriptor commonly used, and it has been adopted by many agencies as the best way to describe how people respond to noise in their environment. $L_{dn}$ is a 24-hour cumulative A-weighted noise level that includes all noises that occur during a day, with a 10-dB penalty for nighttime noise (10 pm to 7 am). This nighttime penalty means that any noise events at night are equivalent to ten similar events during the day. Typical $L_{dn}$ values for various transit operations and environments are shown in Figure 3.14-2.

In addition to the $L_{eq}$ and $L_{dn}$, there is another descriptor used to describe noise. The loudest 1 second of noise over a measurement period, or maximum A-weighted sound pressure level ($L_{max}$), is

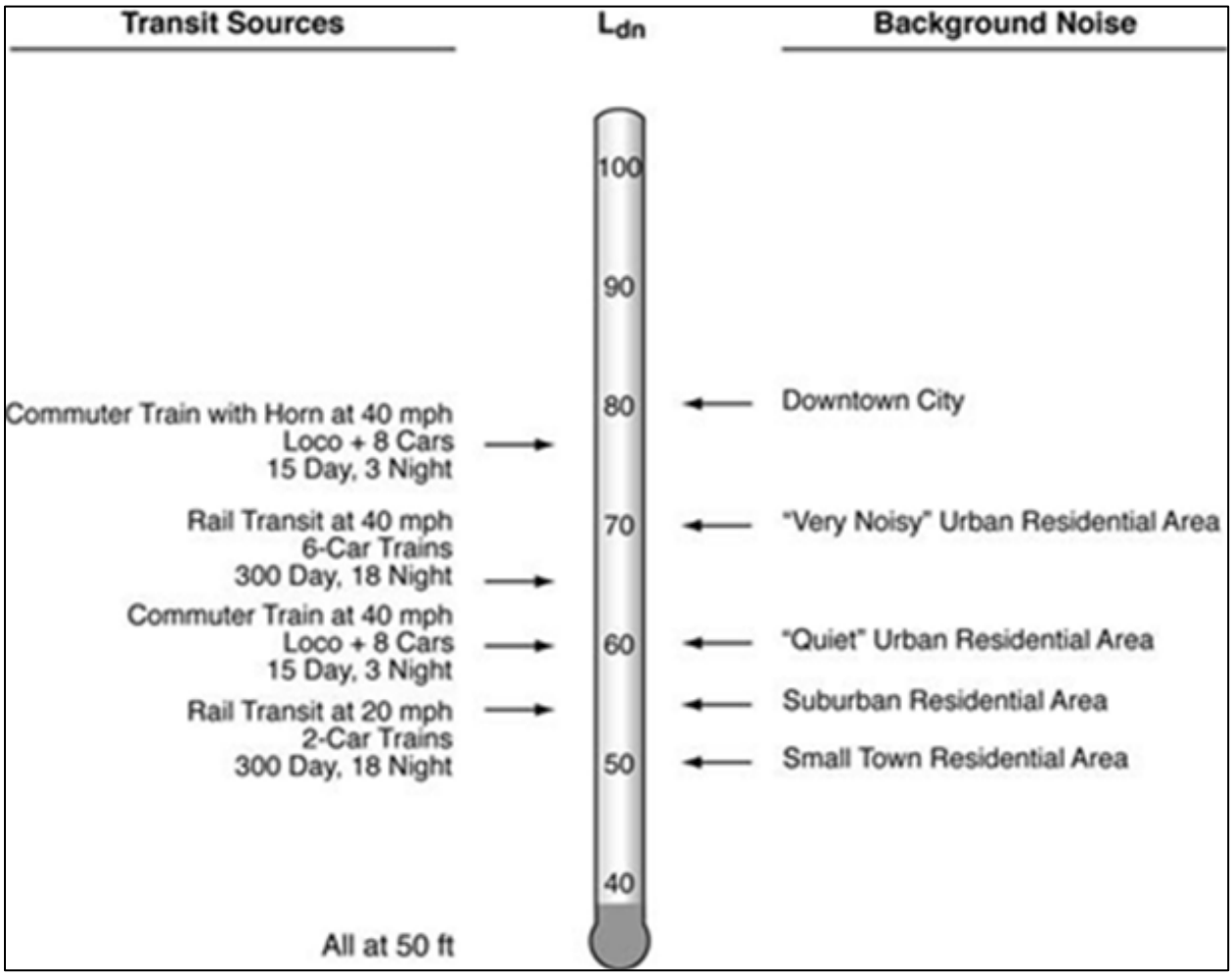
used in many local and state ordinances for noise emitted from private land uses and for construction noise impact evaluations.

**Figure 3.14-1. Typical A-Weighted Sound Levels**




Source: FTA, 2018

**Figure 3.14-2. Typical $L_{dn}$ Noise Exposure Levels**




Source: FTA, 2018

## 3.14.1.2 Vibration Fundamentals

Ground-borne vibration from trains refers to the fluctuating or oscillatory motion experienced by persons on the ground and in buildings near railroad tracks. Vibration can be described in terms of displacement, velocity, or acceleration. Displacement is the easiest descriptor to understand. For a vibrating floor, the displacement is simply the distance that a point on the floor moves away from its static position. Velocity represents the instantaneous speed of the floor movement, and acceleration is the rate of change of the speed. Although displacement is easier to understand, the response of humans, buildings, and equipment to vibration is more accurately described using velocity or acceleration.

Two methods are used for quantifying vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous positive or negative peak of the vibration signal. PPV often is used in monitoring of blasting vibration, since it is related to the stresses experienced by buildings.

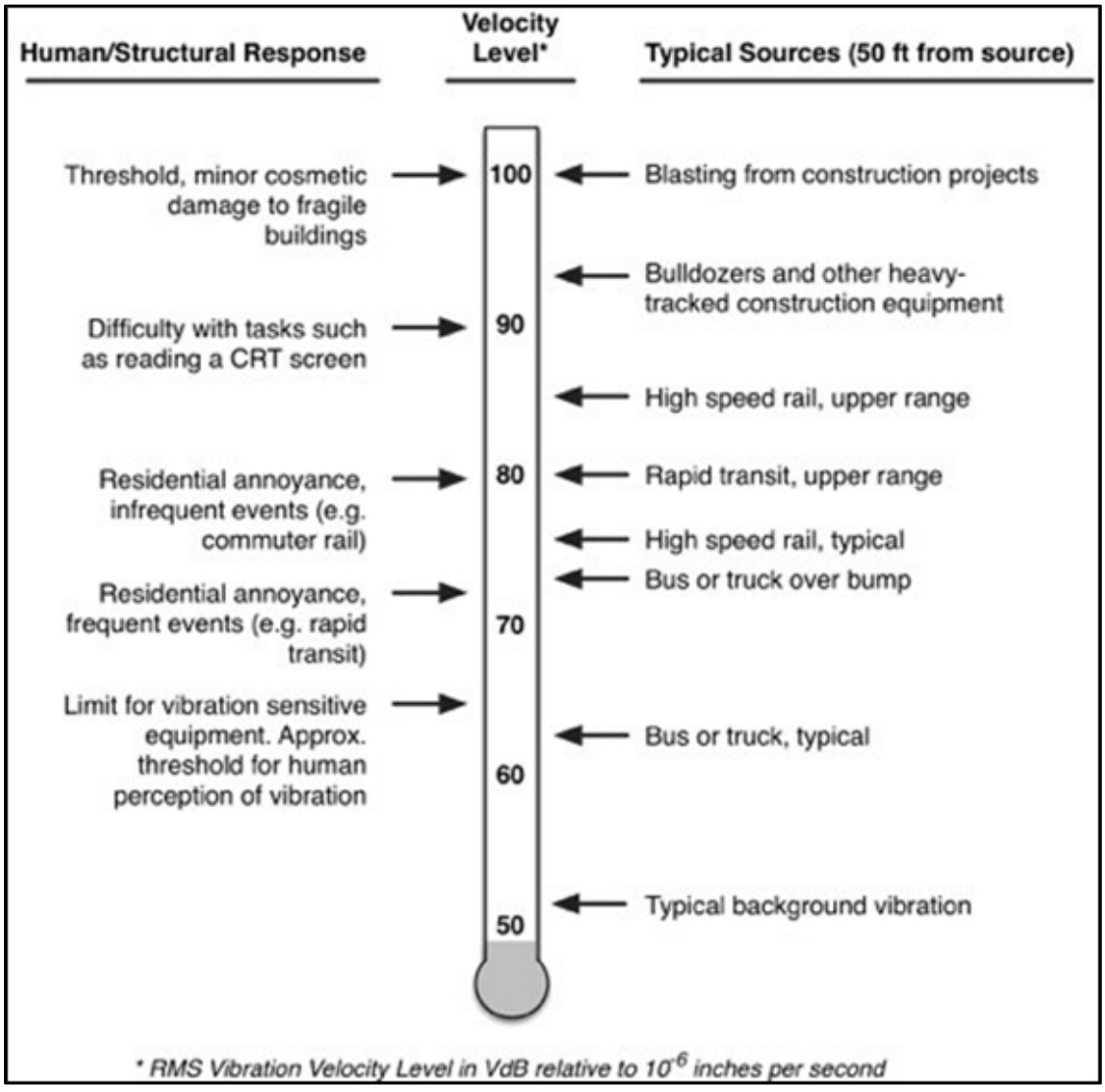
Although PPV is appropriate for evaluating the potential of building damage, it is not suitable for evaluating human response. It takes some time for the human body to respond to vibration

impulses. In a sense, the human body responds to an average of the vibration amplitude. Because the net average of a vibration signal is zero, the root mean square (RMS) amplitude is used to describe the "smoothed" vibration amplitude.

PPV and RMS velocities are normally described in inches per second in the U.S. and in meters per second in the rest of the world. Although it is not universally accepted, decibel notation is in common use for vibration. Decibel notation compresses the range of numbers required to describe vibration. Vibration levels in this report are referenced to $1 \times 10^{-6}$ inches per second (in/sec). Although not a universally accepted notation, the abbreviation "VdB" is used in this document for vibration decibels to reduce the potential for confusion with sound decibels.

Common vibration sources and human and structural responses to ground-borne vibration are illustrated in Figure 3.14-3. Typical vibration levels can range from below 50 VdB to 100 VdB (0.000316 in/sec to 0.1 in/sec). The human threshold of perception is approximately 65 VdB.

**Figure 3.14-3. Typical Levels of Ground-Borne Vibration**




Source: FTA, 2018

Ground-borne noise is a low-volume, low-frequency rumble inside buildings, resulting when ground vibration causes the flexible walls of the building to resonate and generate noise. Ground-borne noise is normally not a consideration when trains are elevated or at grade. In these situations, the airborne noise usually overwhelms ground-borne noise, so the airborne noise level is the major consideration. However, ground-borne noise becomes an important consideration where there are sections of the corridor that are in a tunnel or where sensitive interior spaces are well isolated from the airborne noise. In these situations, airborne noise is not a major path and ground-borne noise becomes the most important path into the building. Ground-borne noise may also need to be considered in cases where the airborne noise from a project is mitigated by a sound wall.

## 3.14.2 Regulatory Setting

This section identifies federal, state, regional, and local laws, regulations, and orders relevant to the analysis of noise impacts. It also addresses the proposed Project's consistency with the regulations described herein.

### 3.14.2.1 Federal

#### Noise Control Act of 1972

The Noise Control Act of 1972 (42 U.S.C. 4910) was the first comprehensive statement of national noise policy. The Noise Control Act declared, "it is the policy of the U.S. to promote an environment for all Americans free from noise that jeopardizes their health or welfare." Although the Noise Control Act, as a funded program, was ultimately abandoned at the federal level, it served as the catalyst for comprehensive noise studies and the generation of noise assessment and mitigation policies, regulations, ordinances, standards, and guidance for many states, counties, and municipal governments. For example, the noise elements of community general plan documents and local noise ordinances considered in this analysis were largely created in response to the passage of the Noise Control Act.

#### U.S. Environmental Protection Agency Railroad Noise Emission Standards

Interstate rail carriers must comply with EPA (40 CFR § 201) noise emission standards, which are expressed as maximum measured noise levels and applicable to locomotives manufactured after 1979. These standards are as follows:

- 100 feet from geometric center of stationary locomotive, connected to a load cell and operating at any throttle setting except idle—87 dBA (at idle setting, 70 dBA).
- 100 feet from geometric center of mobile locomotive—90 dBA.
- 100 feet from geometric center of mobile railcars, at speeds of up to 45 miles per hour (mph)—88 dBA—or speeds greater than 45 mph (93 dBA).

#### Federal Railroad Administration Guidelines and Noise Emission Compliance Regulations

FRA has developed a guidance manual for assessing noise and vibration impacts from major rail projects. Although not at the level of a rule or a standard, FRA guidance is intended to satisfy

environmental review requirements and assist project sponsors in addressing predicted construction and operation noise and vibration during the design process.

FRA also has a regulation governing compliance of noise emissions from interstate railroads. FRA's Railroad Noise Emission Compliance Regulations (49 CFR Part 210) prescribes compliance requirements for enforcing railroad noise emission standards adopted by the USEPA (40 CFR 201). FRA also has a rule regarding the sounding of horns at public highway-rail grade crossings (49 CFR 222).

#### Federal Transit Administration Guidelines

Similar to FRA, the Federal Transit Administration (FTA) has developed a guidance manual for assessing noise and vibration impacts from major rail projects intended to satisfy environmental review requirements and assist project sponsors in addressing predicted construction and operation noise and vibration during the design process (FTA, 2018). The FTA noise and vibration impact criteria are discussed in detail below.

### 3.14.2.2 State

#### California Noise Control Act

At the state level, the California Noise Control Act, enacted in 1973 (Health and Safety Code Section 46010, et seq.), requires the Office of Noise Control in the Department of Health Services to provide assistance to local communities developing local noise control programs. The Office of Noise Control also works with the Office of Planning and Research to provide guidance for preparing required noise elements in city and county general plans, pursuant to Government Code Section 65302(f). In preparing the noise element, a city or county must identify local noise sources and analyze and quantify, to the extent practicable, current and projected noise levels for various sources, including highways and freeways; passenger and freight railroad operations; ground rapid transit systems; commercial, general, and military aviation and airport operations; and other ground stationary noise sources. These noise sources also would include commuter rail alignments. The California Noise Control Act stipulates the mapping of noise-level contours for these sources, using community noise metrics appropriate for environmental impact assessment as defined in 3.14.2.4 Local. Cities and counties use these as guides to make land use decisions to minimize the community residents' exposure to excessive noise.

### 3.14.2.3 Regional

#### Interstate Commerce Commission Termination Act

The CCJPA, a state joint powers agency, proposes improvements located within and outside of the UPRR ROW. The Interstate Commerce Commission Termination Act (ICCTA) affords railroads engaged in interstate commerce considerable flexibility in making necessary improvements and modifications to rail infrastructure, subject to the requirements of the Surface Transportation Board. ICCTA broadly preempts state and local regulation of railroads, and this preemption extends to the construction and operation of rail lines. As such, activities within the UPRR ROW are exempt from local building and zoning codes and other land use ordinances. Project improvements outside of the UPRR ROW, however, would be subject to regional and local plans and regulations. Though ICCTA does broadly preempt state and local regulation of railroads, CCJPA intends to obtain local

agency permits for construction of facilities that fall outside the UPRR ROW even though CCJPA has not determined that such permits are legally necessary and such permits may not be required.

### 3.14.2.4 Local

The proposed Project traverses and is located in the jurisdictions of Alameda County and cities of Fremont, Newark, Union City, Hayward, San Leandro, and Oakland.

#### City of Fremont General Plan

The *City of Fremont General Plan Safety Element* (City of Fremont 2011) contains the following noise and vibration policies that are applicable to the proposed Project:

- **Policy 10-8.3: Noise Environment Protection.** Protect existing residential neighborhoods from noise. In general, the City will require the evaluation of mitigation measures for projects under the following circumstances:

    1. The project would cause the $L_{dn}$ to increase by 5 dB(A) or more but would remain below 60 dB(A), or;

    2. The project would cause the $L_{dn}$ to increase by 3 dB(A) or more and exceed 60 dB(A), or;

    3. The project has the potential to generate significant adverse community response due to the unusual character of the noise.

- **Policy 10-8.5: Construction Noise Levels.** Control construction noise at its source to maintain existing noise levels, and in no case to exceed the acceptable noise levels.

- **Policy 10 8.6: Sensitive Uses.** Protect schools, hospitals, libraries, places of religious worship, convalescent homes, and other noise sensitive uses from noise levels exceeding those allowed in residential areas.

- **Policy 10 8.10: Vibration Equipment.** A vibration environment which meets acceptable guidelines as provided by the Federal Transit Administration (FTA).

#### City of Hayward General Plan

The *2040 Hayward General Plan Hazards Element* (City of Hayward 2014) contains the following noise and vibration policies that are applicable to the proposed Project:

- **Goal HAZ-8.** Minimize human exposure to excessive noise and ground vibration.

    - **HAZ-8.1 Locating Noise Sensitive Uses.** The City shall strive to locate noise sensitive uses, (e.g., residences, schools, hospitals, libraries, religious institutions, and convalescent homes) away from major sources of noise.

    - **HAZ-8.12 Transportation Noise.** The City shall consider potential noise impacts when evaluating proposals for transportation projects, including road, freeway, and transit projects, and will strive to minimize noise impacts through the implementation of mitigation measures.

- **HAZ-8.21 Construction and Maintenance Noise Limits.** The City shall limit the hours of construction and maintenance activities to the less sensitive hours of the day (7:00am to 7:00pm Monday through Saturday and 10:00am to 6:00 pm on Sundays and holidays)
- **HAZ-8.22 Vibration Impact Assessment.** The City shall require a vibration impact assessment for proposed projects in which heavy-duty construction equipment would be used (e.g. pile driving, bulldozing) within 200 feet of an existing structure or sensitive receptor. If applicable, the City shall require all feasible mitigation measures to be implemented to ensure that no damage or disturbance to structures or sensitive receptors would occur.

## City of Newark General Plan

The *City of Newark General Plan – Environmental Hazards* (City of Newark 2013) contains the following noise and vibration policies that are applicable to the proposed Project:

- **Goal EH-6.** Maintain the peace and quiet of Newark neighborhoods and promote an environment where noise does not adversely affect sensitive land uses.
  - **Policy EH-6.4. Railroad Noise.** Actively coordinate with Union Pacific, Caltrans, neighboring jurisdictions, and other transportation service providers during the planning and design of proposed rail-related projects so that noise impacts to the community are minimized and appropriate mitigation measures are provided.
  - **Policy EH-6.6. Construction Noise – Regulating Construction Hours.** Reduce noise associated with construction activities by prohibiting construction in residential neighborhoods between the hours of 7 PM and 7 AM Monday through Friday and at all times on Saturdays, Sundays, and State/federal holidays.
  - **Policy EH-6.7. Construction Noise – Addressing Sources of Construction Noise.** Reduce noise associated with construction activities by requiring properly maintained mufflers on construction vehicles, requiring the placement of stationary construction equipment as far as possible from developed areas, and requiring temporary acoustical barriers/ shielding to minimize construction noise impacts at adjacent receptors. Special attention should be paid to noise-sensitive receptors (including residential, hospital, school, and religious land uses).

## City of Oakland General Plan

*The City of Oakland General Plan – Noise Element* (City of Oakland 2015) contains the following noise and vibration policies that are applicable to the proposed Project:

- **Policy 1.** Ensure the compatibility of existing and, especially, of proposed development projects not only with neighboring land uses but also with their surrounding noise environment.
- **Policy 2.** Protect the noise environment by controlling the generation of noise by both stationary and mobile noise sources.
- **Policy 3.** Reduce the community's exposure to noise by minimizing the noise levels that are received by Oakland residents and others in the City.

## City of San Leandro General Plan

The *San Leandro 2035 General Plan – Environmental Hazards Element* (City of San Leandro 2016) contains the following noise and vibration policies that are applicable to the proposed Project:

- **Goal EH-7.** Ensure that noise associated with the day-to-day activities of San Leandro residents and businesses does not impede the peace and quiet of the community.
    - **Policy EH-7.4. Degradation of Ambient Noise Levels.** If a neighborhood is well within acceptable noise standards, do not automatically allow noise levels to degrade to the maximum tolerable levels shown in Chart 7-2. A project's noise impacts should be evaluated based on the potential for adverse community response, as well as its conformance to the adopted standards. For CEQA purposes, an increase of 3 dB Ldn should generally be considered a significant adverse impact.
    - **Policy EH-7.9. Vibration Impacts.** Limit the potential for vibration impacts from construction and ongoing operations to disturb sensitive uses such as housing and schools.
- **Goal EH-8.** Reduce the effects of surface transportation noise, including vehicular noise and noise associated with railroad and BART traffic.
    - **Policy EH-8.5. Train Noise.** Work with the appropriate parties and agencies to reduce or mitigate the noise and vibration from trains traveling through San Leandro.

## City of Union City General Plan

The *Union City 2040 General Plan Safety Element* (City of Union City 2019) provides the long-term vision for the physical, economic, and social evolution in Union City and outlines the policies, standards, and programs to guide city development decisions. The following goals and policies are relevant to the proposed Project:

- **Policy S-8.1: Noise Sensitive Land Uses.** The City shall consider the following land uses to be "noise sensitive":
    1. single- and multi-family residential;
    2. group homes;
    3. hospitals and other medical facilities;
    4. schools and other learning institutions;
    5. libraries; and
    6. similar uses as may be determined by the City.
- **Policy S-8.7: Reduce Impacts from New Noise Generating Uses.** The city may require operational limitations and implementation of noise buffering measures for new uses with the potential to generate significant noise (including, but not limited to, industrial uses, auditoriums, concert halls, amphitheaters, sports arenas, outdoor spectator sports fields, and outdoor spectator sports) near existing noise sensitive land uses as identified in Policy S-8.1. A noise impact analysis may be required to evaluate potential noise impacts and identify appropriate buffering measures.

- **Policy S-8.8: Limit Construction Hours.** To minimize the potential noise impacts of construction activities on surrounding land uses, the City shall limit construction activities between the hours of 8:00 a.m. and 8:00 p.m. on Monday through Friday, 9:00 a.m. and 8:00 p.m. on Saturdays, and 10:00 a.m. and 6:00 p.m. on Sundays and holidays. The City Manager may make specific exceptions to the construction hours when utility work in the streets would have a severely negative impact on traffic flow and public safety.
- **Policy S-8.9: Construction Noise Control Measures.** The City shall include the following noise control measures as standard conditions of approval for projects involving construction:

    1. Properly muffle and maintain all construction equipment powered by internal combustion engines.
    2. Prohibit unnecessary idling of combustion engines.
    3. Locate all stationary noise-generating construction equipment such as air compressors as far as practical from existing nearby residences and other noise-sensitive land uses. Such equipment shall also be acoustically shielded.
    4. Select quiet construction equipment particularly air compressors, whenever possible. Fit motorized equipment with proper mufflers in good working order.
    5. Residences adjacent to project sites shall be notified in advance in writing of the proposed construction schedule before construction activities commence. The construction schedule shall comply with Policy S-8.8.
    6. The project applicant shall designate a "noise disturbance coordinator" responsible for responding to any local complaints about construction noise. The disturbance coordinator shall determine the cause of any noise complaint (e.g., starting too early, bad muffler, etc.) and shall require that reasonable measures be implemented to correct the problem. A telephone number for the disturbance coordinator shall be posted at the construction site.

- **Policy S-8.10: Construction Vibration Control Measures.** The City shall include the following measures as standard conditions of approval for applicable projects involving construction to minimize exposure to construction vibration:

    1. Avoid the use of vibratory rollers (i.e., compactors) within 50 feet of buildings that are susceptible to damage from vibration.
    2. Schedule construction activities with the highest potential to produce vibration to hours with the least potential to affect nearby institutional, educational, and office uses that the Federal Transit Administration identifies as sensitive to daytime vibration (FTA 2006).
    3. Notify neighbors of scheduled construction activities that would generate vibration.

## Consistency with Plans, Policies, and Regulations

Section 15125(d) of the CEQA Guidelines requires an EIR to discuss "any inconsistencies between the proposed project and applicable general plans, specific plans, and regional plans." Applicable plans, policies, and regulations were considered during the preparation of this analysis and were reviewed to assess whether the proposed Project would be consistent with the plans of relevant jurisdictions. The proposed Project would be consistent with most of the applicable goals, policies,

and objectives related to noise and vibration identified in local planning documents. There are instances, however, in which the proposed Project could be inconsistent with the local goals, policies, and objectives related to noise and vibration. The noise and vibration impact and mitigation requirements prescribed for the proposed Project are based on FRA and FTA standards.

## 3.14.3 Methods for Evaluating Environmental Impacts

This section defines the RSA and describes the methods used to analyze noise and vibration impacts within the RSA.

### Resource Study Area

As defined in Section 3.1, *Introduction*, RSAs are the geographic boundaries within which the environmental analyses specific to each resource topic were conducted. Noise-sensitive land use within the RSA was identified based on GIS data, aerial photography, drawings, plans, and a field survey. The RSA is displayed in Figure 3.14-4 and Figure 3.14-5 through Figure 3.14-7, from north to south. For the purposes of this analysis, the RSA for noise and vibration is defined as the area within approximately 500 feet of either side of the track centerline.

### Data Sources

#### Noise Measurement Locations and Procedures

To document the existing noise conditions for the proposed Project, a series of noise measurements was conducted in July and August 2019 along the proposed routes. Figure 3.14-8 illustrates where noise measurements were taken within the RSA. These measurements were used to supplement previous measurements in the area conducted in August 2016 for the ACEforward Project. Because the thresholds for impact in the noise criteria are based on the existing noise levels, measuring the existing noise and characterizing noise levels at sensitive locations is an important step in the impact assessment. The noise measurements included both long-term (24-hour) and short-term (one-hour) monitoring of the A-weighted sound level at noise-sensitive land uses within the RSA.

The noise measurements were performed with NTi Audio model XL2 noise monitors that conform to American National Standard Institute (ANSI) standards for Type 1 (precision) sound measurement equipment. Calibrations, traceable to the National Institute of Standards and Technology (NIST) were conducted before and after each measurement. The noise monitors were set to continuously monitor and record multiple noise level metrics, as well as obtain audio recordings, where appropriate, during the measurement periods.

At each site, the measurement was conducted at the approximate set back of the building or buildings relative to the proposed Project alignment. The measurement microphones were protected with windscreens and positioned approximately 5 feet above the ground and at least 10 feet away from any major reflecting surface. There was little or no precipitation during the measurements and the winds were not above a speed where the measurements would be compromised.

**Figure 3.14-4. Noise and Vibration Overview Figure**

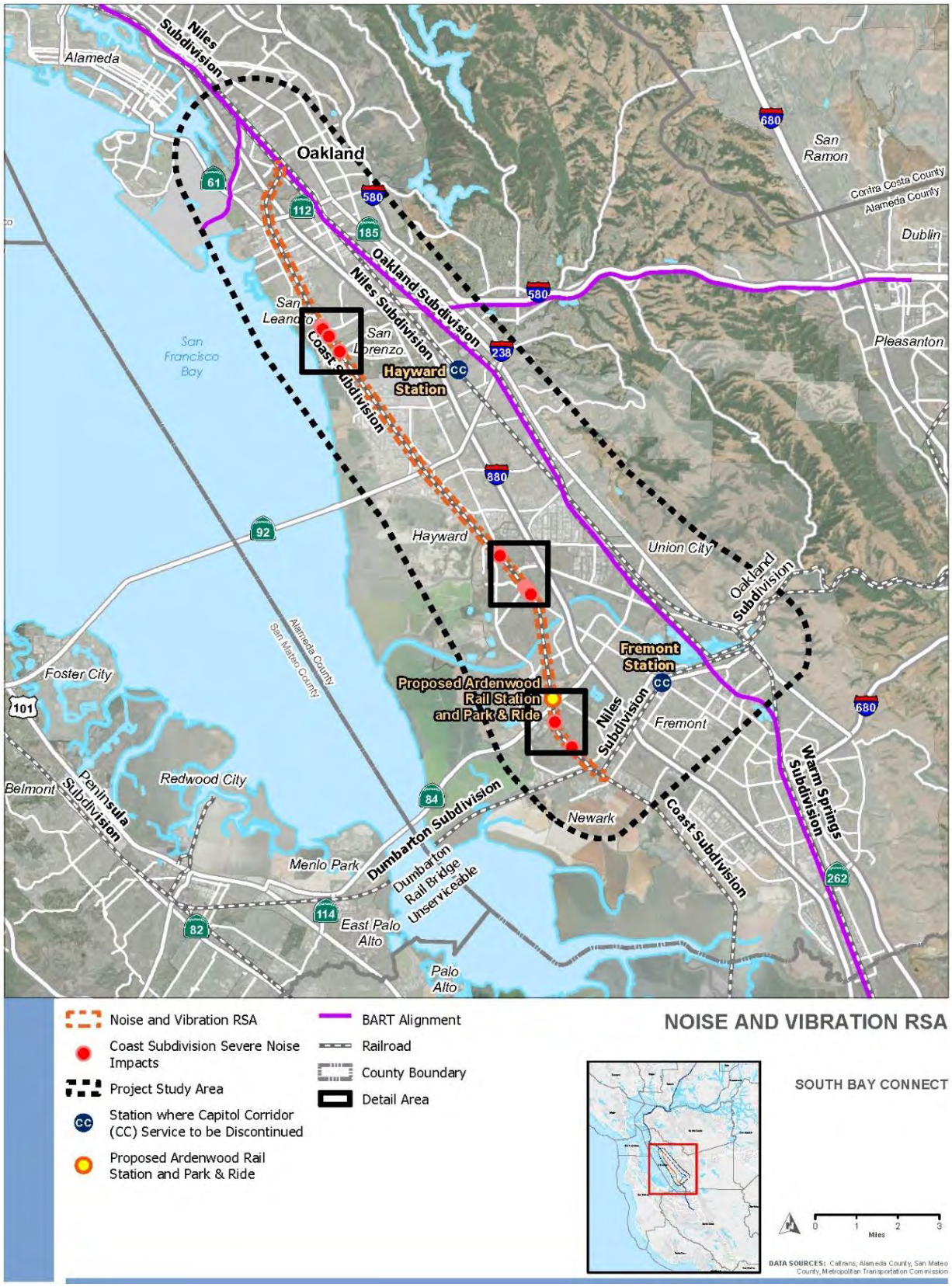


**Figure 3.14-5. Communities with Severe Noise Concerns (Section 1)**

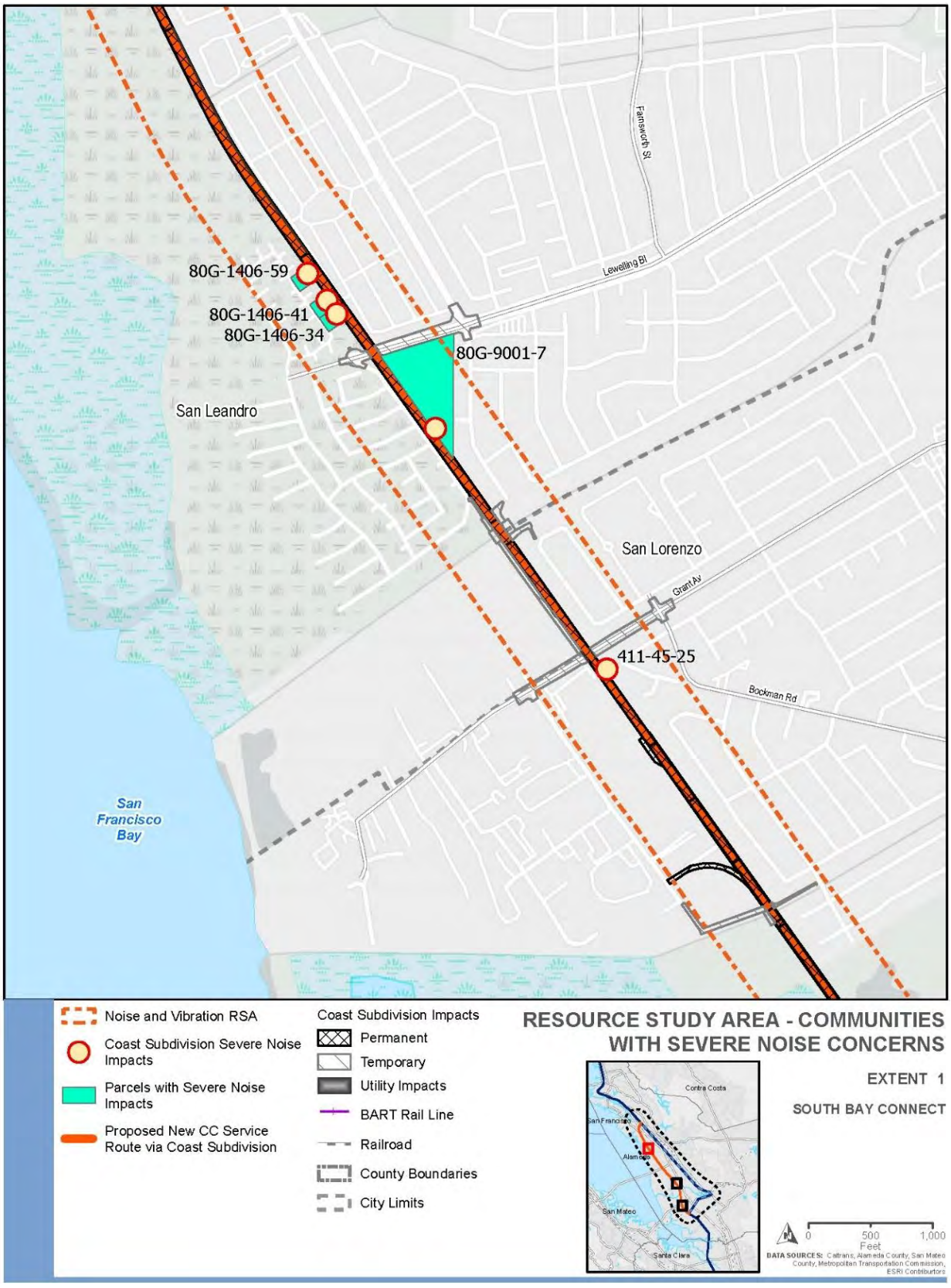


**Figure 3.14-6. Communities with Severe Noise Concerns (Section 2)**

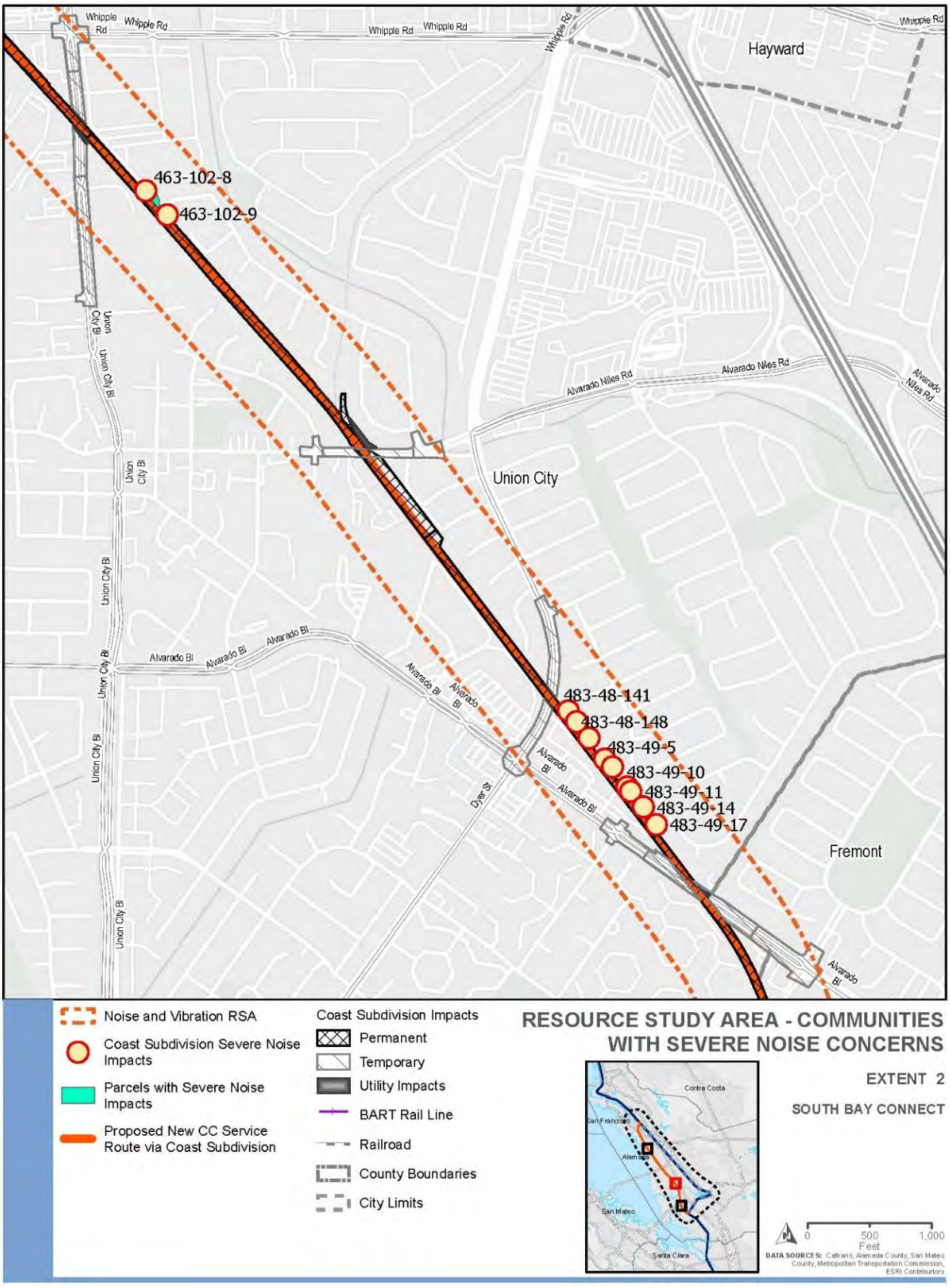


**Figure 3.14-7. Communities with Severe Noise Concerns (Section 3)**

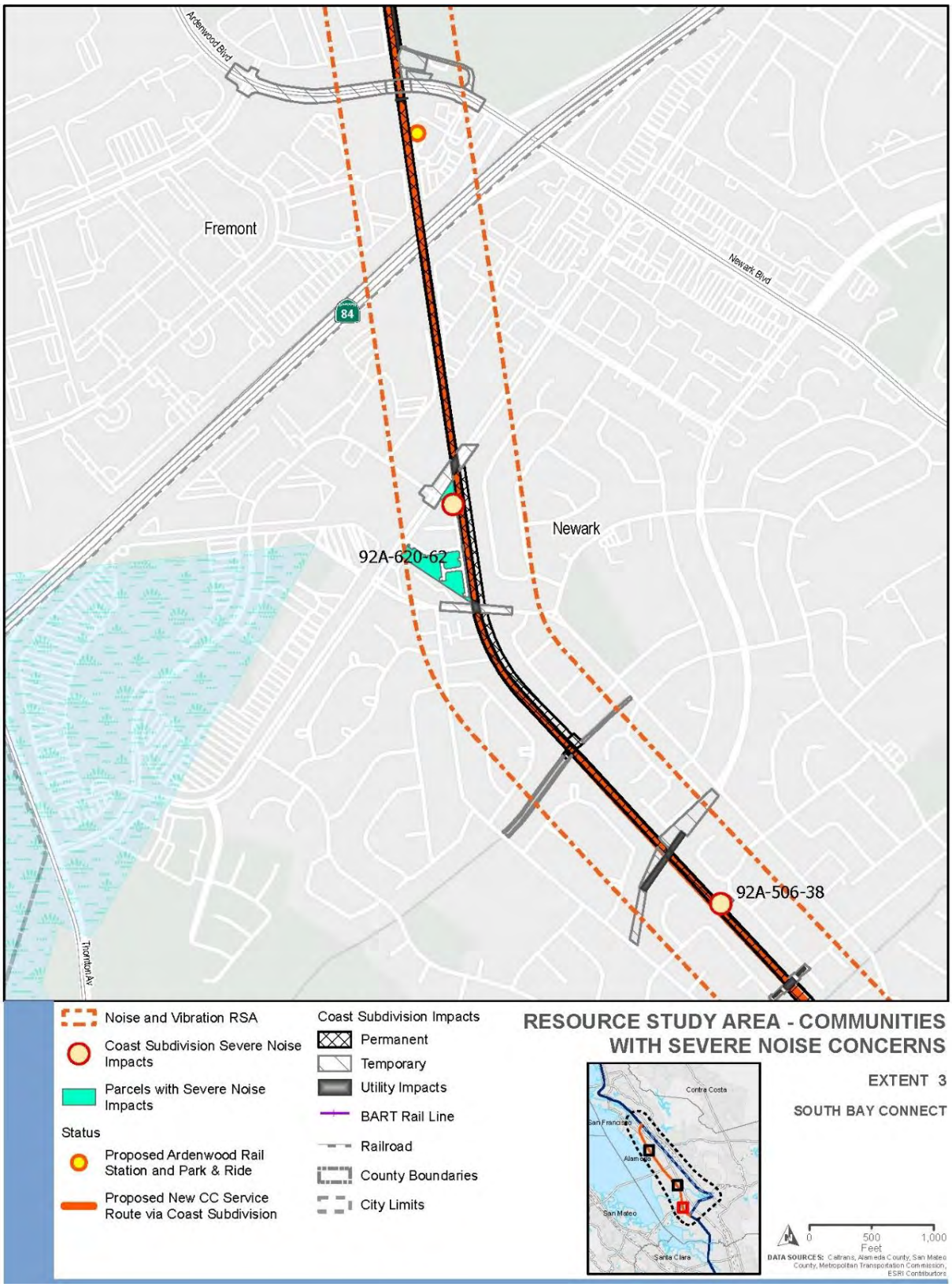
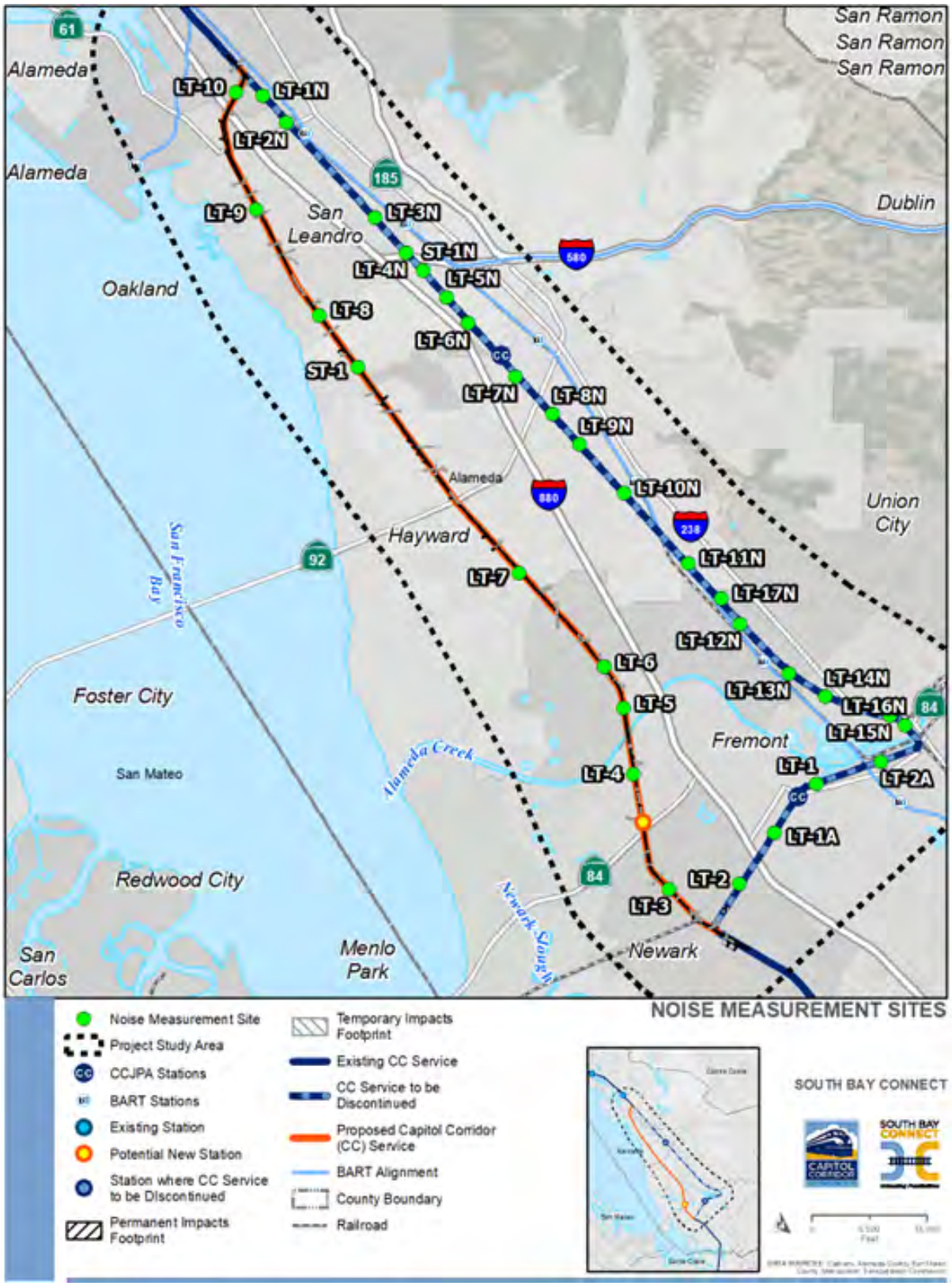


**Figure 3.14-8. Noise Measurement Locations**



## Construction Noise Impact Assessment Methodology

Construction activities required for infrastructure improvements (such as sidings, additional main line track, wayside signals, drainage, grade-separation structures) and station facilities would result in short-term increases in noise in, and around, the construction sites of the proposed Project. Noise during construction would be generated by construction equipment and vehicles during soil disturbance, earthwork, and other construction activities. The noise that could be generated would vary depending on the length of the construction period, specific construction activity (e.g., grading, paving, pile driving), types of equipment, and number of personnel.

Although construction equipment may operate in many different areas as rail infrastructure and station improvements are constructed, the highest noise levels are expected at those sites where the duration and intensity of construction activities would be greatest. Construction may occur within areas containing sensitive noise receptors and could potentially generate noise that would affect these sensitive noise receptors. Construction at a given location would be intermittent and short term for the noise-sensitive receptors adjacent to construction sites. Construction noise would cease once the rail infrastructure or station improvement is complete.

Construction noise and impacts are assessed using a combination of the methods and construction source data contained in the FTA guidance manual and the Federal Highway Administration (FHWA) Roadway Construction Noise Model (RCNM) from the FHWA Construction Noise Handbook (Final Report FHWA-HEP-06-015, August 2006). CCJPA, UPRR, and their contractors will make decisions regarding specific construction procedures and equipment that will be used for the Project. However, for this analysis, construction scenarios for typical railroad construction projects were used to predict noise impacts. The construction noise methodology includes the following information:

- Noise emissions from typical equipment used by contractors;
- Construction methods;
- Scenarios for equipment usage;
- Estimated site layouts of equipment along the ROW;
- Proximity of construction activities to nearby noise-sensitive receptors; and
- FTA construction noise assessment criteria.

The combination of noise from several pieces of equipment operating during the same time period was obtained from decibel addition of the $L_{eq}$ of each single piece of equipment. Table 3.14-1 shows typical noise levels generated by representative pieces of equipment.

**Table 3.14-1. Construction Equipment Noise Emission Levels**

| Equipment | Typical Noise Level (dBA) 50 feet from Source | Usage Factor, % |
|---|---|---|
| **Air Compressor** | 80 | 40 |
| **Backhoe** | 80 | 40 |

**Table 3.14-1. Construction Equipment Noise Emission Levels**

| Equipment | Typical Noise Level (dBA) 50 feet from Source | Usage Factor, % |
|---|---|---|
| **Ballast Equalizer** | 82 | 50 |
| **Ballast Tamper** | 83 | 50 |
| **Compactor** | 82 | 20 |
| **Concrete Mixer** | 85 | 40 |
| **Concrete Pump** | 82 | 20 |
| **Crane, Derrick** | 88 | 16 |
| **Crane, Mobile** | 83 | 16 |
| **Dozer** | 85 | 16 |
| **Generator** | 82 | 50 |
| **Grader** | 85 | 40 |
| **Impact Wrench** | 85 | 50 |
| **Jack Hammer** | 88 | 20 |
| **Loader** | 80 | 40 |
| **Paver** | 85 | 50 |
| **Pile Driver (Impact)** | 101 | 20 |
| **Pile Driver (Vibratory)** | 95 | 20 |
| **Pneumatic Tool** | 85 | 50 |
| **Pump** | 77 | 50 |

**Table 3.14-1. Construction Equipment Noise Emission Levels**

| Equipment | Typical Noise Level (dBA) 50 feet from Source | Usage Factor, % |
|---|---|---|
| **Rail Saw** | 90 | 20 |
| **Rock Drill** | 85 | 20 |
| **Roller** | 85 | 20 |
| **Saw** | 76 | 20 |
| **Scarifier** | 83 | 20 |
| **Scraper** | 85 | 40 |
| **Shovel** | 82 | 40 |
| **Spike Driver** | 77 | 20 |
| **Tie Cutter** | 84 | 20 |
| **Tie Handler** | 80 | 20 |
| **Tie Inserter** | 85 | 20 |
| **Truck** | 84 | 40 |

*Source: FTA, 2018 and FHWA, 2006*

## Construction Vibration Impact Assessment Methodology

The FTA Guidance Manual (FTA, 2018) also provides the methodology for the assessment of construction vibration impacts. Estimated construction scenarios have been developed for typical railroad construction projects allowing a quantitative construction vibration assessment to be conducted. Construction vibration is assessed quantitatively where the potential for blasting, pile driving, vibratory compaction, demolition, or excavation close to vibration-sensitive structures exists. The methodology included the following information:

- Vibration source levels from equipment used by contractors;
- Estimated site layouts of equipment along the ROW;
- Relationship of construction activities to nearby vibration-sensitive receptors; and

- FTA vibration impact criteria for annoyance and building damage.

Table 3.14-2 lists typical vibration levels generated by representative pieces of equipment.

**Table 3.14-2. Construction Equipment Vibration Source Levels**

| Equipment | PPV 25 feet from source (in/sec) | Approximate $L_V$[1] at 25 feet from source |
|---|---|---|
| **Pile Driver (impact) Upper Range** | 1.518 | 112 |
| **Pile Driver (impact) Typical** | 0.644 | 104 |
| **Pile Driver (vibratory) Upper Range** | 0.734 | 105 |
| **Pile Driver (vibratory) Typical** | 0.170 | 93 |
| **Clam shovel drop (slurry wall)** | 0.202 | 94 |
| **Hydromill (slurry wall) In Soil** | 0.008 | 66 |
| **Hydromill (slurry wall) In Rock** | 0.017 | 75 |
| **Vibratory roller** | 0.210 | 94 |
| **Hoe ram** | 0.089 | 87 |
| **Large bulldozer** | 0.089 | 87 |
| **Caisson drilling** | 0.089 | 87 |
| **Loaded trucks** | 0.076 | 86 |
| **Jackhammer** | 0.035 | 79 |
| **Small bulldozer** | 0.003 | 58 |

*Note: 1. RMS Velocity in decibels (VdB) re 1 micro-inch/second ($L_V$).*
*Source: FTA, 2018*

## Operational Noise Assessment Methodology

The primary components of wayside noise from train operations are locomotive horns, locomotive engine/exhaust noise, and wheel/rail noise from steel wheels rolling on steel rails. Secondary sources, such as vehicle air-conditioning and other ancillary equipment, will sometimes be audible, but are not expected to be significant factors. The projection of wayside noise from train operations was carried out using the commuter train model specified in the FTA Guidance Manual, with the following assumptions:

- Commuter trains as described in the FTA methodology are representative of CCJPA trains because CCJPA trains use the same locomotives and similar double-deck passenger cars typically found on commuter trains.
- Commuter trains would consist of one diesel locomotive and four rail cars.
- Commuter train diesel locomotives generate a sound exposure level (SEL) of 92 dBA, in accordance with FTA methodology (FTA, 2018).
- Commuter train locomotive horns generate an SEL of 103 dBA, based on measurements of ACE Commuter trains conducted for the ACEforward Project, in accordance with FTA methodology (FTA, 2018). It is assumed that the horns would begin to be sounded 20 seconds, but not more than ¼ mile, in advance of grade crossings in accordance with FRA regulations.
- Commuter rail cars generate an SEL of 82 dBA, in accordance with FTA methodology (FTA, 2018).
- Commuter train speeds were modeled at 79 mph on the Coast Subdivision.
- The schedule of commuter train operations is expected to include six trains in each direction during daytime hours (between 7:00 AM and 10:00 PM) and one train in each direction during nighttime hours (between 10:00 PM and 7:00 AM). This schedule corresponds to a total of 14 trains passing by a given location during a 24-hour weekday.
- Wheel impacts at crossovers and turnouts are assumed to cause localized noise increases of 5 dB at sensitive receiver locations up to 300 feet away.
- This assessment assumed that there would be no change in freight rail service frequency due to the implementation of the South Bay Connect Project on the Coast Subdivision.
- Freight trains would consist of an average of three diesel locomotives and 140 rail cars.
- Freight locomotives generate an SEL of 97 dBA, as specified in the FRA CREATE model (FRA, 2006).
- Freight locomotive horns generate an SEL of 113 dBA, in accordance with FTA methodology (FTA, 2018). It is assumed that the horns would begin to be sounded 20 seconds, but not more than 0.25 mile, in advance of grade crossings in accordance with FRA regulations.
- Freight rail cars generate an SEL of 85.4 dBA, as specified in the FRA CREATE model (FRA, 2006).
- Freight train speeds were modeled at 50 mph on the Coast Subdivision.

## Operational Vibration Assessment Methodology

Because freight train events are much longer in duration than commuter rail or rail transit events, subdivisions with freight operations would be considered heavily used. The proposed Project is on the Coast Subdivision, which is in the heavily used category, either due to the proposed passenger rail (Capitol Corridor) service, existing Amtrak long-distance service, or the existing UPRR freight service. Additionally, at no location would the total number of trains double due to the proposed Project, so there would not be a significant increase (according to FTA vibration criteria) in the number of events per day. The vibration levels of the passenger rail trains and freight trains are similar, so the Project vibration levels would not be greater than the existing levels; therefore, at most locations, there would be no vibration impact due to the proposed Project, based on the criteria for existing train operations described in Section 6.4 of the *FTA Manual* (FTA, 2018). The vibration levels from trains are mostly dependent on the unsprung mass of the vehicle, rather than the overall weight of the vehicle. Locomotives and rail cars are assessed separately because this value is different for each. In the FTA guidance, freight and passenger locomotives are grouped together, and all rail cars are also grouped together with regards to vibration levels. Because the vibration source levels are the same for locomotives, regardless of whether they are freight or passenger, and the vibration source levels are the same for rail cars, the vibration levels will not increase over the existing vibration levels, with the introduction of the proposed Project. The only locations where there would be the potential for vibration impacts would be locations within 200 feet of new crossovers or turnouts associated with sidings proposed as a part of the Project. This is discussed further in Section 3.14.6.2.

## FTA Noise and Vibration Impact Criteria

### Construction Noise Impact Criteria

FTA has developed methods for evaluating construction noise levels (FTA, 2018). The FTA's *Transit Noise and Vibration Impact Assessment Manual* does not specify standard criteria for construction noise impacts (FTA, 2018). However, the manual does provide guidelines that can be considered reasonable criteria for assessment, which are shown in Table 3.14-3. According to the FTA (2018), exceeding these criteria may result in an adverse community reaction. The last column applies to construction activities that extend over 30 days near any given receiver. The $L_{dn}$ is used to assess impacts in residential areas, and 24-hour $L_{eq}$ is used in commercial and industrial areas. The 8-hour $L_{eq}$ and the 30-day average $L_{dn}$ noise exposure from construction noise calculations uses the noise emission levels of the construction equipment, their location, and operating hours. The construction noise limits are typically assessed at the noise-sensitive receiver property line.

**Table 3.14-3. FTA Construction Noise Criteria**

| Land Use | Daytime 8-hour $L_{eq}$ (dBA) | Nighttime 8-hour $L_{eq}$ (dBA) | Noise Exposure 30-day Average (dBA) |
|---|---|---|---|
| **Residential** | 80 | 70 | 75 |
| **Commercial** | 85 | 85 | 80 |

**Table 3.14-3. FTA Construction Noise Criteria**

| Land Use | Daytime 8-hour $L_{eq}$ (dBA) | Nighttime 8-hour $L_{eq}$ (dBA) | Noise Exposure 30-day Average (dBA) |
|---|---|---|---|
| **Industrial** | 90 | 90 | 85 |

*Source: FTA, 2018*

### Operational Noise Criteria

The FTA operational noise impact criteria are based on well-documented research on community response to noise and are based on both the existing level of noise and the change in noise exposure due to a project. The FTA noise criteria compare the project with the existing noise (not the no-project noise). This is because comparison of a noise projection with an existing noise condition is more accurate than comparison of a projection with another noise projection. Because background noise may increase by the time the proposed Project is operational, this approach of using existing noise conditions is conservative.

The FTA noise criteria are based on the land use category of the sensitive receptor. The descriptors and criteria for assessing noise impact vary according to land use categories adjacent to the track. For Category 2 land uses where people live and sleep (e.g., residential neighborhoods, hospitals, and hotels), the $L_{dn}$ is the assessment parameter. For other land use types (Category 1 or 3), where there are noise-sensitive uses (e.g., outdoor concert areas, schools, and libraries), the $L_{eq}$ for an hour of noise sensitivity that coincides with train activity is the assessment parameter. Table 3.14-4 summarizes the three land use categories.

**Table 3.14-4. Land Use Categories and Metrics for Transit Noise Impact Criteria**

| Land Use Category | Land Use Type | Noise Metric (dBA) | Policy Summary |
|---|---|---|---|
| **1** | High Sensitivity | Outdoor $L_{eq}(h)^*$ | Land where quiet is an essential element of its intended purpose. Example land uses include preserved land for serenity and quiet, outdoor amphitheaters and concert pavilions, and National Historic Landmarks with considerable outdoor use. Recording studios and concert halls are also included in this category. |
| **2** | Residential | Outdoor $L_{dn}$ | This category is applicable to all residential land use and buildings where people normally sleep, such as hotels and hospitals. |

**Table 3.14-4. Land Use Categories and Metrics for Transit Noise Impact Criteria**

| Land Use Category | Land Use Type | Noise Metric (dBA) | Policy Summary |
|---|---|---|---|
| **3** | Institutional | Outdoor $L_{eq}(h)^*$ | This category is applicable to institutional land uses with primarily daytime and evening use. Example land uses include schools, libraries, theaters, and churches, where it is important to avoid interference with such activities as speech, meditation, and concentration on reading material. Places for meditation or study associated with cemeteries, monuments, museums, campgrounds, and recreational facilities are also included in this category. |

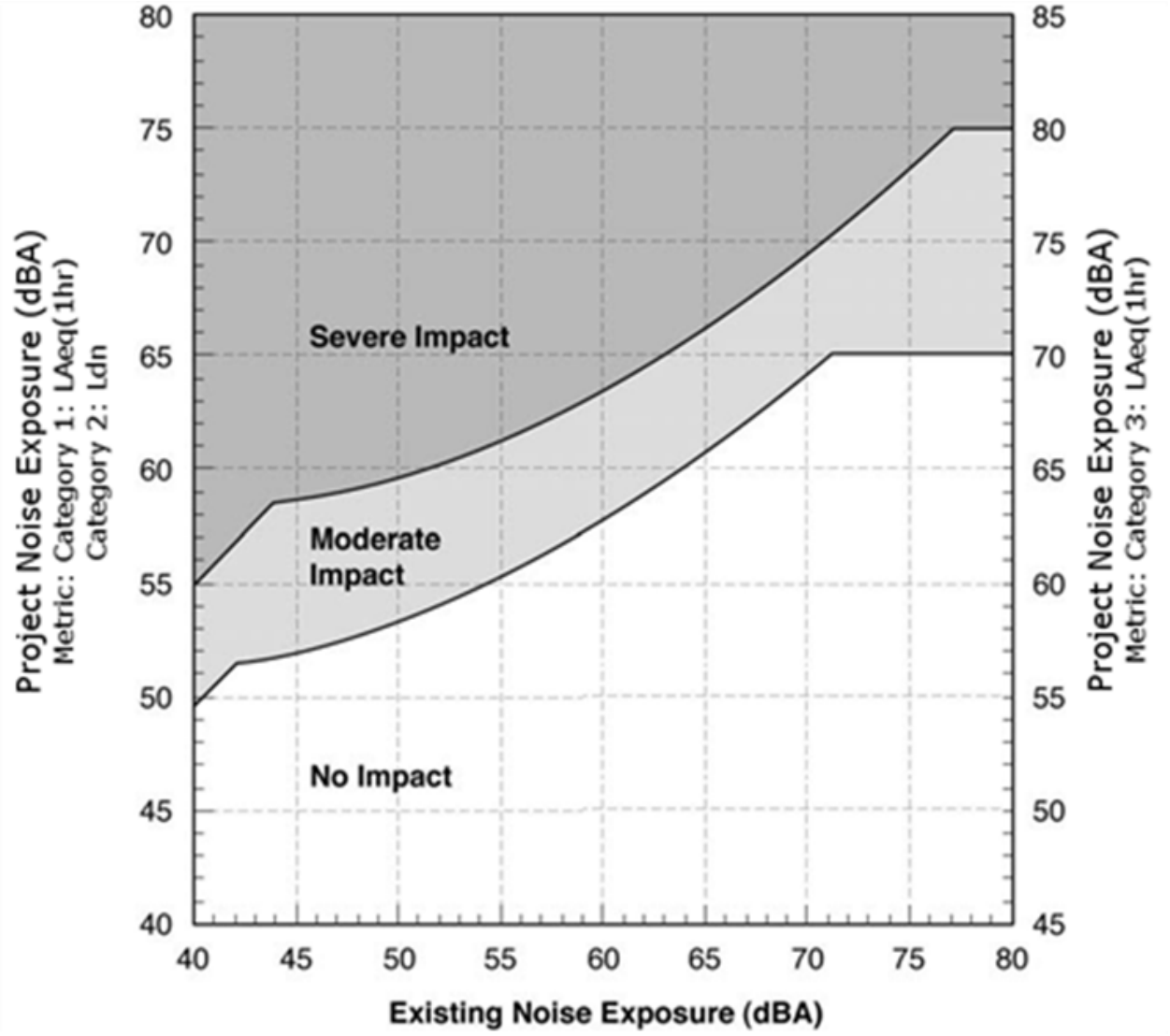
** $L_{eq}$ for the noisiest hour of transit-related activity during hours of noise sensitivity*
*Source: FTA, 2018*

The noise impact criteria are defined by the two curves shown in Figure 3.14-9, which allow increasing project noise as existing noise levels increase, up to a point at which impact is determined based on project noise alone. The FTA noise impact criteria include three levels of impact, as shown in Figure 3.14-9, which include:

- **No Impact:** Project-generated noise is not likely to cause community annoyance. Noise projections in this range are considered acceptable by FTA and mitigation is not required.
- **Moderate Impact:** Project-generated noise in this range is considered to cause impact at the threshold of measurable annoyance. Moderate impacts serve as an alert to project planners for potential adverse impacts and complaints from the community. Mitigation should be considered at this level of impact based on project specifics and details concerning the affected properties.
- **Severe Impact:** Project-generated noise in this range is likely to cause a high level of community annoyance. If it is not practical to avoid severe impacts by changing the location of the project, mitigation measures must be considered.

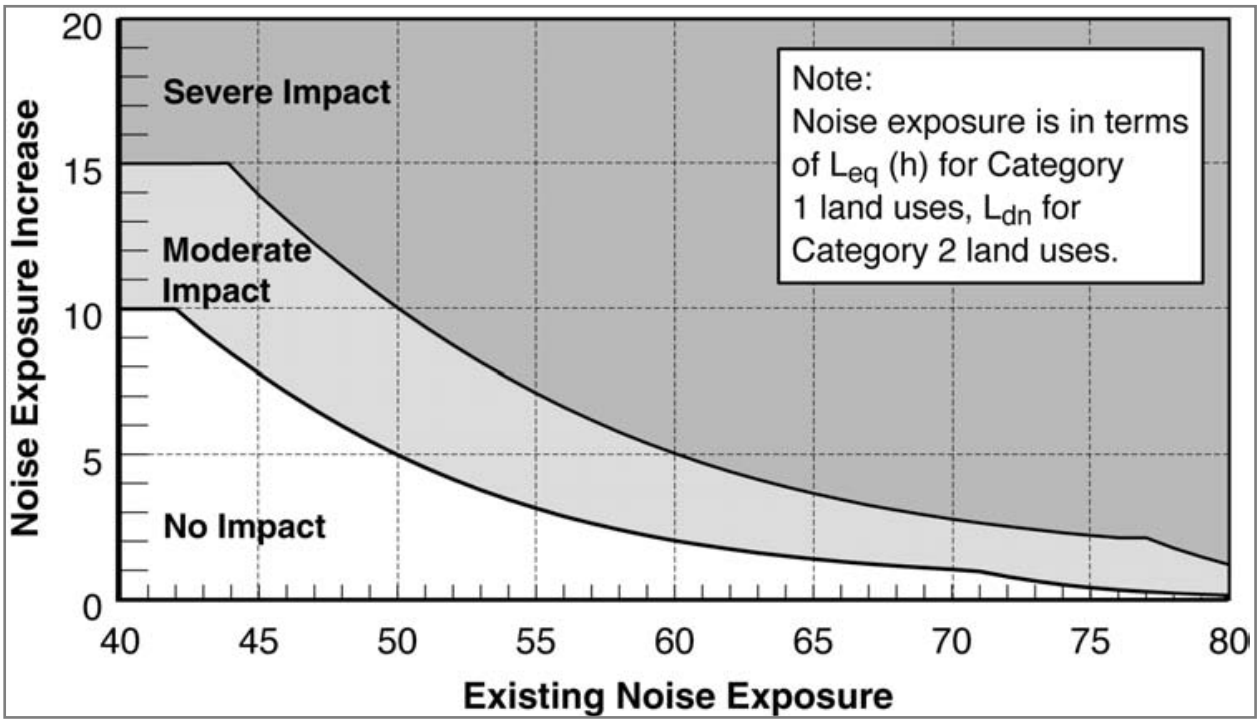
Although the curves in Figure 3.14-9 are defined in terms of the project noise exposure and the existing noise exposure, the increase in the cumulative noise—when project-generated noise is added to existing noise levels—is the basis for the criteria. To illustrate this point, Figure 3.14-10 shows the noise impact criteria for Category 1 and Category 2 land uses in terms of the allowable increase in the cumulative noise exposure. Because $L_{dn}$ and $L_{eq}$ are measures of total acoustic energy, any new noise source in a community will cause an increase, even if the new source level is lower than the existing level. In Figure 3.14-10, the criterion for a moderate impact allows a noise exposure increase of 10 dB if the existing noise exposure is 42 dBA or less, but only a 1 dB increase when the existing noise exposure is 70 dBA.

**Figure 3.14-9. FTA Noise Impact Criteria**




Source: FTA, 2018

**Figure 3.14-10. FTA Cumulative Noise Impact Criteria**




Source: FTA, 2018

### Construction Vibration Impact Criteria

In addition to the vibration criteria for human annoyance and interference with equipment and spaces described in this section, there are also vibration criteria for damage from construction activities. Typical transit operations do not have the potential to cause damage, so only certain construction activities, such as pile driving, are assessed for damage to structures. In most cases, damage is limited to superficial effects, such as cracks in plaster walls. Structural damage typically does not occur from construction vibration.

The thresholds for damage to structures are typically several orders of magnitude above the thresholds for human response to vibration. Table 3.14-5 shows the FTA's criteria for vibration damage to structures (FTA, 2018). This is based on the structure and construction type, rather than whether is designated as historic building. Table 3.14-5 includes criteria in both VdB and PPV.

**Table 3.14-5. FTA Construction Vibration Damage Criteria**

| Building Category | PPV (in/sec) | Approximate RMS Velocity (VdB re: 1 micro-inch/sec) |
|---|---|---|
| **I. Reinforced-concrete, steel or timber (no plaster)** | 0.5 | 102 |
| **II. Engineered concrete and masonry (no plaster)** | 0.3 | 98 |

**Table 3.14-5. FTA Construction Vibration Damage Criteria**

| Building Category | PPV (in/sec) | Approximate RMS Velocity (VdB re: 1 micro-inch/sec) |
|---|---|---|
| **III. Non-engineered timber and masonry buildings** | 0.2 | 94 |
| **IV. Buildings extremely susceptible to vibration damage** | 0.12 | 90 |

*Source: FTA, 2018*

### Operational Vibration Impact Criteria

The operational vibration impact criteria are based on the information contained in Section 6 of the *FTA Transit Noise and Vibration Impact Assessment Manual* (2018). The criteria for a general vibration assessment are based on land use and train frequency, as shown in Table 3.14-6. Some buildings, such as concert halls, recording studios and theaters, can have a higher sensitivity to vibration (or ground-borne noise) but do not fit into the three categories listed in Table 3.14-6; there are none of these higher sensitivity structures in the proposed Project footprint.

Table 3.14-6 includes additional criteria for ground-borne noise. Ground-borne noise is defined in terms of dBA, which emphasizes middle and high frequencies, which are more audible to human ears. The criteria for ground-borne noise are much lower than for airborne noise to account for the low-frequency character of ground-borne noise. However, because airborne noise typically masks ground-borne noise for above ground (at-grade or elevated) transit systems, ground-borne noise is only assessed for operations in tunnels, where airborne noise is not a factor, or at locations such as recording studios, which are well insulated from airborne noise.

**Table 3.14-6. Ground-Borne Vibration and Noise Impact Criteria for General Assessment**

| Land Use Category | PPV (in/sec) | | | Approximate RMS Velocity (VdB re: 1 micro-inch/sec) | | |
|---|---|---|---|---|---|---|
| | Frequent Events[1] | Occasional Events[2] | Infrequent Events[3] | Frequent Events[1] | Occasional Events[2] | Infrequent Events[3] |
| **Category 1: Buildings where vibration would interfere with interior operations.** | 65[4] | 65[4] | 65[4] | N/A[5] | N/A[5] | N/A[5] |

**Table 3.14-6. Ground-Borne Vibration and Noise Impact Criteria for General Assessment**

| Land Use Category | PPV (in/sec) | | | Approximate RMS Velocity (VdB re: 1 micro-inch/sec) | | |
|---|---|---|---|---|---|---|
| | Frequent Events[1] | Occasional Events[2] | Infrequent Events[3] | Frequent Events[1] | Occasional Events[2] | Infrequent Events[3] |
| **Category 2: Residences and buildings where people normally sleep.** | 72 | 75 | 80 | 35 | 38 | 43 |
| **Category 3: Institutional land uses with primarily daytime use.** | 75 | 78 | 83 | 40 | 43 | 48 |

*Notes:*

*1. "Frequent Events" is defined as more than 70 vibration events of the same source per day. Most rapid transit projects fall into this category.*

*2. "Occasional Events" is defined as between 30 and 70 vibration events of the same source per day. Most commuter trunk lines have this many operations.*

*3. "Infrequent Events" is defined as fewer than 30 vibration events of the same kind per day. This category includes most commuter rail branch lines.*

*4. This criterion limit is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes. Vibration-sensitive manufacturing or research will require detailed evaluation to define the acceptable vibration levels. Ensuring lower vibration levels in a building often requires special design of the HVAC systems and stiffened floors.*

*5. Vibration-sensitive equipment is generally not sensitive to ground-borne noise.*

*Source: FTA, 2018*

One factor not incorporated in the vibration criteria is existing vibration. In most cases, except near railroad tracks, the existing environment does not include a substantial number of perceptible ground-borne vibration or noise events. The criteria presented in Table 3.14-6 do not indicate how to account for existing vibration, a common situation for rail projects using existing rail ROWs. Representative scenarios for existing vibrations can be assessed using the following methods:

- **Infrequently used rail route:** Use the vibration criteria from Table 3.14-6 when the existing rail traffic consists of four trains or fewer per day.
- **Moderately used rail route:** If the existing rail traffic consists of 5 to 12 trains per day with vibration that substantially exceeds the impact criteria, there would be no effect as long as the project vibration levels are at least 5 VdB less than the existing vibration. Vibration from existing trains can be estimated using the General Assessment procedures in Section 6.4 of the *FTA Manual* (FTA, 2018).

  **Heavily used rail route:** If the existing traffic exceeds 12 trains per day and if the project would not substantially increase the number of vibration events (less than doubling the number of trains is usually considered not substantial), there would be no additional effect unless the project vibration, estimated using the procedures of Section 6.4 of the *FTA Manual*, would be higher than the existing vibration (FTA, 2018). In locations where the new trains would be

operating at higher speeds than the existing rail traffic, the trains would likely generate substantially higher levels of ground-borne vibration. When the project would cause vibration more than 5 VdB greater than the existing source, the existing source can be ignored and the vibration criteria in Table 3.14-6 can be applied to the Project.

## CEQA Thresholds

To satisfy CEQA requirements, noise and vibration impacts were analyzed in accordance with Appendix G of the CEQA Guidelines. According to the CEQA Guidelines, CCR, Title 14, Section 15002(g), "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in CEQA Guidelines Section 15064(b)(1), the significance of an activity may vary with the setting. The impact analysis identifies and analyzes construction (short-term) and operation (long-term) impacts, as well as direct and indirect impacts (see PRC Section 21065). The proposed Project would have significant noise and vibration impacts under CEQA if it would:

a. Generate a substantial temporary or permanent increase in ambient noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;

b. Generate of excessive ground-borne vibration or ground-borne noise levels; or

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.

For purposes of this analysis, an impact would be considered significant if construction or operation of the proposed Project would have any of the following consequences:

- Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of severe impact standards for a severe impact established by FTA for transit projects and other changes related to the project. These standards cover both substantial permanent and substantial temporary/periodic increases in ambient noise levels in the vicinity of the project above levels existing without the project.
- Generation of excessive ground-borne vibration or ground-borne noise levels.
- For areas near airports, the FTA severe impact threshold would also apply to generation of excessive noise levels.

# 3.14.4 Affected Environment

## 3.14.4.1 Environmental Setting

### Existing Noise Sensitive Land Use Conditions

The rail corridor crosses through areas containing noise-sensitive land uses including residential, schools, daycare centers, parks, and places of worship. Table 3.14-7 provides a summary of noise sensitive land uses within the Coast Subdivision.

**Table 3.14-7. Coast Subdivision Noise-Sensitive Land Uses**

| Location | Land Use Summary |
|---|---|
| **Newark Junction to Jarvis Avenue** | The noise-sensitive land use between Newark Junction and Jarvis Avenue along the Coast Subdivision is mostly single-family and multifamily residences. In addition to these land uses, noise-sensitive land uses include the Church of Jesus Christ of Latter-day Saints, Watkins Hall, Newark Community Church, Newark Christian Center and School, and Newark Senior Center. |
| **Jarvis Avenue to Ardenwood Boulevard** | The land use between Jarvis Avenue and Ardenwood Boulevard along the Coast Subdivision is mostly commercial. The noise-sensitive land use includes Sankata Mochana Hanuman Temple, Green Grass Edu, Shree Swaminarayan Hindu Temple, Home of Christ Church, and Challenger School – Ardenwood. |
| **Ardenwood Boulevard to Alvarado Boulevard** | The land use between Ardenwood Boulevard and Alvarado Boulevard along the Coast Subdivision is residential. The noise-sensitive land use is mostly single-family and multifamily residential and includes Adventure Montessori Academy, Cavalry Bible Chapel, and Alvarado KinderCare – Preschool. |
| **Alvarado Boulevard to Arden Road** | The land use between Alvarado Boulevard and Arden Road is a mixture of industrial, commercial, and residential. The noise-sensitive land use includes Kaiser Permanente Medical Center, Sociedade Divino Espirito Santo – Union City, Alvarado Park, Union City Historical Museum, New Covenant Evangelistic Center, Alvarado Elementary School, Alvarado Middle School, Adventure Montessori Academy, Safari Kid – Preschool and Daycare, and single-family and multifamily residences. |
| **Arden Road to Skywest Golf Course** | The land use between Arden Road and Skywest Golf Course is a mixture of commercial and industrial. There are no noise-sensitive land uses in this area. |
| **Skywest Golf Course to Farallon Drive** | The land use between Skywest Golf Course and Farallon Drive is mostly residential. The noise-sensitive land use includes the San Leandro Marina Community Center, Kipp King Collegiate High School, Bay Elementary School, San Lorenzo Park – Lake Walkway, and single-family and multifamily residences. |
| **Farallon Drive to Davis Street** | The land use between Farallon Drive and Davis Street is a mixture of commercial, industrial, and residential. The noise-sensitive land use includes Our Future Tots Daycare, Faith Chapel Church of God – East Bay, and single-family and multifamily residences. |

**Table 3.14-7. Coast Subdivision Noise-Sensitive Land Uses**

| Location | Land Use Summary |
|---|---|
| **Davis Street to 98th Avenue** | The land use between Davis Street and 98th Avenue is a mixture of commercial, industrial, and residential. The noise-sensitive land use includes Victory Baptist Church, Tabernacle Missionary Baptist Church, Iglesia Pentecostal Manantial de Vida, Oakland Cambodian Temple, SUM Bible College and Theological Seminary, King Pan Buddha Light Palace, Aspire Lionel Wilson Preparatory Academy, Community Reformed Church, and single-family and multifamily residences. |

### Existing Noise Conditions

Table 3.14-8 summarizes the results of the existing noise measurement program and Figure 3.14-8 shows the 28 long-term (LT) locations and 1 short-term (ST) location for the Project. The results of the existing noise measurements were used to characterize the existing noise levels at all noise-sensitive locations within the RSA. The measured noise levels ranged from 53 to 77 dBA Ldn, depending on the proximity of the receptor to the existing tracks.

### Existing Vibration Conditions

Significant sources of vibration currently exist in the RSA including freight rail and Amtrak passenger rail service.

Because a general vibration assessment (rather than a detailed vibration analysis) was performed, existing vibration levels were not measured as a part of this assessment. A detailed vibration assessment is typically only conducted for new transit projects where either extensive vibration mitigation would be required, or where there are highly sensitive receptors near the proposed alignment. Because the vibration levels aren't changing at most locations, due to the existing train traffic, a detailed assessment is not required.

## 3.14.5 Best Management Practices

As noted in Chapter 2, Project Alternatives, CCJPA would incorporate a range of BMPs to avoid and minimize adverse effects on the environment that could result from implementation of the proposed Project. BMPs are included in the proposed Project description, and the impact analyses were conducted assuming application of these practices.

No BMPs for noise and vibration are included in the proposed Project.

**Table 3.14-8. Existing Noise Level Measurements in the RSA**

| Site No. | City | Measurement Location | Measurement Start | Measurement Duration (hours) | $L_{eq}$ Noise Level (dBA)[1] | $L_{dn}$ Noise Level (dBA)[1] | Notes |
|---|---|---|---|---|---|---|---|
| **LT-3** | Newark | 36329 Colbert Place | 2019-07-29 (16:00:00) | 24 | 50 | 56 | The dominant noise source was rail traffic. Noise levels were measured for 24 hours in the backyard of the residence. |
| **LT-4** | Fremont | 5364 Matthew Terrace | 2019-07-30 (15:14:00) | 24 | 50 | 55 | The dominant noise sources were traffic on Paseo Padre Parkway and rail traffic. Noise levels were measured for 24 hours in the backyard of the residence. |
| **LT-5** | Union City | 4301 Sedge Street | 2019-07-31 (15:00:00) | 24 | 48 | 61 | The dominant noise sources were rail traffic and neighborhood noises. Noise levels were measured for 24 hours in the backyard of the residence. |
| **LT-6** | Union City | 31357 San Bruno Court | 2019-07-30 (16:00:00) | 24 | 51 | 65 | The dominant noise sources were rail traffic and traffic on Dyer Street. Noise levels were measured for 24 hours in the backyard of the residence. |

**Table 3.14-8. Existing Noise Level Measurements in the RSA**

| Site No. | City | Measurement Location | Measurement Start | Measurement Duration (hours) | $L_{eq}$ Noise Level (dBA)[1] | $L_{dn}$ Noise Level (dBA)[1] | Notes |
|---|---|---|---|---|---|---|---|
| **LT-7** | Hayward | 2751 Shellgate Circle | 2019-07-31 (13:00:00) | 24 | 50 | 56 | The dominant noise sources were train traffic and aircraft. Noise levels were measured for 24 hours in the backyard of the residence. |
| **LT-8** | San Leandro | 15649 Wicks Boulevard | 2019-07-31 (11:00:00) | 24 | 50 | 64 | The dominant noise sources were train traffic and aircraft. Noise levels were measured for 24 hours in the backyard of the residence. |
| **LT-9** | San Leandro | 13517 Menlo Street | 2019-07-30 (11:00:00) | 24 | 47 | 68 | The dominant noise source was train traffic. Noise levels were measured for 24 hours in the backyard of the residence. |
| **LT-10** | Oakland | 444 Douglas Avenue | 2019-07-30 (11:00:00) | 24 | 49 | 65 | The dominant noise sources were rail traffic and traffic on Interstate 880. Noise levels were measured for 24 hours in the backyard of the residence. |
| **ST-1** | San Lorenzo | San Lorenzo Community Center Park | 2019-07-30 (17:00:00) | 1 | 55 | 53 | The dominant noise source was aircraft. Noise levels were measured for an hour on the western side of the lake. |

**Table 3.14-8. Existing Noise Level Measurements in the RSA**

| Site No. | City | Measurement Location | Measurement Start | Measurement Duration (hours) | $L_{eq}$ Noise Level (dBA)[1] | $L_{dn}$ Noise Level (dBA)[1] | Notes |
|---|---|---|---|---|---|---|---|
| **LT-3** | Newark | 36329 Colbert Place | 2019-07-29 (16:00:00) | 24 | 50 | 56 | The dominant noise source was rail traffic. Noise levels were measured for 24 hours in the backyard of the residence. |

*Notes:*
*1. $L_{dn}$ is used for Category 2 (residential) land use and $L_{eq}$ is used for Category 3 (institutional) land use.*
*LT-# = longer-term noise sites*
*ST-# = short-term noise sites*
*No. = number*
*hrs. = hours*
*dBA = A-weighted decibels*
*$L_{eq}$ = equivalent sound level*
*$L_{dn}$ = day-night sound level*
*Meas. Dur. = measurement duration*
*Source: CSA, 2019*

# 3.14.6 Environmental Impacts

This section describes the potential environmental impacts related to noise as a result of implementation of the proposed Project. Lettering shown within the title for each environmental factor below correlates with CEQA Statute and Guidelines, Appendix G table lettering and numbering.

## 3.14.6.1 (a) Would the project result in the generation of a substantial temporary or permanent increase in ambient noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

### No Project Alternative

**No Impact.** Under the No Project Alternative, the Capitol Corridor passenger rail service between Oakland and San Jose would not be relocated from the Niles Subdivision to the Coast Subdivision. Improvements proposed for the Niles and Coast Subdivisions associated with the proposed Project would not occur. Capitol Corridor passenger trains would continue to operate based on current routes with no changes. There would be no changes to rail connectivity or operational efficiency. Therefore, the No Project Alternative would not result in direct impacts or changes to existing noise levels within the RSA.

### Proposed Project

#### Construction

**Less than Significant Impact with Mitigation Incorporated.** Construction of track improvements would include three basic activities: (1) site work, (2) rail work, and (3) structures work. Because most track improvements are located on an active rail line, some construction work is anticipated to occur during the nighttime. The local noise ordinances for the cities and County along the rail corridor generally limit construction noise to particular time periods during weekday, weekend, and holiday daytime hours, with nighttime construction work generally prohibited. However, some jurisdictions allow for a noise variance.

Table 3.14-9 summarizes typical estimated construction noise levels and noise impact screening distances for each of the planned construction activities (e.g., site work, rail work, and structures work). The noise estimates are based on scenarios for the construction activities, using the FTA methodology and criteria described in Section 3.14.3, Methods for Evaluating Environmental Impacts. For purposes of this analysis, the screening distance estimates did not assume any topography or ground effects.

**Table 3.14-9. Noise Impact Assessment for Construction Activities**

| Construction Activity and Equipment | Noise Level at 50 feet (dBA) | Equipment Usage Factor (%) | 8-Hour $L_{eq}$ at 50 feet (dBA) Predicted Exposure | 8-Hour $L_{eq}$ at 50 feet (dBA) Daytime Criterion | Approx. Noise Impact Distance (feet) |
|---|---|---|---|---|---|
| **Site Work** | — | — | 89 | 80 | 135 |
| **Grader** | 85 | 53 | 82 | — | — |
| **Water Truck** | 84 | 44 | 80 | — | — |
| **D6 Dozer** | 85 | 61 | 83 | — | — |
| **D8 Dozer** | 85 | 45 | 82 | — | — |
| **Compactor** | 82 | 45 | 79 | — | — |
| **Dump Truck** | 84 | 23 | 78 | — | — |
| **Rail Work** | — | — | 90 | 80 | 150 |
| **Locomotive** | 88 | 25 | 82 | — | — |
| **D6 Dozer** | 85 | 38 | 81 | — | — |
| **Grader** | 85 | 38 | 81 | — | — |
| **Water Truck** | 84 | 38 | 80 | — | — |
| **Tamper** | 83 | 20 | 76 | — | — |
| **Regulator** | 85 | 20 | 78 | — | — |
| **Swinger** | 85 | 19 | 78 | — | — |
| **Welder** | 74 | 38 | 70 | — | — |
| **Flat Bed Truck** | 84 | 31 | 79 | — | — |
| **Pickup Truck** | 75 | 25 | 69 | — | — |

**Table 3.14-9. Noise Impact Assessment for Construction Activities**

| Construction Activity and Equipment | Noise Level at 50 feet (dBA) | Equipment Usage Factor (%) | 8-Hour $L_{eq}$ at 50 feet (dBA) Predicted Exposure | 8-Hour $L_{eq}$ at 50 feet (dBA) Daytime Criterion | Approx. Noise Impact Distance (feet) |
|---|---|---|---|---|---|
| **Sports Utility Vehicle** | 75 | 31 | 70 | — | — |
| **35-Ton Rough Terrain Crane** | 83 | 38 | 79 | — | — |
| **Flat Bed Tractor** | 84 | 13 | 75 | — | — |
| **Wheel Loader** | 80 | 28 | 74 | — | — |
| **Structures Work** | — | — | 95 | 80 | 270 |
| **Impact Pile Driver** | 101 | 20 | 94 | — | — |
| **Generator** | 82 | 90 | 82 | — | — |
| **75-Ton Mobile Crane** | 83 | 38 | 79 | — | — |
| **Water Truck** | 84 | 20 | 77 | — | — |
| **Flat Bed Truck** | 84 | 25 | 78 | — | — |
| **Pickup Truck** | 75 | 53 | 72 | — | — |
| **Concrete Mixer** | 85 | 13 | 76 | — | — |
| **Concrete Pump** | 82 | 18 | 75 | — | — |
| **Wheel Loader** | 80 | 20 | 73 | — | — |
| **Welder** | 74 | 31 | 69 | — | — |

*$L_{eq}$ = equivalent sound level*
*dBA = A-weighted decibel*

The results of the analysis indicate that noise impacts would be limited to residences located within 135 to 270 feet from the construction site, depending on the activity. The potential for noise impacts would be greatest during structures work at locations where pile driving is required for bridge construction. Construction activities would be considered to have a potentially significant impact if the activity generates noise levels in excess of the FTA thresholds.

There are multiple areas along the rail corridor where construction activities would generate noise levels in excess of FTA thresholds at adjacent residential receptors. This is a significant impact that would require mitigation.

**Mitigation Measure NOI-1: Construction Noise Control Plan** requires the preparation and implementation of a construction noise control plan to reduce the impacts of construction noise on nearby noise-sensitive receptors that could be exposed to noise in excess of FTA thresholds. Certain construction noise abatement measures, such as a temporary noise barrier may be effective in certain locations. With implementation of MM NOI-1 construction noise impacts associated with the proposed Project would be reduced to a less than significant level.

### Operation

**Less than Significant Impact with Mitigation Incorporated.** As summarized in Table 3.14-10, implementation of the proposed Project would result in moderate noise impacts to 451 Category 2 noise receptors and severe noise impacts to 21 Category 2 noise receptors.

Category 2 noise receptors, consisting of single-family and multifamily residences, are located adjacent to the existing railroad ROW along the Coast Subdivision. Moderate noise impacts are projected to occur at these noise receptors due to the proximity to the existing rail corridor as well as the continuation of railroad horn use in the area. Although the Project would generate noise during operation, at the majority of these receptors, Project noise levels would be lower than or equal to existing noise levels in area but would still exceed the FTA moderate impact criteria.

Twenty-one (21) Category 2 noise receptor locations are projected to experience a severe noise impact during operation of the proposed Project. These include the following:

- **Coast Subdivision North Section:** Three residences (located on the southwest side of the existing railroad ROW between Farallon Drive and Lewelling Boulevard) would experience a Project noise level of 66 dBA. This is higher than the existing noise level of 64 dBA and exceeds the FTA severe impact criteria of 66 dBA assigned to this location.
- **Coast Subdivision North Section:** One residence (located on the northeast side of the existing railroad ROW between Lewelling Boulevard and Grant Avenue) would experience a Project noise level of 66 dBA. This is higher than the existing noise level of 64 dBA and exceeds the FTA severe impact criteria of 66 dBA assigned to this location.
- **Coast Subdivision Central Section:** One residence (located on the northeast side of the existing railroad ROW between Grant Avenue and Skywest Golf Course) would experience a Project noise level of 66 dBA. This is higher than the existing noise level of 64 dBA and exceeds the FTA severe impact criteria of 66 dBA assigned to this location.
- **Coast Subdivision Central Section:** Two residences (located on the northeast side of the existing railroad ROW between Union City Boulevard and Smith Street) would experience a

Project noise level of 67 dBA. This is higher than the existing noise level of 65 dBA and exceeds the FTA severe impact criteria of 66 dBA assigned to this location.

- **Coast Subdivision South Section:** Nine residences (located on the northeast side of the existing railroad ROW between Smith Street and Alameda Creek) would experience a Project noise level of 68 dBA. This is higher than the existing noise level of 65 dBA and exceeds the FTA severe impact criteria of 66 dBA assigned to this location.
- **Coast Subdivision South Section:** Four residences (located on the southwest side of the existing railroad ROW between Jarvis Avenue and Cedar Boulevard Park) would experience a Project noise level of 67 dBA. This is higher than the existing noise level of 65 dBA and exceeds the FTA severe impact criteria of 66 dBA assigned to this location.
- **Coast Subdivision South Section:** One residence (located on the northeast side of the existing railroad ROW between Cedar Boulevard Park and Clark Avenue) would experience a Project noise level of 67 dBA. This is higher than the existing noise level of 65 dBA and exceeds the FTA severe impact criteria of 66 dBA assigned to this location.

All of the severe impacts identified at these locations are due to either the sounding of horns at at-grade crossings on the Coast Subdivision or the introduction or relocation of crossovers for the Project on the Coast Subdivision. Although noise increases at these locations would be within a 3 dBA increase, the resulting noise level with Project implementation would meet or exceed the FTA severe noise impact criteria assigned with mitigation required. Implementation of **Mitigation Measures NOI-2: Creation of Noise Quiet Zone**, which requires the creation of quiet zones at identified grade crossings or implementation of building sound insulation, would reduce impacts to a less than significant level.

The majority of the rail corridor under the proposed Project passes through highly developed urban and suburban areas, including many areas with adjacent sensitive land uses, such as residences (Category 2), churches (Category 3), schools (Category 3), and other institutional uses (Category 3). The rail corridor also extends through many commercial and industrial areas, which are generally not noise sensitive unless they are associated with areas of frequent outdoor use. No Category 1 land uses were identified within the rail corridor.

Attachment A of Appendix G provides operational noise impact calculations for Category 2 and Category 3 land uses for the RSA, from north to south. The noise impact calculation tables in Appendix G provide the existing noise levels, the projected noise levels from the Project at FTA Category 2 (residential) and Category 3 (institutional) receptors, FTA noise impact criteria, and an inventory of the moderate and severe noise impacts for the Project. The locations of the noise impacts within the RSA are also provided in Attachment B of Appendix G.

To analyze the change in noise levels at each of these receptor locations, a dBA threshold was assigned based on FTA moderate and severe impact criteria. A receptor location was considered to experience a moderate or severe impact if noise levels exceeded FTA impact criteria regardless of existing noise levels. Therefore, areas identified as experiencing a moderate noise impact would be areas where the level of Project noise projected would be lower than existing noise level but the existing noise levels are higher than the FTA criteria for moderate impacts. Areas identified as experiencing severe noise impacts would be areas where the level of proposed Project noise would be higher than existing noise levels and exceed the FTA noise level threshold assigned.

Locations that meet or exceed severe impact criteria noise levels, as defined by FTA, would be considered to result in potentially significant impacts for purposes of CEQA. Table 3.14-10 provides a comparison summary of Category 2 and Category 3 sensitive noise receptors for the proposed Project.

**Table 3.14-10. Sensitive Noise Receptor Impact Summary**

| Type of Noise Impact | Category 2 Land Uses | Category 3 Land Uses |
|---|---|---|
| **Moderate** | 451 | 3 |
| **Severe** | 21 | 0 |

Operation of the proposed Project would result in moderate noise impacts to three Category 3 noise receptors. No severe noise impacts are projected for Category 3 noise receptors. Operational noise impacts to Category 3 noise receptors under the proposed Project are considered to be less than significant.

## 3.14.6.2 (b) Would the project result in the generation of excessive ground-borne vibration or ground-borne noise levels?

### No Project Alternative

**No Impact.** Under the No Project Alternative, the Capitol Corridor passenger rail service between Oakland and San Jose would not be relocated from the Niles Subdivision to the Coast Subdivision. Improvements proposed for the Niles and Coast Subdivisions associated with the proposed Project would not occur. Capitol Corridor passenger trains would continue to operate based on current routes with no changes. There would be no changes to rail connectivity or operational efficiency. Therefore, the No Project Alternative would not result in direct impacts or changes to existing vibration levels within the RSA.

### Proposed Project

#### Construction

**Less than Significant Impact with Mitigation Incorporated.** Construction of the proposed Project is expected to generate vibration levels from 25 feet away as high as 94 VdB due to compactors during site work, 87 VdB due to bulldozers during rail work, and 104 VdB due to impact pile drivers during structures work. Except for pile drivers, it is unlikely that such equipment would be used close enough to sensitive structures to have the potential for any damage. For pile driving, it is anticipated that the potential for damage will be limited to structures located at distances in the range of 30 to 75 feet from the pile driving operations, depending on the building category. None of the built environment buildings identified as historical resources are located within 30 to 75 feet of the project footprint.

In terms of vibration annoyance effects or interference with the use of sensitive equipment, the potential extent of vibration impact from pile driving is expected to be even greater than for

damage. Table 3.14-11 provides the approximate distances within which receptors could experience construction-related vibration annoyance effects based on FTA methodology.

**Table 3.14-11. Screening Distances for Vibration Effects from Pile Driving**

| Land Use Category | Vibration Criterion Level (VdB) | Approximate Vibration Impact Distance (feet) |
|---|---|---|
| **Category 1 (Sensitive Buildings)** | 65 | 630 |
| **Category 2 (Residential Buildings)** | 72 | 290 |
| **Category 3 (Institutional Buildings)** | 75 | 230 |

*VdB = Vibration velocity*

The results of the analysis indicate that vibration impacts would extend to distances of 230 to 630 feet from pile driving operations, 100 to 240 feet for compacting, and less than 130 feet for bulldozers, depending on the vibration sensitivity of the land use category.

Construction activities would be considered to have a significant impact if they would generate vibration in excess of FTA construction vibration criteria. It is expected that ground-borne vibration from construction activities would cause only intermittent localized disturbance along the rail corridor. Although processes such as earthmoving with bulldozers or the use of vibratory compaction rollers can create annoying vibration, there should be only isolated cases where it is necessary to use this type of equipment in close proximity to residential buildings. It is possible that construction activities involving pile drivers occurring at the edge of or slightly outside of the current rail ROW could result in vibration damage, and damage from construction vibration would be a potentially significant impact.

To mitigate for these potential impacts, **Mitigation Measure MM NOI-3: Construction Vibration Control Plan**, will be implemented. MM NOI-3 would require the preparation and implementation of a construction vibration control plan to reduce the impacts of construction vibration on nearby vibration-sensitive land uses that could be exposed to vibration levels in excess of FTA thresholds. In the event building damage occurs due to construction, repairs would be made, or compensation would be provided. With implementation of MM NOI-3, impacts resulting from construction vibration structural damage would be minimized to a less-than-significant level.

### Operation

**Less than Significant Impact.** Existing conditions in the rail corridor include vibration generated by the current volume of passenger and freight trains passing through the RSA. As a result, there are no new vibration impacts that would be generated as a result of the proposed Project implementation for the majority of sensitive receptors along the rail subdivisions. The only areas within the RSA where there could be new vibration levels generated at sensitive receptors would be located within 200 feet of new or relocated turnouts or crossovers for the Project. At these locations, the vibration levels would increase by 5 to 10 VdB, depending on the proximity of the sensitive receptors to the new or relocated turnouts or crossovers. Attachment C of Appendix G provides the

locations of potential operational vibration impacts. Locations with vibration impacts, as defined as exceeding FTA vibration criteria, would be considered a significant impact.

Fifty-one (51) receptor locations are projected to experience a potential vibration impact during operation of the proposed Project. These include the following:

- **Coast Subdivision North Section:** Eighteen (18) single-family and multifamily residences and one church (Faith Chapel Church of God – East Bay), between Marina Boulevard and Fairway Drive, are predicted to have vibration impacts. These impacts are due to the new crossover associated with the proposed Project.
- **Coast Subdivision South Section:** Thirty-two (32) single-family residences along the Coast Subdivision South Section, between Ardenwood Boulevard and Paseo Padre Parkway, are predicted to have vibration impacts. These impacts are due to the new crossover associated with the proposed Project.

All of the operational vibration impacts identified for the proposed Project are due to the introduction or relocation of crossovers for the proposed Project. With the inclusion of low-impact rail frogs at the new train crossovers in Project design, operational impacts would be less than significant.

### 3.14.6.3 (c) For a project located within the vicinity of a private airstrip or an airport land us 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?

#### No Project Alternative

**No Impact.** Under the No Project Alternative, the Capitol Corridor passenger rail service between Oakland and San Jose would not be relocated from the Niles Subdivision to the Coast Subdivision. Improvements proposed for the Niles and Coast Subdivisions associated with the proposed Project would not occur. Capitol Corridor passenger trains would continue to operate based on current routes with no changes. There would be no changes to rail connectivity or operational efficiency. Therefore, the No Project Alternative would not result in exposure to people working in the RSA to excessive airport noise levels.

#### Proposed Project

##### Construction and Operations

**Less than Significant Impact.** Airports in the RSA include the Oakland International Airport and the Hayward Executive Airport. The proposed Project is also located within the Oakland International Airport Land Use Compatibility Plan (ALUCP) Airport Influence Area (AIA) and the Hayward Executive Airport ALUCP AIA (ESA Airports 2010a & 2010b).

Both the Coast and Niles Subdivisions are located within two miles of the Oakland International Airport and the Hayward Executive Airport. The subdivisions are also located within the Oakland International ALUCP AIA and the Hayward Executive ALUCP AIA. The ALUCPs for the airports

include policies intended to reduce the risk from harm to people and property located within the AIAs and focus on four impact areas: noise, safety, airspace protection, and overflight.

Given the industrial nature of the proposed Project, it would be considered a noise compatible land use and activities associated with the land use may be carried out with essentially no interference from aircraft noise (ESA Airports 2010a & 2010b). Properties within an AIA are routinely subject to overflights by aircraft. However, this would not result in excessive noise exposure for people working within the RSA during construction and operational activities. Overflights by aircraft would occur intermittently throughout the day and would therefore not result in increased noise hazards over an extended period of time. Based on these factors, impacts would be less than significant and no mitigation would be required.

## 3.14.7 Mitigation Measures

The following mitigation measures associated with noise and vibration would be implemented as part of the proposed Project.

**MM NOI-1 Construction Noise Control Plan**

CCJPA, in coordination with the Construction Contractor and local jurisdiction(s), will prepare and implement a Construction Noise Control Plan (NCP) to reduce the impact of temporary construction-related noise on nearby noise-sensitive receptors. The plan will demonstrate how the contractor plans to limit the noise levels to below the thresholds for significant impacts. The NCP will include but not be limited to the following best practices:

- Install temporary construction site sound barriers near noise sources.
- Use moveable sound barriers at the source of the construction activity.
- Avoid the use of impact pile drivers where possible near noise-sensitive areas or use quieter alternatives (e.g., drilled piles) where geological conditions permit.
- Locate stationary construction equipment as far as possible from noise-sensitive sites.
- Reroute construction-related truck traffic along roadways that will cause the least disturbance to residents.
- Use low-noise emission equipment.
- Implement noise-deadening measures for truck loading and operations.
- Line or cover storage bins, conveyors, and chutes with sound-deadening material.
- Use acoustic enclosures, shields, or shrouds for equipment and facilities.
- Use high-grade engine exhaust silencers and engine-casing sound insulation.
- Minimize the use of generators to power equipment.
- Limit use of public address systems.
- Grade surface irregularities on construction sites.

- Monitor and maintain equipment to meet noise limits.
- Establish an active community liaison program to keep residents informed about construction and to provide a procedure for addressing complaints.

**MM NOI-2 Creation of Noise Quiet Zones**

Prior to the start of construction activities, CCJPA, in coordination with the appropriate local jurisdiction(s) and stakeholders, will implement a phased program considering the potential establishment of quiet zones along the corridor at all locations where train noise is predicted to exceed FTA severe impact thresholds. This phased program will include the development of engineering studies and coordination agreements to design, construct, and enforce potential quiet zones at the following grade crossings on the Coast Subdivision:

- Jarvis Avenue (City of Newark);
- Alvarado Boulevard (City of Union City);
- Dyer Street (City of Union City);
- Union City Boulevard (City of Union City);
- Grant Avenue (unincorporated community of San Lorenzo); and
- Lewelling Boulevard (unincorporated community of San Lorenzo).

CCJPA will consider options for establishing quiet zones including, but not limited to, the following FRA pre-approved supplemental safety measures:

- *Four-quadrant gate system.* This measure involves the installation of at least one gate for each direction of traffic to fully block vehicles from entering the crossing.
- *Gates with medians or channelization devices.* This measure keeps traffic in the proper travel lanes as it approaches the crossing, thus denying the driver the option of circumventing the gates by traveling in the opposite lane.
- *One-way street with gates.* This measure consists of one-way streets with gates installed so that all approaching travel lanes are completely blocked. This option may not be feasible or acceptable to local jurisdictions at all locations.
- *Road closure.* This measure consists of closing the road to through travel at the at-grade crossing. This option may not be feasible or acceptable to local jurisdictions at all locations.

In addition to these pre-approved supplemental safety measures, FRA also identifies a range of other measures that may be used to establish a quiet zone. These could be modified supplemental safety measures or non-engineering measures, which might involve law enforcement or public awareness programs. Such alternative safety measures must be approved by FRA based on the prerequisite that they provide an equivalent level of safety as the sounding of horns.

This phased program will also consider the use of wayside horns as part of a quiet zone. While not avoiding the sounding of a horn, wayside horns affect a smaller area than

train-mounted horn. Wayside horns can be used when the other measures above are not adequate to avoid the use of a horn.

If quiet zones are not feasible, CCJPA will consider the application of building sound insulation at the impacted residences at the following locations:

- **Coast Subdivision North Section:** 3 residences located on the southwest side of the existing railroad ROW between Farallon Drive and Lewelling Boulevard.
- **Coast Subdivision North Section:** 1 residence located on the northeast side of the existing railroad ROW between Lewelling Boulevard and Grant Avenue.
- **Coast Subdivision Central Section:** 1 residence located on the northeast side of the existing railroad ROW between Grant Avenue and Skywest Golf Course.
- **Coast Subdivision Central Section:** 2 residences located on the northeast side of the existing railroad ROW between Union City Boulevard and Smith Street.
- **Coast Subdivision South Section:** 9 residences located on the northeast side of the existing railroad ROW between Smith Street and Alameda Creek.
- **Coast Subdivision South Section:** 4 residences located on the southwest side of the existing railroad ROW between Jarvis Avenue and Cedar Boulevard Park.
- **Coast Subdivision South Section***:* 1 residence located on the northeast side of the existing railroad ROW between Cedar Boulevard Park and Clark Avenue.

Building sound insulation improvements may include but not be limited to the following:

- Application of an extra layer of glazing to the windows;
- Sealing holes in exterior surfaces that act as sound leaks; and
- Provision of forced ventilation and air-conditioning so that windows do not need to be opened.

During final design of the project, CCJPA will coordinate with individual residents identified as candidates for sound insulation. The coordination will include testing of existing outdoor to indoor noise reduction and specific measures required to meet the interior noise level criterion.

**MM NOI-3 Construction Vibration Control Plan**

CCJPA, in coordination with the Construction Contractor and local jurisdiction(s), and cooperating railroad operator(s), will prepare and implement a Construction Vibration Control Plan (CVCP) to reduce the impact of temporary construction related vibration on nearby sensitive receptors. The CVCP will include, but not be limited to the following:

- Avoid the use of impact pile drivers where possible near vibration-sensitive areas or use alternative construction methods (e.g., drilled piles) where geological conditions permit.
- Avoid vibratory compacting/rolling in close proximity to structures.

- Require vibration monitoring during vibration-intensive activities.

## 3.14.8 Cumulative Impact Analysis

Cumulative impacts can result from individually minor but collectively substantial impacts from past, present, and reasonably foreseeable future projects. A cumulatively considerable impact to land use would occur if the proposed Project when combined with past, present, and reasonably foreseeable projects, results in cumulatively considerable impact to the land use in the project area. The cumulative RSA for noise and vibration is defined by the proposed Project's RSA. The cumulative RSA would capture impacts generated from the proposed Project's construction and potential regional impacts on noise and vibration.

As provided in Table 3.1-1 in Section 3.1, Introduction, multiple past, present, and reasonably foreseeable projects were considered for the purpose of this cumulative impact analysis. These cumulative projects include infrastructure projects, transportation and transit projects, recreational and community facility projects, and other private development projects within the proposed Project's RSA. Based on a review of environmental documents available for these cumulative projects, none of the projects identifies a cumulative noise and vibration impact.

The proposed Project, in combination with planned projects under the cumulative condition, would result in temporary changes in noise levels during construction if construction of the proposed Project occurs at the same time as construction of other planned projects. This could result in a cumulative effect on adjacent sensitive receptors if they become part of, or are near, a temporary construction easement, such as a staging area. However, each project is required to mitigate construction noise impacts on an individual basis. With implementation of the identified noise mitigation measures, cumulative construction noise impacts are anticipated to be less than significant.

Operation of the proposed Project could result in an increase in rail activity that would result in an increase in operational noise levels at sensitive receptors. These effects could result in a cumulative impact if combined with additional operational impacts from other projects. However, all development projects, including the identified cumulative projects, would be required to comply with applicable regulations and planning standards and would be subject to the local jurisdiction planning process and environmental review as applicable. Therefore, the cumulative projects would also be subject to compliance with relevant noise plans, policies, or regulations and would otherwise require the approval of the County of Alameda and the respective local jurisdictions. Cumulative noise impacts during operational activities are anticipated to be less than significant.

Based on the discussion above, the proposed Project would not contribute to cumulative impacts to noise and vibration. When considered with all cumulative projects reviewed, the proposed Project would have less than cumulatively considerable impacts.

## 3.14.9 CEQA Significance Findings Summary Table

Table 3.14-12 summarizes the noise impacts of the proposed Project.

**Table 3.14-12. Noise Impacts Summary**

| Impact | Level of Significance Before Mitigation | Incremental Project Contribution to Cumulative Impacts | Mitigation | Level of Significance with Mitigation Incorporated | Incremental Project Cumulative Impact after Mitigation |
|---|---|---|---|---|---|
| **(a) Would the project result in the generation of a substantial temporary or permanent increase in ambient noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?** | S/M | CC | MM NOI-1<br>MM NOI-2 | LTS | NCC |
| **(b) Would the project result in the generation of excessive ground-borne vibration or ground-borne noise levels?** | LTS | NCC | N/A | LTS | NCC |
| **c) For a project located within the vicinity of a private airstrip or an airport land us 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?** | LTS | NCC | N/A | LTS | NCC |

*Notes: LTS = Less than Significant Impact, NI = No Impact, N/A = Not Applicable, SI = Significant Impact, S/M = Significant Impact but Mitigable to a Less than Significant Level, CC = Cumulatively Considerable, NCC = Not Cumulatively Considerable.*

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# 3.15 Population and Housing

## 3.15.1 Introduction

This section describes the regulatory setting and affected environment for population and housing within the population and housing RSA, and describes potential impacts on population and housing during construction and operation of the proposed Project. This section also identifies the potential for cumulative impacts of the proposed Project on population and housing when considered in combination with other relevant projects.

## 3.15.2 Regulatory Setting

This section identifies the applicable federal, state, regional, and local laws, regulations, and orders that are relevant to the analysis of population and housing. This section also addresses the proposed Project's consistency with the regulations described herein.

### 3.15.2.1 Federal

There are no identified federal plans, policies, and regulations that are relevant to the analysis of population and housing.

### 3.15.2.2 State

#### 2018 California State Rail Plan

The 2018 California State Rail Plan is a plan to strategize the state's operational and capital investments toward its statewide travel system. The plan is considered an important element in the comprehensive planning and analysis of statewide transportation investment strategies illustrated in the California Transportation Plan 2040. Specifically, the plan calls for rerouting passenger rail service from the Niles Subdivision to the Coast Subdivision and rerouting freight operations from the Coast Subdivision to the Niles Subdivision to facilitate faster travel times.

#### California Transportation Plan 2040

The California Transportation Plan 2040 is a plan that outlines the goals and recommendations to achieve a vision for a safe, sustainable, universally assessable, and globally competitive transportation system in order to provide reliable and efficient mobility for people, goods, and services. The plan will also concurrently meet the State's greenhouse gas emission reduction goals and preserve the unique character of communities within the State. The California Department of Transportation completed the updated California Transportation Plan 2050; however, the 2040 Plan is utilized in order to be analyzed in parallel with the 2018 California State Rail Plan.

#### California Relocation Assistance Act (California Gov. Code 7260 et seq.)

The California Government Code requires that relocation assistance be provided to any person, business, or farm operation displaced because of the acquisition of real property by a public entity

for public use (25 CCR 6000 et seq.). In addition, comparable replacement properties must be available for each displaced person within a reasonable period of time prior to displacement. These guidelines establish uniform and equitable procedures for land acquisition, as well as uniform and equitable treatment of persons displaced from their homes or businesses, or farms by state and state-assisted programs.

## 3.15.2.3 Regional

### 2016 Capitol Corridor Vision Implementation Plan

The Capitol Corridor Vision Implementation Plan outlines the implementation of capital improvements that are needed in order to accommodate for future trends, such as population increase, business demands, and climate change trends. The plan also calls for relocating the Capitol Corridor service between Oakland and Newark to the Coast Subdivision to provide a shorter and more direct route from Oakland to San Jose. The proposed Project is a key element toward the plan's goals and objectives.

### 2014 Capitol Corridor Vision Plan Update

The 2014 Capitol Corridor Vision Plan Update outlines the long-term investment strategies and options for improving the speed and reliability of Capitol Corridor. It also addresses the effects of climate change and sea-level rise. The proposed Project is a key element toward the Plan's goals and objectives.

## 3.15.2.4 Local

The planning documents listed below guide development and land use in the Project Study Area.

- Plan Bay Area 2050 (2021).
- 2020 Alameda Countywide Transportation Plan (2020).
- Alameda Countywide Transit Plan (2016).
- Alameda County Housing Element (2015).
- City of Fremont General Plan (2011).
- City of Newark General Plan (2013).
- City of Oakland General Plan (1998).
- City of Union City General Plan (2019).
- City of Hayward General Plan (2014).
- City of San Leandro General Plan (2016).
- San Lorenzo Village Center Specific Plan (2004).
- Ashland and Cherryland Business District Specific Plan (2015).

Table 3.12-3 Consistency with Applicable Plans, Policies, and Regulations, in Section 3.12, Land Use and Planning, provides a list of applicable goals, policies, and objectives from regional and local plans of the jurisdictions in which the proposed Project would be located and the proposed Projects consistency or inconsistency with each.

## Consistency with Plans, Policies, and Regulations

Section 15125(d) of the CEQA Guidelines requires an EIR to discuss "any inconsistencies between the proposed project and applicable general plans, specific plans, and regional plans." These plans were considered during the preparation of this analysis and were reviewed to assess whether the proposed Project would be consistent with the plans of relevant jurisdictions.

The proposed Project would comply with applicable state and local laws, regulations, and orders that are relevant to the analysis of population and housing. This includes compliance with the California Relocation Assistance Act and applicable goals and policies set forth by Alameda County and all respective cities within the Project Study Area. These cities include Fremont, Hayward, Oakland, Newark, San Leandro, and Union City. The proposed Project would be generally consistent with the applicable goals, policies, and objectives related to population and housing.

Inconsistency with regional and local plans and policies are not necessarily considered a significant impact under CEQA, unless it is related to a physical impact on the environment that is significant in its own right.

Implementation of the proposed Project would create a more direct passenger rail route and significantly reduce rail travel times, which would facilitate more auto-competitive travel times for intercity rail trips. The proposed Project would also create new connections to Transbay transit services and destinations. The following regional needs would be met through implementation of the proposed Project:

- Reduce passenger rail travel time between Oakland and San Jose and throughout the larger Northern California megaregion to increase ridership on transit, ease congestion on the megaregion's stressed roadways, and reduce auto trips.
- Improve transit service between Northern California megaregional markets by enhancing connections between high demand destinations, overcoming existing geographic service gaps between job centers and affordable housing on the San Francisco Peninsula and along the Capitol Corridor route.

These Project outcomes are related to population and housing because they would result in increased travel efficiency, better connectivity amongst communities, a greater number of transportation options for the public, and greater access to housing and businesses. The proposed Project is consistent with Capitol Corridor Joint Powers Authority's 2014 Vision Plan Update and 2016 Vision Implementation Plan and the State's 2018 California State Rail Plan. As stated above, these plans all call for the rerouting of Capitol Corridor passenger service between Oakland and San Jose to provide a more efficient, direct passenger rail route and significantly reduce passenger rail travel time.

# 3.15.3 Methods for Evaluating Environmental Impacts

This section defines the population and housing RSA and describes the methods used to analyze impacts on population and housing within the RSA.

## 3.15.3.1 Resource Study Area

As defined in Section 3.1, Introduction, RSAs are the geographic boundaries within which the environmental investigations specific to each resource topic were conducted. The RSA for population and housing is defined as the entire Alameda County, as well as the cities and CDPs within the Project Study Area. In particular, the population and housing RSA includes the cities of Fremont, Hayward, Oakland, Newark, San Leandro, and Union City. The RSA also includes CDPs of San Lorenzo, Cherryland, and Ashland.

## 3.15.3.2 Data Sources

Quantitative and qualitative analyses were performed to evaluate the proposed Project's direct and indirect impacts on population and housing. Population and housing data were acquired from the Decennial Census (U.S. Census Bureau 2021a). Additional demographic data were located via the American Community Survey (ACS) table (U.S. Census Bureau 2021b) for Alameda County, cities, and CDPs in the RSA. The following tables were referenced:

- Table P1 'Race': Decennial Census Data for 2020 and 2010.
- Table DP1 'Profile of General Demographic Characteristics': Decennial Census Data for 2000.
- Table H1 'Occupancy Status': Decennial Census Data for 2020 and 2010.
- Table H003 '100-Percentage Count of Housing Units': Decennial Census Data for 2000.
- Table S1101 'Households and Families': American Community Survey Data for 2019 and 2010.

The following methods were used to evaluate the potential impacts from construction and operation of the proposed Project on population and housing:

- GIS data, aerial imagery, and static and interactive maps were used to pinpoint populated areas (residential and commercial designated areas) within the RSA.
- Construction impact analysis included review of project design mapping, including temporary ROWs, identified staging areas, and operation of the proposed Project, and their potential to induce population or impact existing housing.

The analysis considers each of the major Project components in the context of construction and post-construction operations. The analysis of population and housing characteristics considers the potential for the proposed Project to affect population and housing by inducing substantial unplanned population growth in the area or by displacing a substantial number of existing people or housing. The analysis considers and discusses the historical population trends over the past 20 years in order to analyze anticipated future development trends in the RSA.

### 3.15.3.3 CEQA Thresholds

To satisfy CEQA requirements, population and housing impacts were analyzed in accordance with Appendix G of the CEQA Guidelines. According to the CEQA Guidelines, CCR, Title 14, Section 15002(g), "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in CEQA Guidelines Section 15064(b)(1), the significance of an activity may vary with the setting. The impact analysis identifies and analyzes construction (short-term) and operation (long-term) impacts, as well as direct and indirect impacts (see PRC Section 21065). The proposed Project would have significant Population and Housing impacts under CEQA if it would:

a. Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure); or
b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere.

## 3.15.4 Affected Environment

### 3.15.4.1 Environmental Setting

#### Regional and Local Setting

The proposed Project is in Alameda County. Within the RSA, the jurisdictions are the Cities of Fremont, Hayward, Oakland, Newark, San Leandro, and Union City as well as the CDPs of San Lorenzo, Cherryland, and Ashland. Each of the tables below presents historical and current data for Alameda County and each of the cities and CDPs within the RSA.

Table 3.15-1 presents the population trend over the past 20 years within the various geographical areas within the RSA. Based on the data shown in Table 3.15-1, all geographic areas within the RSA have experienced an increase in population (ranging from 5 to 35 percent) over the 20-year period between 2000 and 2020.

Table 3.15-2 presents regional and local housing characteristics over the past 20 years within the various geographical areas within the RSA. Based on the data shown in Table 3.15-2, all geographic areas within the RSA have experienced an increase in housing inventory over the 20-year period between 2000 and 2020. Of the available housing inventory within the RSA, the total number of occupied housing units has remained in the mid to upper 90th percentile between 2000 and 2020 for all geographic areas within the RSA. While there are fluctuations in the overall occupancy rates, these fluctuations reflect the timing and consequences of the housing crisis and Great Recession[1] of the late 2000s. For many areas of the country, the economic downturn led to sharp vacancy rate increases between the 2000 Census and 2010 Census, followed by decreases between 2010 and 2020 as housing markets recovered (Brassell 2021).

1 The Great Recession was a period between December 2007 and June 2009 that saw the 2008 financial crisis, some of the worst unemployment rates, Gross Domestic Product, and economic disasters since World War II.

**Table 3.15-1: Regional and Local Population Characteristics (2000–2020)**

| Geography | 2000 | 2010 | 2020 | Percentage Change 2000–2010 | Percentage Change 2010–2020 | Percentage Change 2000–2020 |
|---|---|---|---|---|---|---|
| **RSA** | 642,578 | 662,009 | 723,637 | 3% (+19,431) | 9% (+61,628) | 13% (+81,059) |
| **Alameda County** | 1,443,741 | 1,510,271 | 1,682,353 | 5% (+66,530) | 11% (+172,082) | 17% (+238,612) |
| **City of Fremont** | 203,413 | 214,186 | 230,504 | 5% (+10,773) | 8% (+16,318) | 13% (+27,091) |
| **City of Hayward** | 140,030 | 144,186 | 162,954 | 3% (+4,156) | 13% (18,768) | 16% (+22,924) |
| **City of Newark** | 42,471 | 42,573 | 47,529 | 0% (+102) | 12% (4,956) | 12% (+5,058) |
| **City of Oakland** | 399,484 | 390,724 | 440,646 | -2% (-8,760) | 13% (+49,922) | 10% (+41,162) |
| **City of San Leandro** | 79,452 | 84,950 | 91,008 | 7% (+5,498) | 7% (+6,058) | 15% (+11,556) |
| **City of Union City** | 66,869 | 69,516 | 70,143 | 4% (+2,647) | 1% (+627) | 5% (+3,274) |
| **CDPs Combined** | 56,528 | 60,105 | 69,212 | 6% (+3,577) | 15% (+9,107) | 22% (+12,684) |
| **Ashland CDP** | 20,793 | 21,925 | 23,823 | 5% (+1,132) | 9% (+1,898) | 15% (+3,030) |
| **Cherryland CDP** | 13,837 | 14,728 | 15,808 | 6% (+891) | 7% (+1,080) | 14% (+1,971) |
| **San Lorenzo CDP** | 21,898 | 23,452 | 29,581 | 7% (+1,554) | 26% (+6,129) | 35% (+7,683) |

***Source: U.S. Census Bureau 2021a.***
***Notes:***
***CDP=Census Designated Place; RSA=resource study area***

**Table 3.15-2: Regional and Local Housing Characteristics – Occupancy (2000–2020)**

| Geography | 2000 | | | 2010 | | | 2020 | | |
|---|---|---|---|---|---|---|---|---|---|
| | Total Units | Occupied Units (Occupancy Rate %) | Vacant Units (Vacancy Rate %) | Total Units | Occupied Units (Occupancy Rate %) | Vacant Units (Vacancy Rate %) | Total Units | Occupied Units (Occupancy Rate %) | Vacant Units (Vacancy Rate %) |
| **RSA** | 216,327 | 211,442 (97.7%) | 4,898 (2.3%) | 228,024 | 214,856 (94.2%) | 13,168 (5.8%) | 238,283 | 229,730 (96.4%) | 8,553 (3.6%) |
| **Alameda County** | 540,183 | 523,366 (96.9%) | 16,817 (3.1%) | 582,549 | 545,138 (93.6%) | 37,411 (6.4%) | 621,958 | 591,636 (95.1%) | 30,322 (4.9%) |
| **City of Fremont** | 69,452 | 68,237 (98.3%) | 1,215 (1.7%) | 73,989 | 71,004 (96.0%) | 2,985 (4.0%) | 77,430 | 74,450 (96.2%) | 2,980 (3.8%) |
| **City of Hayward** | 45,922 | 44,804 (97.6%) | 1,118 (2.4%) | 48,296 | 45,365 (94.0%) | 2,931 (6.0%) | 52,268 | 50,215 (96.1%) | 2,053 (3.9%) |
| **City of Newark** | 13,150 | 12,992 (98.9%) | 158 (1.2%) | 13,414 | 12,972 (96.6%) | 442 (3.4%) | 15,371 | 14,946 (97.2%) | 425 (2.8%) |
| **City of Oakland** | 157,508 | 150,790 (95.7%) | 6,718 (4.3%) | 169,710 | 153,791 (90.6%) | 15,919 (9.4%) | 178,469 | 167,909 (94.1%) | 10,560 (5.9%) |
| **City of San Leandro** | 31,334 | 30,642 (97.8%) | 692 (2.2%) | 32,419 | 30,717 (94.7%) | 1,702 (5.3%) | 32,898 | 31,799 (96.7%) | 1,099 (3.3%) |

**Table 3.15-2: Regional and Local Housing Characteristics – Occupancy (2000–2020)**

| Geography | 2000 | | | 2010 | | | 2020 | | |
|---|---|---|---|---|---|---|---|---|---|
| | Total Units | Occupied Units (Occupancy Rate %) | Vacant Units (Vacancy Rate %) | Total Units | Occupied Units (Occupancy Rate %) | Vacant Units (Vacancy Rate %) | Total Units | Occupied Units (Occupancy Rate %) | Vacant Units (Vacancy Rate %) |
| **City of Union City** | 18,877 | 18,642 (98.8%) | 235 (1.2%) | 21,258 | 20,433 (96.1%) | 825 (3.9%) | 21,911 | 21,432 (97.8%) | 479 (2.2%) |
| **Ashland CDP** | 7,372 | 7,223 (98.0%) | 149 (2.0%) | 7,758 | 7,270 (93.7%) | 488 (6.3%) | 7,992 | 7,701 (96.4%) | 291 (3.6%) |
| **Cherryland CDP** | 4,823 | 4,658 (96.6%) | 165 (3.4%) | 4,975 | 4,643 (93.3%) | 332 (6.7%) | 5,125 | 4,922 (96.0%) | 203 (4.0%) |
| **San Lorenzo CDP** | 7,609 | 7,500 (98.6%) | 109 (1.4%) | 7,674 | 7,425 (96.8%) | 249 (3.2%) | 9,198 | 8,991 (97.7%) | 207 (2.3%) |

***Source: U.S. Census Bureau 2021a***
***Notes:***
***CDP=Census Designated Place; RSA=resource study area***

## 3.15.5 Best Management Practices

As noted in Chapter 2, Project Alternatives, CCJPA would incorporate a range of BMPs to avoid and minimize adverse effects on the environment that could result from implementation of the proposed Project. BMPs are included in the proposed Project description, and the impact analyses were conducted assuming application of these practices.

No BMPs for population and housing are included in the proposed Project.

## 3.15.6 Environmental Impacts

This section describes the potential environmental impacts on population and housing as a result of the implementation of the proposed Project. Lettering shown within title for each environmental factor below correlates with CEQA Statute and Guidelines, Appendix G table lettering and numbering.

### 3.15.6.1 (a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure?

#### No Project Alternative

**No Impact.** Under the No Project Alternative, the Capitol Corridor passenger rail service between Oakland and San Jose would not be relocated from the Niles Subdivision to the Coast Subdivision associated with the proposed Project. Improvements proposed for the Niles and Coast Subdivisions associated with the proposed Project would not occur. Capitol Corridor passenger trains would continue to operate based on current routes with no changes to rail connectivity or operational efficiency. Therefore, the No Project Alternative would not result in direct impacts or changes in land use that would induce direct or indirect population growth. Areas within the RSA would experience a continuation of current development, population and housing patterns and trends, but with more limited transit options. No impacts associated with population and housing are anticipated to occur under the No Project Alternative.

#### Proposed Project

##### Construction and Operations

**Less Than Significant Impact.** In general, a project could result in substantial growth impacts from the addition of new or expansion of existing infrastructure or service capacity to accommodate growth that is beyond the levels currently permitted by local or regional plans and policies. In general, growth induced by a project is considered a significant impact if it directly or indirectly affects the ability of agencies to provide needed public services or if it can be demonstrated that the potential growth significantly affects the environment in some other way. See further discussion in Section 5.4,, Growth Inducing Impacts.

Implementation of the proposed Project rail improvements would improve regional connectivity by creating a more direct passenger rail route and reducing the passenger rail travel time through the provision of at-grade and other rail infrastructure improvements. This would potentially increase rail ridership and allow for better connections between high-demand destinations, job centers, and affordable housing locations within the Northern California megaregion.

With the proposed improvements associated with the new Ardenwood Station, the new station facility could encourage development in the surrounding area and the potential for transit-oriented development. However, the new Ardenwood Station is within a suburbanized area, with the majority of the surrounding parcels already developed with residential, office, and business uses. While there are some vacant parcels adjacent to the site of the new Ardenwood Station, the type of development that could occur would be governed by the existing land use plan of the local jurisdiction (e.g., City of Fremont's General Plan). Any growth anticipated from the development of these vacant parcels is included as part of the City of Fremont's General Plan future growth projections. The Ardenwood Technology Park is identified in General Plan Implementation 2-5.2.A: Tech Industrial Areas as an area that is prioritized for economic development (City of Fremont 2011).

The proposed Project would not construct infrastructure (e.g., expansion of the existing road network) or result in new development that would result in direct reason substantial and unplanned population growth in the area. Implementation of the proposed Project would generate employment opportunities during the construction and operational phases of the proposed Project. While the proposed Project would generate additional employment opportunities, the majority of these jobs are expected to be filled by residents within Alameda County. Therefore, a less than significant impact would occur, and no mitigation is required.

### 3.15.6.2 (b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

#### No Project Alternative

**No Impact.** Under the No Project Alternative, the Capitol Corridor passenger rail service between Oakland and San Jose would not be relocated from the Niles Subdivision to the Coast Subdivision associated with the proposed Project. Improvements proposed for the Niles and Coast Subdivisions associated with the proposed Project would not occur. Capitol Corridor passenger trains would continue to operate based on current routes with no changes to rail connectivity or operational efficiency. Therefore, there would be no displacement of people or exiting housing that would require the construction of replacement housing elsewhere. No impacts are anticipated under the No Project Alternative.

#### Proposed Project

##### Construction and Operations

**No Impact.** The majority of proposed Project improvements would occur within or adjacent to the existing UPRR right-of-way and adjacent to a pre-existing transit facility (Ardenwood Park & Ride). The proposed Project would not require any full parcel acquisitions of residential zoned property.

As a result, no residential relocations would be required under the proposed Project. Therefore, there would be no displacement of existing people or housing, which would necessitate the construction of replacement housing elsewhere, resulting in no impact.

## 3.15.7 Mitigation Measures

No mitigation measures for population and housing are required for the proposed Project.

## 3.15.8 Cumulative Impact Analysis

### Resource Study Area

The cumulative study area for population and housing includes the RSA defined for the proposed Project and the area within 2 miles of the proposed Project. The cumulative study area would capture construction and operational impacts on population and housing generated from the combined effects of planned projects and the proposed Project.

### Cumulative Condition and Contribution of the Proposed Project

A significant cumulative impact on population and housing would occur if the cumulative activities, combined with the proposed Project, would result in substantial unplanned population growth in the RSA.

It is important to note that transportation improvements are but one of the many factors that influence land use decisions and development patterns. Other factors for population growth include the supply and demand for developable property (which is a fixed resource); institutional factors such as land use controls (zoning and subdivision regulations for example); and the economic health of the community. For development and redevelopment to occur, demand for developable property, supplies of developable property, and institutional requirements must be compatible and must be present at the same time and place.

Implementation of the proposed Project would improve local and regional mobility which could result in several socioeconomic and community benefits including the creation of direct and indirect job opportunities at the local and regional level. However, implementation of the proposed Project is not anticipated to result in substantial or unplanned population growth as the majority of the proposed improvements would occur in an existing and urbanized transportation corridor.

As shown in Table 3.1, Cumulative Projects List, in Section 3.1, Introduction, multiple past, present, and reasonably foreseeable projects were considered for the purpose of this cumulative impact analysis. These cumulative projects include infrastructure projects, transportation and transit projects, recreational and community facility projects, and other private development projects within the proposed Project's RSA. Based on a review of environmental documents available for these cumulative projects, none of the projects identifies a cumulative population and housing impact.

Further, the proposed Project is consistent with applicable land use and planning goals and policies identified in regional and local planning documents that promote transit ridership, reduce automobile dependence, and enhance connections between job centers and affordable housing

within the RSA (Section 3.12, Land Use and Planning). All development projects, including the identified cumulative projects, would be required to comply with applicable regulations and planning standards and would be subject to the local jurisdiction planning process and environmental review as applicable. Therefore, the cumulative projects would also be subject to compliance with relevant land use plans, policies, or regulations and would otherwise require the approval of Alameda County and the respective local jurisdictions. In addition, growth and development would continue to occur within the RSA consistent with existing zoning regulations that would not be changed by the proposed Project.

### Conclusion

Implementation of the proposed Project, combined with other foreseeable projects in the surrounding area, is not expected to result in significant cumulative impacts on population and housing resources.

## 3.15.9 CEQA Significance Findings Summary Table

Table 3.15-3 summarizes the population and housing impacts of the proposed Project.

**Table 3.15-3. Population and Housing Impacts Summary**

| Impact | Level of Significance Before Mitigation | Incremental Project Contribution to Cumulative Impacts | Mitigation | Level of Significance with Mitigation Incorporated | Incremental Project Cumulative Impact after Mitigation |
|---|---|---|---|---|---|
| **(a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?** | LTS | NCC | N/A | LTS | NCC |
| **Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?** | NI | NCC | N/A | NI | NCC |

Notes: LTS = Less than Significant Impact, NI = No Impact, N/A = Not Applicable, NCC = Not Cumulatively Considerable.

## 3.15.10 References

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# 3.16 Public Services

## 3.16.1 Introduction

Public services includes fire protection facilities, police protection facilities, schools, hospitals, and libraries. This section describes the regulatory setting and affected environment for public services within the public services RSA and describes the potential impacts of the proposed Project on those facilities during construction and operation of the proposed Project. This section also identifies the cumulative impacts of the proposed Project on public services when considered in combination with other relevant projects.

## 3.16.2 Regulatory Setting

This section identifies the federal, state, regional, and local laws, regulations, and orders that are relevant to the analysis of public services. This section also addresses the proposed Project's consistency with the regulations described herein.

### 3.16.2.1 Federal

There are no federal regulations related to public services that are applicable to the proposed Project.

### 3.16.2.2 State

#### California Fire Code

The California Fire Code, located in Part 9 of Title 24 of the California Code of Regulations, incorporates, by adoption, the International Fire Code of the International Code Council, with California amendments. This is the official Fire Code for the State and all political subdivisions. The California Fire Code is revised and published every three years by the California Building Standards Commission.

#### California Health and Safety Code

The California Health and Safety Code establishes regulations pertaining to the abatement of fire-related hazards. This Code also requires that local jurisdictions enforce the State Building Standards Code, which provides standards for fire-resistant building and roofing materials and other fire-related construction methods.

### 3.16.2.3 Regional

#### County of Alameda Eden Area General Plan

Chapter 6, Public Facilities and Services, of the County of Alameda Eden Area General Plan (County of Alameda 2010) includes the following policies that are relevant to the proposed Project:

- **Goal PF-1** Maintain a safe environment in the Eden Area through the prompt and efficient provision of police service.
    - **Policy P1.** The County shall strive to continuously improve performance and efficiency in the Sheriff's Office.
    - **Policy P2.** The Alameda County Sheriff's Office shall maintain adequate police staffing, performance levels and facilities to serve the Eden Area's existing population as well as its future growth.
    - **Policy P5.** The level of service standard shall be a maximum of a 5-minute response time for Priority One emergency calls.
- **Goal PF-3** Minimize the loss of life and property from fires, medical emergencies, and other types of emergencies.
    - **Policy P1.** The County should strive to continuously improve the performance and efficiency of fire protection services for the Eden Area.

## 3.16.2.4 Local

### City of Oakland General Plan

The City of Oakland General Plan Safety Element (City of Oakland 2021) includes the following policies that are relevant to the proposed Project:

- **Policy PS-1.** Maintain and enhance the city's capacity to prepare for, mitigate, respond to, and recover from disasters and emergencies.
- **Policy FI-1.** Maintain and enhance the city's capacity for emergency response, fire prevention, and fire-fighting.

### City of San Leandro General Plan

The San Leandro 2035 General Plan (City of San Leandro 2016) includes the following policies that are relevant to the proposed Project:

- **Policy CSF-1.1 Levels of Service**. Maintain high-quality police and fire protection services through the most efficient and effective possible means. The following minimum level of service standards for police and fire response time (exclusive of dispatch time) shall be maintained: (a) Police Services: 5 minute response time for 90 percent of all Priority One calls; (b) Fire Services: 5 minute response time for first due company for 90 percent of all emergency incidents, excluding freeway responses (3 firefighters including at least one paramedic); 10 minute response time for 90 percent for a full first alarm assignment response (17 firefighters).

### City of Hayward General Plan

The following Hayward 2040 General Plan (City of Hayward 2014a) policies are relevant to the proposed Project:

- **Policy CS-2.3 Police Staffing**. The City shall maintain optimum staffing levels for both sworn police officers and civilian support staff in order to provide quality police services to the community.
- **Policy CS-2.4 Response Time for Priority 1 Calls**. The City shall maintain optimum staffing levels for both sworn police officers and civilian support staff in order to provide quality police services to the community.
- **Policy CS-2.5 Police Equipment and Facilities**. The City shall ensure that Police equipment and facilities are provided and maintained to meet modern standards of safety, dependability, and efficiency.
- **Policy CS-4.2 Fire Department Staffing**. The City shall maintain optimum staffing levels for sworn, civilian, and support staff, in order to provide quality fire protection and emergency medical services to the community.
- **Policy CS-4.3 Fire Department Response Times**. The City shall maintain the ability to respond to fire and emergency medical calls based on the following standards:
    - The first unit shall arrive on scene within five minutes of dispatch, 90 percent of the time.
    - All remaining units shall arrive on scene within eight minutes of dispatch.

## Union City 2040 General Plan

The Union City 2040 General Plan (City of Union City 2019a) includes the following policies relevant to the proposed Project:

- **Policy S-4.5 Maintain Fire Access**. The City shall use appropriate means to maintain fire access roads throughout the City on public and private property.
- **Policy PF-9.1 Police Staffing**. The City shall strive to maintain Police Department staffing levels in line with population growth by using a baseline staffing benchmark based on the average staffing-to-population ratio of cities within Alameda County (sworn officers and civilian support staff).
- **Policy PF-9.2 Police Equipment and Facilities**. The Police Department shall provide and maintain equipment, technologies, and facilities to meet modern standards of safety, dependability, and efficiency.
- **Policy PF-10.4 Adequacy of Fire Access**. The City shall require adequate access and clearance for fire equipment, fire suppression personnel, and evacuation for new development.
- **Policy PF-10.8 Emergency Medical Services**. The City shall ensure the provision of high-quality emergency medical response services, including paramedics and emergency medical technicians.

### City of Fremont General Plan

Chapter 9, Public Facilities Element, of the City of Fremont General Plan (City of Fremont 2011a) includes the following policy that is pertinent to the proposed Project:

- **Policy 9-12 Public Safety Facilities**. Ensure public safety facilities are added or expanded as necessary to keep pace with population growth and meet operational needs. Take into account the availability of both capital and operating funds when determining the timing of new and expanded facilities.

### City of Newark General Plan

The Newark General Plan (City of Newark 2013) includes the following pertinent policies:

- **Policy CSF-4.1 Police Services**. Maintain professional, efficient, effective Police Department activities which promote a high level of public safety.
- **Policy CSF-4.2 Emergency Medical Services**. Ensure the provision of high-quality emergency medical response services, including paramedics and emergency medical technicians.
- **Policy CSF-4.4 Fire Prevention and Response Services**. Ensure the provision of fire prevention and response services which minimize fire risks and protect life and property.

### 3.16.2.5 Consistency with Plans, Policies, and Regulations

The proposed Project would comply with all federal, state, and local policies and regulations related to public services. The proposed Project would ensure that all public facilities regulations are followed, which includes compliance with the California Fire Code and Health and Safety Code, and all applicable goals and policies set forth by the local general plans.

## 3.16.3 Methods for Evaluating Environmental Impacts

This section defines the public services RSA and describes the methods used to analyze the impacts on public services within the public services RSA.

### 3.16.3.1 Resource Study Area

As defined in Section 3.1, Introduction, RSAs are the geographic boundaries within which the environmental investigations specific to each resource topic were conducted. The public services RSA encompasses the areas directly and indirectly affected by the construction and operation of the proposed Project, which is defined as the Project footprint and a 1,000-foot buffer area surrounding the footprint.

### 3.16.3.2 Data Sources

For the analysis, various references on fire protection facilities, police protection facilities, schools, hospitals, and libraries within the public services RSA were collected and reviewed. Potential impacts from construction and operation of the proposed Project on these resources were evaluated through the following methods:

- Aerial imagery from Google Earth and collection of GIS data from the Alameda County Open Data database (County of Alameda 2023) was used to identify public facilities within the Project footprint and a buffer area that is 1,000 feet from the footprint (that is, the RSA);
- GIS was used to measure the distance of public facilities from the Project footprint;
- Temporary construction and permanent operational activities were evaluated for the potential to impact the use of public facilities; and
- Requirements of all plans, policies, and regulations listed in the regulatory context noted above were analyzed for Project compliance.

### 3.16.3.3 CEQA Thresholds

To satisfy CEQA requirements, Public Services impacts were analyzed in accordance with Appendix G of the CEQA Guidelines. According to the CEQA Guidelines, CCR, Title 14, Section 15002(g), "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in CEQA Guidelines Section 15064(b)(1), the significance of an activity may vary with the setting. The impact analysis identifies and analyzes construction (short-term) and operation (long-term) impacts, as well as direct and indirect impacts (see PRC Section 21065). The proposed Project would have significant Public Services impacts under CEQA if it would:

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 following public services?
    i. Fire protection
    ii. Police protection
    iii. Schools
    iv. Other public facilities

## 3.16.4 Affected Environment

### 3.16.4.1 Environmental Setting

#### Fire Protection

Fire protection services in the public services RSA and the region are provided by Alameda County Fire Department (ACFD), Oakland Fire Department (OFD), City of Hayward Fire Department (HFD), Fremont Fire Department (FFD), and East Bay Regional Parks District (EBRPDFD) Fire Department:

- **ACFD:** Provides all-risk emergency services to the unincorporated areas of Alameda County (excluding Fairview), the cities of San Leandro, Dublin, Newark, Union City and Emeryville, the Lawrence Berkeley National Laboratory and the Lawrence Livermore National Laboratory

(ACFD 2021). With 29 fire stations and 35 companies serving a population of 394,000, the ACFD serves densely populated urban areas, waterways, industrialized centers, extensive urban interface, and agricultural and wildland regions.

Over 400 personnel and 100 reserve firefighters provide a wide variety of services to an ever expanding, dynamic and diverse area of roughly 508 square miles (ACFD 2021). The ACFD has adopted an average response time goal of five minutes or less for 90 percent of the calls for the first responding unit, and 10 minutes or less for 90 percent of the remaining units responding to a first alarm assignment (City of San Leandro 2016, City of Newark 2013). A first alarm assignment is generally assigned for a structure fire and delineates a minimum response of fire personnel and fire protection vehicles (City of Alameda 2021).

- OFD: Primary responsibility for preventing and suppressing fires in Oakland. OFD employs approximately 500 sworn full-time equivalents and 70 civilian full-time equivalents. OFD operates 25 fire stations throughout the city (City of Oakland 2021). OFD aims to provide emergency service within seven minutes of notification 90 percent of the time (City of Oakland 2021).
- HFD: Provides fire, paramedic advanced life support/emergency medical, and emergency services to all areas within the Hayward city limits and to the Fairview Fire Protection District on a contract basis (City of Hayward 2014b). HFD operates nine stations, seven of which are located within the Hayward city limits. HFD protects 147,000 residents within Hayward city limits and an additional 13,000 residents within the Fairview Fire Protection District with 118 sworn personnel. HFD meets or exceeds the response goal of putting the first arriving fire company on scene in five minutes or less 90 percent of the time, with the remainder of the required response teams for first alarms on scene in less than eight minutes 90 percent of the time (City of Hayward 2014b).
- FFD: Responsible for providing fire prevention and emergency medical response services within the City of Fremont. FFD maintains 13 companies and has 11 permanently built fire stations within Fremont (City of Fremont 2011b). FFD has adopted a five minute thirty second response time goal for 90 percent of all emergency calls. FFD's full assignment goal is currently nine minutes 30 seconds for 90 percent of calls (City of Fremont 2011b). Full assignment refers to those personnel, equipment, and resources dispatched upon notification of a fire.
- EBRPD Fire Department: The EBRPD Fire Department manages emergency services including fire suppression, search and rescue, and pre-hospital emergency medical care. The EBRPD Fire Department also provides fire prevention and uses fuels reduction strategies to maintain safe and healthy parklands. The EBRPD Fire Department is composed of 46 firefighters (EBRPD 2021).

There are seven fire stations within the public services RSA. Figure 3.16-1 through Figure 3.16-4 provide an overview of the location of these fire protection facilities. Table 3.16-1 provides a list of these fire protection facilities, their location, and their distance from the Project footprint.

**Figure 3.16-1: Public Services RSA, Extent 1**

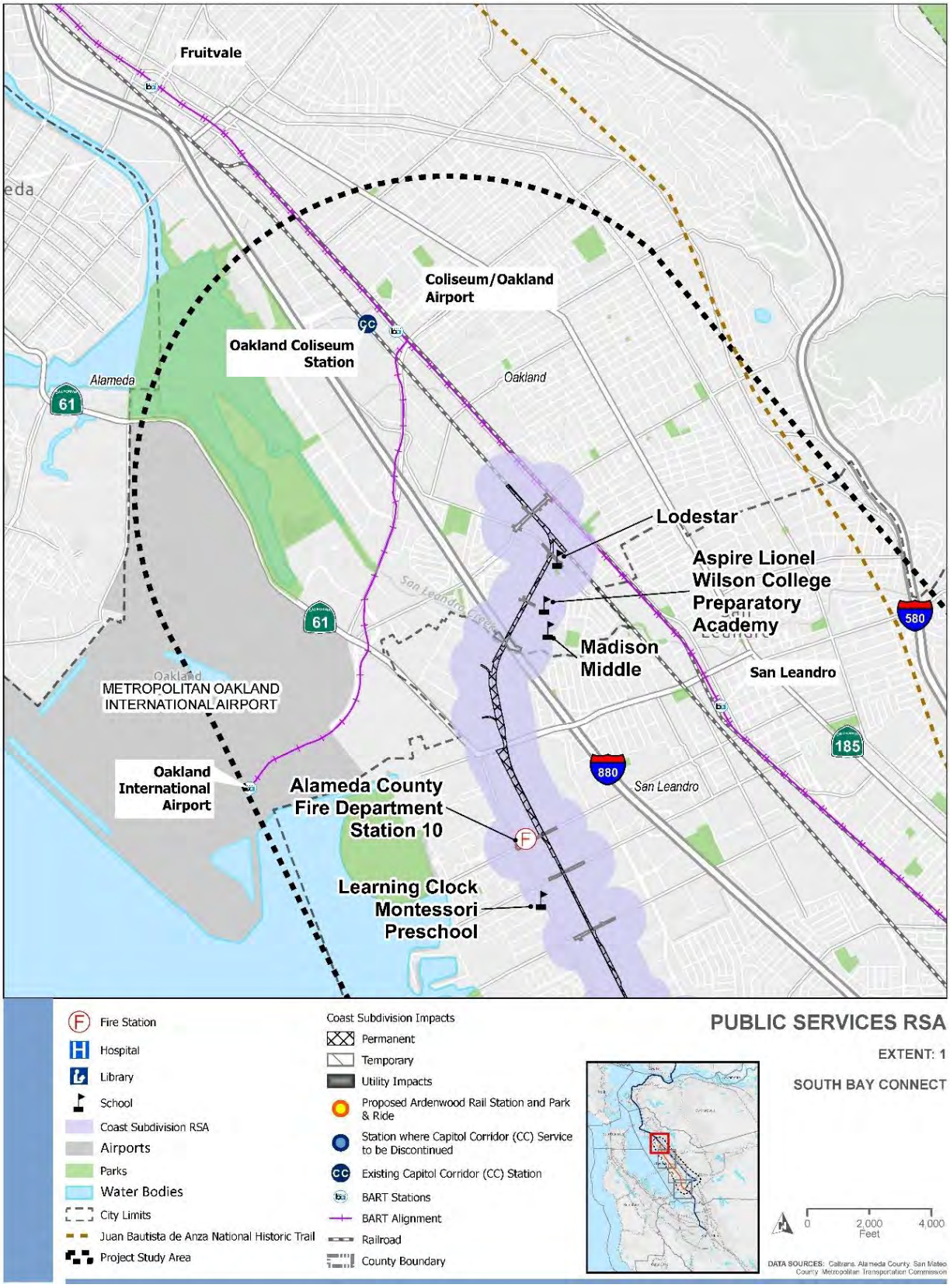

**Figure 3.16-2: Public Services RSA, Extent 2**

**Figure 3.16-3: Public Services RSA, Extent 3**

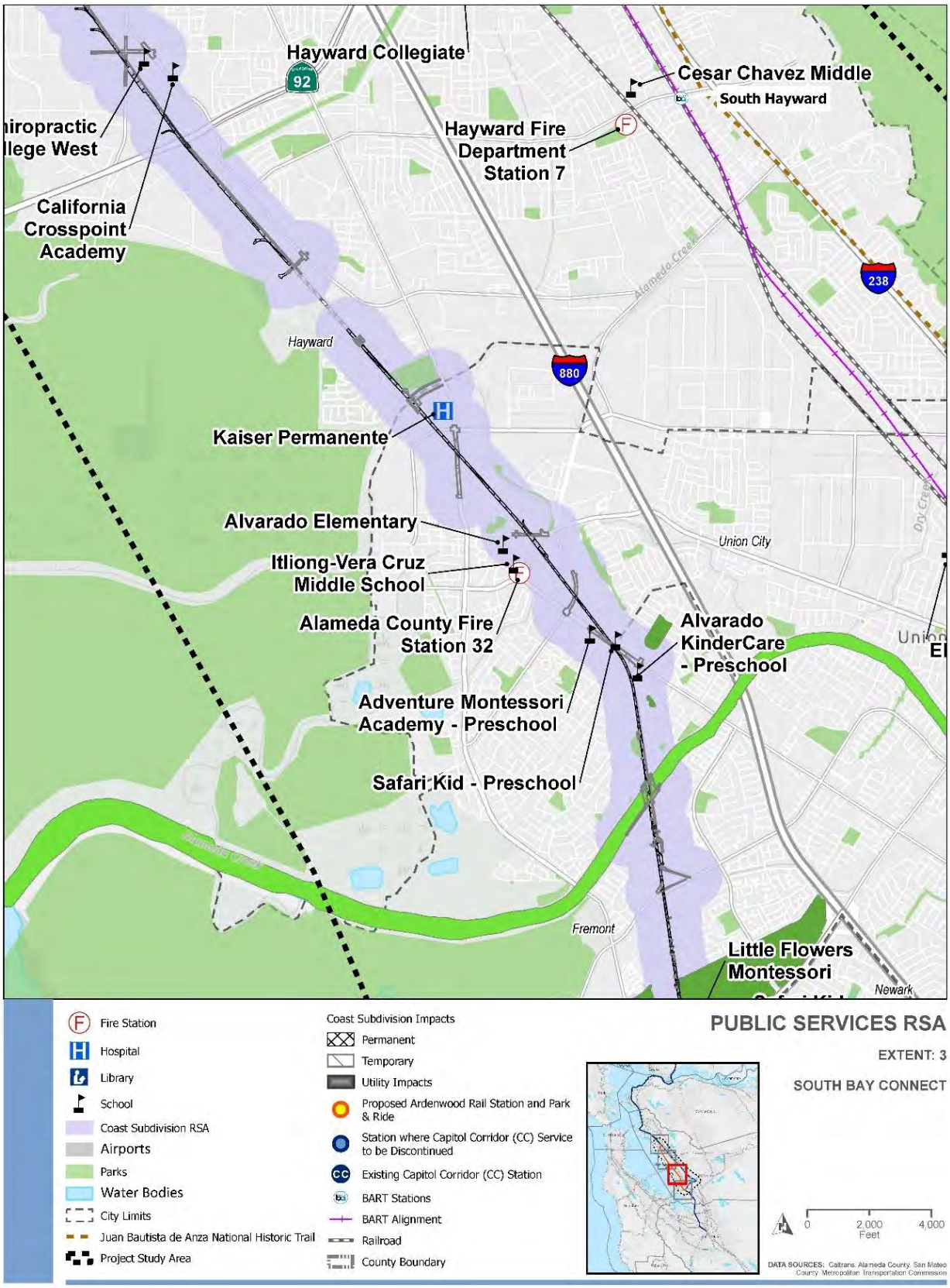

**Figure 3.16-4: Public Services RSA, Extent 4**

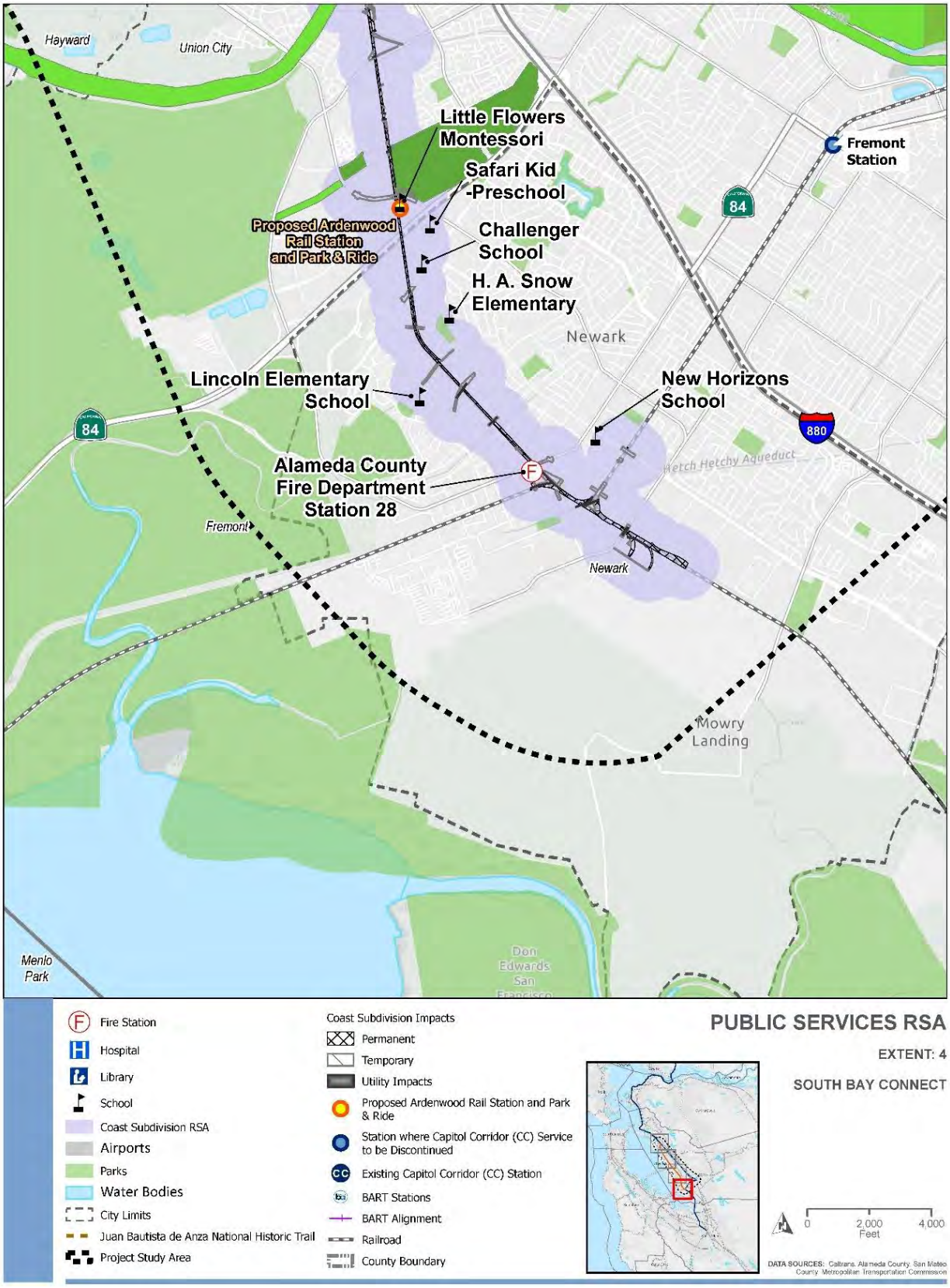

**Table 3.16-1: Fire Protection Services within Public Services RSA**

| Fire Stations in Public Services RSA | Address | Nearest Subdivision | Distance from Project Footprint (feet) |
|---|---|---|---|
| ACFD Station 11 | 2194 Williams Street, San Leandro | Coast | 427 |
| ACFD Station 10 | 14903 Catalina Street, San Leandro | Coast | 89 |
| ACFD Station 32 | 31600 Alvarado Boulevard, Union City | Coast | 956 |
| ACFD Station 28 | 7550 Thornton Avenue, Newark | Coast | 93 |

*Source County of Alameda 2023.*

## Police Protection

Police protection service and law enforcement within the public services RSA is provided by various agencies, including:

- Alameda County Sheriff's Office (ACSO),
- Oakland Police Department (OPD),
- San Leandro Police Department (SLPD),
- Hayward Police Department (HPD),
- Union City Police Department (UCPD),
- Fremont Police Department (FPD), and
- Newark Police Department (NPD).

Table 3.16-2 provides a summary of police protection and law enforcement services that serve the public services RSA; however, no police protection facilities are found within the public services RSA itself.

**Table 3.16-2: Police Protection Services serving the Public Services RSA**

| Police Stations in Public Services RSA | Headquarters Address | Service Area | Staff Information |
|---|---|---|---|
| Alameda County Sheriff's Office | 1401 Lakeside Drive, Oakland | Entire unincorporated area of Alameda County including the Eden Area, Castro Valley, and East County | Staff of 1,500, including about 1,000 sworn officers |
| Oakland Police Department | 455 7th Street, Oakland | City of Oakland | As of February 2019, the OPD employed 747 sworn officers and 316 full-time professional civilian staff. |
| San Leandro Police Department | 901 East 14th Street, San Leandro | San Leandro | In 2015, SLPD included 137 employees, including one chief, two captains, 13 sergeants, and 71 officers. SLPD has approximately 0.8 sworn officers per 1,000 residents, which is lower than the desired ratio of 1.04 per 1,000. |
| Hayward Police Department | 300 West Winton Avenue, Hayward | City of Hayward | Over 190 sworn officers in a total staff of 300 personnel and maintains a ratio of 1.32 sworn officers per 1,000 residents. |
| Union City Police Department | 34009 Alvarado-Niles Road, Union City | City of Union City | Over 130 employees, including 81 sworn officers, more than 25 full-time civilian support staff, and cadres of volunteers. Has ratio of 1.11 sworn officers per 1,000 residents. |
| Fremont Police Department | 2000 Stevenson Boulevard, Fremont | City of Fremont | As of 2019, the department consists of over 300 staff, of which more than 200 are sworn personnel, and more than 100 are professional staff. |

| Police Stations in Public Services RSA | Headquarters Address | Service Area | Staff Information |
|---|---|---|---|
| Newark Police Department | 37077 Newark Boulevard, Newark | City of Newark | Includes 59 sworn staff, including one chief, two captains, three lieutenants, eight sergeants, 45 police officers, and 26 non-sworn (civilian) positions. |

*Source: City of Union City 2019b; Urban Planning Partners 2019, city of San Leandro 2016; City of Hayward 2014b, City of Union City 2019b; City of Fremont 2011b; City of Fremont 2021; City of Newark 2021*

## Schools

The public services RSA is within various school districts, including:

- **Oakland Unified School District (OUSD):** OUSD is a public education school district that operates 51 elementary schools, 11 middle schools, 15 high schools, adult education programs, and special education programs in Oakland (OUSD 2021a). In addition, OUSD operates 28 OUSD-authorized charter schools within Oakland (OUSD 2021b).
- **San Leandro Unified School District (SLUSD):** Serves the City of San Leandro. SLUSD operates eight elementary schools, two middle schools, and three high schools, as well as four other facilities that include administrative offices, a community education center, and an athletic field complex (City of San Leandro 2016). SLUSD also provides educational services to San Leandro residents through an independent study program for grades 9-12 and a variety of adult education programs (City of San Leandro 2016).
- **San Lorenzo Unified School District (SLZUDSD):** Serves portions of the City of San Leandro, in addition to SLUSD. In the City of San Leandro, the SLZUSD serves K-5 students at Corvallis and Dayton Elementary Schools and students in grades 6-8 at Washington Manor Middle School (City of San Leandro 2016). The community of San Lorenzo is located within the Eden Area of unincorporated Alameda County. San Lorenzo is served by the SLZUSD. The SLZUSD operates four elementary schools, two middle schools, two high schools, an adult school, and two charter schools in San Lorenzo (SLZUSD 2021).
- **Hayward Unified School District (HSUD):** The City of Hayward is primarily served by HUSD, which includes more than 20,000 students from preschool through high school (HUSD 2021). HUSD is composed of 21 elementary schools, five middle schools, three high schools, an alternative high school, an adult education center, and a childcare center for preschoolers (HUSD 2021).
- **New Haven Unified School District (NHUSD):** NHUSD provides public education to Union City residents. In 2018, NHUSD had an enrollment of more than 12,000 students attending 12

schools: seven elementary schools (grades K-5); two middle schools (grades 6-8); two high schools (grades 9-12); and one independent study/adult school (City of Union City 2019a).

- **Fremont Unified School District (FUSD):** Public schools in Fremont are operated by FUSD, which serves 34,000 students from grades kindergarten through 12 (FUSD 2021a). FUSD is comprised of 28 elementary schools, five junior high schools, six high schools, one alternative school, one adult school, and an independent learning center (FUSD 2021b).
- **Newark Unified School District (NUSD):** NUSD provides educational services to Newark students. NUSD operates eight elementary schools (kindergarten through grade five), one junior high school, one high school, one continuation high school, and one independent study school (NUSD 2020). NUSD also offers independent study, preschool, childcare, summer intervention programs, and other programs for student and community support (NUSD 2021).

In addition to public schools, the public services RSA also includes private schools, preschools, and private colleges. Figure 3.16-1 through Figure 3.16-4 provides an overview of the location of schools within the public services RSA. Table 3.16-3 identifies all schools within the public services RSA.

**Table 3.16-3: Schools within the Public Services RSA**

| Schools in Public Services RSA | Grade | Address | Nearest Subdivision | Distance from Project Footprint |
|---|---|---|---|---|
| Lodestar | K-12 | 701 105th Avenue, Oakland | Coast | 29 |
| Madison Park Academy | 6-12 | 400 Capistrano DR, Oakland | Coast | 905 |
| Aspire Lionel Wilson College Preparatory Academy | 6-12 | 400 105th Ave, Oakland | Coast | 343 |
| Learning Clock Montessori Preschool | Preschool | 13305 Doolittle Dr, San Leandro | Coast | 681 |
| KIPP Summit Academy | 5-8 | 2005A Via Barrett, San Lorenzo | Coast | 341 |
| KIPP King Collegiate High School | 9-12 | 2005B Via Barrett, San Lorenzo | Coast | 237 |

| Schools in Public Services RSA | Grade | Address | Nearest Subdivision | Distance from Project Footprint |
|---|---|---|---|---|
| Kidango – Bay Center | Preschool | 2001 Bockman Rd, San Lorenzo | Coast | 782 |
| Bay Elementary School | K-5 | 2001 Bockman Rd, San Lorenzo | Coast | 930 |
| Life Chiropractic College West | Degree School | 25001 Industrial Blvd, Hayward | Coast | 150 |
| California Crosspoint Academy | Preschool – 12 | 25500 Industrial Blvd, Hayward | Coast | 800 |
| Alvarado Elementary School | K-5 | 31100 Fredi St, Union City | Coast | 392 |
| Itliong-Vera Cruz Middle School | 6-8 | 31604 Alvarado Blvd, Union City | Coast | 915 |
| Adventure Montessori Academy | Preschool | 4101 Pleiades Pl, Union City | Coast | 39 |
| Safari Kid – Union City | Preschool | 2462 Alvarado Blvd, Union City | Coast | 159 |
| Alvarado KinderCare | Preschool | 32710 Falcon Dr, Fremont | Coast | 107 |
| Little Flowers Montessori | Preschool | 34735 Ardenwood Blvd, Fremont | Coast | 91 |
| Safari Kid – Newark | Preschool | 34899 Newark Blvd, Newark | Coast | 604 |
| Challenger School – Ardenwood | Preschool – 8 | 35487 Dumbarton Ct, Newark | Coast | 521 |

| Schools in Public Services RSA | Grade | Address | Nearest Subdivision | Distance from Project Footprint |
|---|---|---|---|---|
| H.A. Snow Elementary School | K – 6 | 6580 Mirabeau Dr, Newark | Coast | 990 |
| Lincoln Elementary School | K – 5 | 36111 Bettencourt St, Newark | Coast | 385 |
| New Horizons School | K – 8 | 37053 Cherry St, Newark | Coast | 899 |

*Source: County of Alameda 2023, Note: K=Kindergarten*

### Other Public Facilities

The public services RSA has access to numerous libraries across the region. The public has access to libraries associated with the Alameda County Library system, City of Oakland, City of Leandro, City of Hayward, City of Union City, City of Fremont, and City of Newark. Though many libraries are found in the region, none are found within the public services RSA.

Though only one private health care facility is located within the public services RSA, many more public and private healthcare facilities are found in proximity to the public services RSA. As indicated in Figure 3.16-3, Kaiser Permanente, a private health care facility, is located at 3555 Whipple Road in Union City and is within the public services RSA. This facility is located approximately 522 feet from the Project footprint.

## 3.16.5 Best Management Practices

As noted in Chapter 2, Project Alternatives, CCJPA would incorporate a range of BMPs to avoid and minimize adverse effects on the environment that could result from implementation of the proposed Project. BMPs are included in the proposed Project description, and the impact analyses were conducted assuming application of these practices.

The following best management practices related to public services would be implemented as part of the proposed Project.

**BMP TR-1** **Transportation Management Plan**. During final design, a transportation management plan (TMP) will be developed by CCJPA in coordination with affected jurisdictions, fire and police departments, and adjacent construction projects to reduce construction-related impacts. The TMP will include, at a minimum, the following measures:

- Identifying full closures, short-term closures, and detour routes for all modes of travel, including the pedestrian, bicycle, vehicular, public transit, freight, and emergency vehicle modes

- Coordinating and communication with fire and police departments during development of TMP to ensure adequate access is maintained during construction
- Identifying locations of short-term and long-term capacity reductions on the transportation system and coordinating with local agencies to minimize congestion effects
- Installing temporary traffic control measures to promote safety in construction zones
- Installing signage to alert drivers to upcoming closures and lane reductions
- Coordinating with public transit agencies to notify riders about stop closures or diversions
- Identifying construction vehicle routings that minimize effects on the transportation system
- Identifying construction worker shift schedules that minimize effects on the transportation system

**BMP HAZ-4** **Prepare Parcel-Specific Soil Management Plans and Health and Safety Plans (HASP).** Prior to construction, CCJPA will ensure that parcel-specific Soil Management Plans be prepared for known contaminated sites and Leaking Underground Storage Tanks (LUST )adjudicated sites for submittal and approval by Department of Toxic Substances Control (DTSC). The plans shall include specific hazards and provisions for how soils will be managed for known contaminated sites and LUST-adjudicated sites. The nature and extent of contamination varies widely across the Project footprint, and the parcel specific Soil Management Plan shall provide parcel-specific requirements addressing the following:

- Soil testing and soil characterization.
- Soil disposal protocols.
- Protocols governing the discovery of unknown contaminants.
- Soil management on properties within the Project footprint with LUSTs or known contaminants.

Prior to construction on individual properties with LUSTs or known contaminants, a parcel-specific HASP shall also be prepared for approval by DTSC. The HASP shall be prepared to meet OSHA requirements, Title 29 of the C.F.R. 1910.120 and CCR Title 8, Section 5192, and all applicable federal, state, and local regulations and agency ordinances related to the proposed management, transport, and disposal of contaminated media during implementation of work and field activities. The HASP shall be signed and sealed by a Certified Industrial Hygienist, who is licensed by the American Board of Industrial Hygiene. In addition to general construction soil management plan provisions, the following parcel-specific HASP provisions shall also be implemented:

- Training requirements for site workers who may be handling contaminated material, including the transport and disposal of contaminated material.
- Chemical exposure hazards in soil, groundwater, or soil vapor that are known to be present on a property.
- Mitigation and monitoring measures that are protective of site worker and public health and safety.

Prior to construction, CCJPA will coordinate proposed soil management measures and reporting activities with regulatory agencies with jurisdiction in order to establish an appropriate monitoring and reporting program that meets all federal, state, and local laws for the Project and each of the contaminated sites.

## 3.16.6 Environmental Impacts

This section describes the potential environmental impacts to public services as a result of implementation of the proposed Project.

### 3.16.6.1 (a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the following public services:

#### Fire Protection

##### No Project Alternative

**No Impact.** Under the No Project Alternative, the Capitol Corridor passenger rail service between Oakland and San Jose would not be relocated from the Niles Subdivision to the Coast Subdivision. Improvements proposed for the Coast and Niles Subdivisions associated with the proposed Project would not occur. Capitol Corridor passenger trains would continue to operate based on current routes with no changes. There would be no changes to rail connectivity or operational efficiency. Therefore, the No Project Alternative would not result in direct impacts or changes to existing fire protection services within the RSA.

##### Proposed Project

**Less than Significant**. As shown in Table 3.16-1, the nearest fire station to the Project footprint are ACFD Station 28, located at 7550 Thornton Avenue in Newark and ACFD Station 10, located at 14903 Catalina Street in San Leandro, at 93 feet and 89 feet, respectively (Figure 3.16-4 and Figure 3.16-1, respectively). Although ACFD Station 28 and AFCD Station 10 and other fire stations in the vicinity of the proposed Project would not be directly impacted during construction, indirect impacts may occur related to emergency vehicle access that may be impeded during construction

due to nearby temporary lane or road closures and movement of construction equipment on local roads. However, these impacts would be temporary and would not result in lasting effects. As described in Section 3.16.5 above, the proposed Project includes implementation of **BMP TR-1: Transportation Management Plan**. In accordance with BMP TR-1, a TMP would be developed during final design in coordination with local jurisdictions and fire and police departments to ensure that adequate emergency access is maintained during construction. With the implementation of BMP TR-1, temporary and indirect impacts related to emergency access during construction would be reduced.

With respect to Project operations, according to the *Capitol Corridor South Bay Connect Transportation Assessment* (Fehr and Peers 2023), the proposed Project would not significantly alter emergency vehicle access times in the Project Study Area (less than 30 seconds of change throughout the day)[1], for each emergency vehicle response time. Project plans for the proposed Ardenwood station in the City of Fremont would be reviewed by the FFD, and the final design of the station would be required to incorporate FFD recommendations. As described in Section 3.21, Wildfire, , the Ardenwood Station design would comply with National Fire Protection Association codes and standards. In addition, fire prevention measures would be incorporated into building plans in accordance with the California Fire Code and City of Fremont's Fire Code. The proposed Project would not result in any permanent modifications to fire stations in the RSA. The proposed Project would not result in substantial population growth as described in Section 3.15 *Population and Housing*, and therefore, would not contribute to the need for new fire protection facilities. Therefore, permanent impacts on fire protection services would be considered less than significant, and no mitigation is required under all proposed Project.

## Police Protection

### No Project Alternative

**No Impact**. Under the No Project Alternative, the Capitol Corridor passenger rail service between Oakland and San Jose would not be relocated from the Niles Subdivision to the Coast Subdivision. Improvements associated with the proposed Project would not occur. Capitol Corridor passenger trains would continue to operate based on current routes with no changes. There would be no changes to rail connectivity or operational efficiency. Therefore, the No Project Alternative would not result in direct impacts or changes to existing police protection services within the RSA.

### Proposed Project

**Less than Significant**. There are no police stations in the public services RSA; therefore, no police stations would be directly impacted during construction of the proposed Project. The proposed rail improvements would occur primarily within existing UPRR right-of-way. Capitol Corridor passenger trains and goods movement via freight rail do not require specific police protection during operation activities. The existing police departments within the public services RSA that serve the Project Study Area would continue to serve these communities. No residential or other development

[1] While no established state or federal standards for response times have been established for the purposes of identifying CEQA thresholds of significance, the *California High Speed Rail Authority San Jose to Merced Project Section Draft EIR/EIS* indicated that a conservative CEQA threshold of significance for change in emergency vehicle access times would be 30 seconds (i.e., 10 percent of 300 seconds or 5 minutes) (Fehr and Peers 2021).

is proposed as part of the proposed Project that would result in a new or increased demand for police services. The proposed Project would not affect the police department's ability to maintain acceptable service ratios, response times or other performance objectives.

Project plans for the proposed Ardenwood Station would be reviewed by the FPD, and the final design of the station would be required to incorporate their recommendations. The proposed station would conform to the California Building Code, which establishes the minimum construction, engineering, and safety requirements for new buildings.

Construction of the proposed Project would take approximately 3 years to complete. Construction activities would be coordinated with the cities of Oakland, San Leandro, Hayward, Union City, Fremont, and Newark to ensure the safety of construction workers, employees, and the public during construction. Construction activities would align with local and state-recognized safety practice requirements. Fencing and lighting of construction zones would be implemented to avoid accidents. The contractor would be responsible for job site safety and security during construction. The proposed Project includes implementation of **BMP HAZ-4: Prepare Parcel-Specific Soil Management Plans and Health and Safety Plans** which would reduce impacts related to handling of potential hazardous or contaminated materials. It is not anticipated that new or expanded police facilities would be required during construction. Therefore, the need for emergency services during construction activities would be minimal.

During construction, lane or road closure and the movement of construction equipment on local roads could indirectly impact police protection services. However, under the proposed Project, these impacts would be temporary and would not result in lasting impacts. Any temporary and indirect impacts related to emergency vehicle access during construction would be reduced with implementation of **BMP TR-1: Transportation Management Plan**. In addition, the nearest police protection services would be notified to coordinate emergency response routing during construction.

As described above with respect to service times for fire protection vehicles, during operation of the proposed Project, the proposed Project would not significantly alter emergency vehicle access times in the Project Study Area (less than 30 seconds of change throughout the day). Police vehicle response times would not be significantly affected by the proposed Project. Therefore, permanent impacts on police protection services would be considered less than significant, and no mitigation is required under the proposed Project.

## Schools

### No Project Alternative

**No Impact**. Under the No Project Alternative, the Capitol Corridor passenger rail service between Oakland and San Jose would not be relocated from the Niles Subdivision to the Coast Subdivision. Improvements proposed for the Niles and Coast Subdivisions associated with the proposed Project would not occur. Capitol Corridor passenger trains would continue to operate based on current routes with no changes. There would be no changes to rail connectivity or operational efficiency. Therefore, the No Project Alternative would not result in direct impacts or changes to existing schools within the RSA.

### Proposed Project

**Less than Significant**. Construction of the proposed Project would not result in any direct impacts on any schools, nor an increased demand for school facilities. Schools are currently operating within the public services RSA and would continue to operate under the proposed Project. However, indirect impacts could occur if emergency vehicle access is impeded during construction due to nearby temporary and road closures. Any temporary and indirect impacts related to emergency vehicle access during construction would be reduced with implementation of **BMP TR-1: Transportation Management Plan**. BMP TR-1 would be implemented during construction to ensure that emergency vehicle response times to schools are not delayed. Schools located within and in the vicinity of the public services RSA would be notified, as appropriate. With the implementation of the BMP TR-1, short-term impacts on schools would be considered less than significant, and no mitigation is required.

The proposed Project would improve transit services by creating a more direct passenger rail route and reducing the passenger rail travel time. The proposed Project would not result in substantial population growth as described in Section 3.15 Population and Housing, and therefore, would not contribute to the need for new schools. As described above, during operations, the proposed Project would alter emergency vehicle access times in the Project Study Area by less than 30 seconds. Further, the proposed Project would not result in any permanent modifications to schools in the public services RSA. Therefore, permanent impacts on schools would be considered less than significant, and no mitigation is required.

## Other Public Facilities

### No Project Alternative

**No Impact**. Under the No Project Alternative, the Capitol Corridor passenger rail service between Oakland and San Jose would not be relocated from the Niles Subdivision to the Coast Subdivision. Improvements proposed for the Niles and Coast Subdivisions associated with the proposed Project would not occur. Capitol Corridor passenger trains would continue to operate based on current routes with no changes. There would be no changes to rail connectivity or operational efficiency. Therefore, the No Project Alternative would not result in direct impacts or changes to other existing public services within the RSA.

### Proposed Project

**Less than Significant**. As presented earlier, only one private healthcare facility is within the public services RSA. Although this facility would not be directly impacted during construction, indirect impacts could occur if emergency vehicle access is impeded during construction due to nearby temporary and road closures. With the implementation of **BMP TR-1: Transportation Management Plan**, temporary and indirect impacts related to emergency vehicle access during construction would be reduced. BMP TR-1 would be implemented during construction to ensure that emergency vehicle response times to libraries and hospitals are not delayed. With the implementation of BMP TR-1, temporary impacts on public facilities would be considered less than significant, and no mitigation is required.

The proposed Project would improve transit services by creating a more direct passenger rail route and reducing the passenger rail travel time. The proposed Project would not result in substantial population growth as described in Section 3.15, Population and Housing, and therefore, would not contribute to the need for new public facilities under the proposed Project.

As described earlier, operation of the proposed Project would alter emergency vehicle access times in the Project Study Area by less than 30 seconds of change throughout the day. Further, the proposed Project would not result in any permanent modifications to public facilities, including hospitals in the RSA. Therefore, permanent impacts on public facilities would be considered less than significant, and no mitigation is required.

## 3.16.7 Mitigation Measures

No mitigation measures for public services are required for the proposed Project.

## 3.16.8 Cumulative Impact Analysis

Cumulative impacts can result from individually minor but collectively substantial impacts from past, present, and reasonably foreseeable future projects. A cumulatively considerable impact to public services would occur if the proposed Project when combined with past, present, and reasonably foreseeable projects, results in cumulatively considerable impact to the public services in the project area. The cumulative impact study area for public services is defined by the proposed Project's RSA. For the purposes of this analysis, the cumulative RSA for public services is defined by the Project footprint and a 1,000-foot buffer area surrounding the footprint.

A significant cumulative impact on public services would occur if the projects identified in the cumulative RSA, combined with the proposed Project, would result in the need for new public facilities or physical alterations to existing public facilities.

None of the planned recreation, infrastructure, and transportation projects in the cumulative RSA would result in the physical acquisition, displacement, or relocation of public facilities or otherwise have direct or indirect significant impacts on public facilities, including fire protection facilities, police protection facilities, schools, libraries, and hospitals. Planned projects, including the proposed Project, may result in temporary impacts related to emergency vehicle access if they are delayed as a result of construction. The proposed Project includes implementation of BMP TR-1: Transportation Management Plan, which would reduce impacts related to emergency vehicle access during Project construction.

Other planned projects identified in Table 3.1 Cumulative Activities would also likely require similar transportation management plans to manage traffic. In addition, planned projects, including the proposed Project, must comply with state and local regulatory plans and policies related to public services. Therefore, with the incorporation of BMP TR-1 there would not be a considerable contribution to a cumulative impact on emergency vehicle delay.

Based on the discussion above, the proposed Project would not make a considerable contribution to a cumulative impact on public services, and therefore the Project would not have a significant cumulative impact.

## 3.16.9 CEQA Significance Findings Summary Table

Table 3.16-4 summarizes the public services impacts of the proposed Project.

**Table 3.16-4: Public Services Resources Impact Summary**

| Impact | Level of Significance Before Mitigation | Incremental Project Contribution to Cumulative Impacts | Mitigation | Level of Significance with Mitigation Incorporated | Incremental Project Cumulative Impact after Mitigation |
|---|---|---|---|---|---|
| **Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the following public services:** | | | | | |
| Fire Protection | LTS | NCC | N/A | LTS | NCC |
| Police Protection | LTS | NCC | N/A | LTS | NCC |
| Schools | LTS | NCC | N/A | LTS | NCC |
| Other Public Facilities | LTS | NCC | N/A | LTS | NCC |

Notes: LTS = Less than Significant Impact, NI = No Impact, N/A = Not Applicable, SI = Significant Impact, S/M = Significant Impact but Mitigable to a Less than Significant Level, CC = Cumulatively Considerable, NCC = Not Cumulatively Considerable.

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# 3.17 Recreation

## 3.17.1 Introduction

This section describes the regulatory setting and affected environment for recreation, addresses parks and recreational facilities within the recreation RSA, and describes the potential impacts on those facilities during construction and operation of the proposed Project. This section also identifies the cumulative impacts of the proposed Project on recreation when considered in combination with other relevant projects.

## 3.17.2 Regulatory Setting

This section identifies the federal, state, regional, and local laws, regulations, and orders that are relevant to the analysis of parks and recreational facilities. It also addresses the proposed Project's consistency with the regulations described herein.

### 3.17.2.1 Federal

#### National Park Service Organic Act

Congress passed the National Park Service Organic Act (or simply the Organic Act) in 1916 to manage and preserve the nation's national park lands. The Organic Act established the U.S. National Park Service as an agency under the direction of the Secretary of the Interior with the stated purpose of promoting use of national park lands while protecting them from impairment. Specifically, the Organic Act declares that the U.S. National Park Service has a dual mission, both to conserve park resources and provide for their use and enjoyment "in such a manner and by such means as will leave them unimpaired" for future generations. The National Park System currently includes 388 units encompassing approximately 83.6 million acres. In addition to 58 national parks, the National Park System includes recreation areas, seashores, lakeshores, cemeteries, rivers, military parks, historic sites, parkways, over 3,600 miles of trails, and several other land designations.

#### Wilderness Act

The Wilderness Act of 1964 established the legal definition of wilderness in the United States as "an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain." The act originally set aside 9.1 million acres of federal land as protected wilderness areas, which cannot contain any permanent or temporary roads, commercial enterprises, motorized equipment, or mechanical transport. In addition, the act established the National Wilderness Preservation System, a federal program designed for the preservation and protection of wilderness areas. The system is managed by four federal agencies—the U.S. National Park Service, the U.S. Forest Service, the U.S. Fish and Wildlife Service, and the U.S. Bureau of Land Management.

### National Trails System Act

The National Trails System was created in 1968 by the National Trails System Act, which authorized a national system of interstate riding and hiking trails to provide additional outdoor recreation opportunities and to promote the preservation of access to the outdoor areas and historic resources. The National Trails System includes four classes of trails: National Historic Scenic Trails, National Historic Trails, National Recreation Trails, and Connecting or Side Trails.

## 3.17.2.2 State

### California Public Park Preservation Act

The California Public Park Preservation Act of 1971 (PRC Sections 5400–5409) is the primary instrument for protecting and preserving parkland in the state. Under the California Public Park Preservation Act, a public agency that acquires public parkland for non-park use must either pay compensation that is sufficient to acquire substantially equivalent substitute parkland or provide substitute parkland of comparable characteristics. If less than 10 percent of parkland, but not more than one acre is acquired, the operating entity may improve the unacquired portion of the parkland and facilities instead of acquiring substitute parkland or facilities.

### California Recreational Trails Act

The California Recreational Trails Plan is a guide produced by California State Parks for all state agencies and recreation providers that manage recreational trails. Preparation of a recreational trails plan was authorized by the California Legislature in 1978 as an element of the California Recreational Trails Act (PRC 2070–5077.8). The plan identifies Trail Corridors that form a statewide trail system that links mountain, valley, and coastal communities to recreational, cultural, and natural resources throughout the state.

### California Department of Fish and Wildlife

The CDFW is responsible for over 1.1 million acres of fish and wildlife habitat, managed through 749 properties throughout the state. These properties provide habitat for a rich diversity of fish, wildlife, and plant species and comprise habitats from every major ecosystem in the state. In addition, several private lands conservation programs assist landowners with the management of wetlands, riparian habitats, native grasslands, and wildlife-friendly farmlands.

CDFW owns and maintains 142 ecological reserves across the state. All ecological reserves are maintained for the primary purpose of developing a statewide program for protection of rare, threatened, or endangered native plants, wildlife, aquatic organisms, and specialized terrestrial or aquatic habitat types. Visitor use of all CDFW properties is subject to the general regulations in sections 550 and 550.5, Title 14, California Code of Regulations. Visitor use of ecological reserves is also subject to subsections 630(a) and (b) of Title 14, California Code of Regulations.

### San Francisco Bay Conservation and Development Commission

The BCDC was created by the California Legislature in 1965 under the McAteer-Petris Act in response to broad public concern over the future of the San Francisco Bay. The BCDC is a California state planning and regulatory agency with regional authority over the San Francisco Bay and its

shoreline. The McAteer-Petris Act (California Government Code 66600–66682) is the key legal provision under California state law that preserves the San Francisco Bay from indiscriminate filling and to regulate shoreline public access. The McAteer-Petris Act requires that any person or governmental agency wishing to place fill, to extract materials, or to make any substantial change in use of any land, water, or structure within the area of BCDC's jurisdiction must secure a permit from BCDC.

#### San Francisco Bay Plan

The *San Francisco Bay Plan* (BCDC 2023) was prepared by the BCDC and adopted by the California Legislature in 1969. The BCDC is the agency designated to carry out the *San Franciso Bay Plan*. The plan provides a formula for developing the San Franciso Bay and its shoreline to their highest potential, while protecting the San Franciso Bay as an irreplaceable natural resource for the benefit of present and future generations. This plan contains policies that the BCDC uses to determine whether permit applications can be approved for projects within the BCDC's jurisdictions.

The following *San Francisco Bay Plan* policies are applicable to the proposed Project:

- Because of the continuing vulnerability of the San Francisco Bay to filling for transportation projects, the BCDC should continue to take an active role in San Francisco Bay Area regional transportation and related land use planning affecting the Bay, particularly to encourage alternative methods of transportation and land use planning efforts that support transit and that do not require fill. The Metropolitan Transportation Commission, the California Department of Transportation, the California Transportation Commission, the Federal Highway Administration, county congestion management agencies, and other public and private transportation authorities should avoid planning or funding roads that would require fill in the San Francisco Bay and certain waterways.
- Transportation projects on the San Francisco Bay shoreline and bridges over the San Francisco Bay or certain waterways should include pedestrian and bicycle paths that will either be a part of the San Francisco Bay Trail (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 San Francisco Bay and along the San Francisco Bay shoreline.

## 3.17.2.3 Regional

### East Bay Regional Park District Master Plan

The *East Bay Regional Park District Master Plan 2013* (EBRPD 2013), adopted July 16, 2013, provides policy direction for resource stewardship and development of parks within the jurisdiction of EBRPD. The master plan includes policies related to recreational outreach, resources, education, programs, interpretive resources, and availability and access to park resources and facilities. The master plan includes the following policies that are relevant to the proposed Project:

- **Policy NRM1.** The EBRPD will maintain, manage, conserve, enhance, and restore park wildland resources to protect essential plant and animal habitat within viable, sustainable ecosystems.
- **Policy RFA10.** The EBRPD will continue to provide special recreational facilities throughout the parklands to broaden the range of opportunities in the parks and to take advantage of existing

resources. The EBRPD will ensure that these facilities are compatible with its vision and mission, with other parkland resources and priorities, and with public needs and demands.

- **Policy KEP5.** The EBRPD will work actively with cities, counties, districts, and other governmental agencies to ensure that they understand and consider EBRPD interests. The EBRPD will protect its interests when other jurisdictions plan or approve projects that affect the EBRPD and will work with them to develop and articulate mutual goals that are consistent with the EBRPD's standards. The EBRPD will seek to understand the perspectives of other governmental agencies and to resolve conflicts in mutually satisfactory ways.
- **Policy PRPT16.** The EBRPD will coordinate with other agencies and organizations involved in planning for jointly managed facilities that extend beyond its jurisdiction. When applicable, the EBRPD will use planning documents and CEQA documents produced by, or in cooperation with, other agencies for its park and trail planning and development.

### County of Alameda Eden Area General Plan

Chapter 5, Parks and Recreation Element, of the *County of Alameda Eden Area General Plan* (County of Alameda 2010) includes the following goals and policies that are relevant to the proposed Project:

- **Goal PR-1.** Improve the quality of life in the Eden Area through the maintenance and improvement of parks and recreation facilities.
    - **Policy P4.** The County, working with Hayward Area Recreation and Park District (HARD), shall strive to achieve a combined park acreage-to-population ratio of five acres per 1,000 population for local and community parks in the Eden Area.
    - **Policy P6.** The County shall work with HARD to identify sufficient, appropriately located land to meet the park standards identified in HARD's parks Master Plan.
    - **Policy P9.** All park and recreation lands shall, to the greatest extent feasible, be dedicated and held inviolate in perpetuity, protected by law against diversion to non-recreational purposes and against invasion by inappropriate uses. Exceptions to this policy may be made in the interest of acquiring additional park land or recreation facilities.
- **Goal PR-2.** Develop new parks and recreational facilities in the Eden Area to meet existing deficiencies.
    - **Policy P4.** Require new development to pay an impact fee or dedicate parkland at five acres of parks per 1,000 population to offset the increase in park needs resulting from new residents to the greatest extent allowed by law.
    - **Policy P5.** In-lieu park fees shall be maintained at levels that reflect true costs of land acquisition and park development costs.

## 3.17.2.4 Local

### City of Oakland General Plan

The Open Space, Conservation, and Recreation Element of the *City of Oakland General Plan* (City of Oakland 1996) includes the following policies that are relevant to the proposed Project:

- **Policy OS-1.1: Wildland Parks.** Conserve existing City and Regional Parks characterized by steep slopes, large groundwater recharge areas, native plant and animal communities, extreme fire hazards, or similar conditions. Manage such areas to protect public health and safety and conserve natural resources.
- **Policy OS-2.1 Protection of Park Open Space.** Manage Oakland's urban parks to protect and enhance their open space character while accommodating a wide range of outdoor recreational activities.

## City of San Leandro General Plan

The *San Leandro 2035 General Plan* (City of San Leandro 2016) includes the following policies that are relevant to the proposed Project:

- **Policy OSC-1.11 Projects with Impacts on Parks and Recreation.** Require that capital improvement or development projects with the potential to adversely affect or temporarily disrupt San Leandro's park operations and open spaces include measures to mitigate impacts. This should include projects outside of the City limits, such as work by East Bay Municipal Utility District on Lake Chabot Dam and in the San Leandro watershed.

## HARD Parks Master Plan

The *Parks Master Plan* (HARD 2019) provides guidance for both short and long-range planning for HARD by integrating community input and recreation planning standards. The plan reflects the significant investments HARD has made and is currently undertaking since the previous 2006 Parks Master Plan, establishes a set of priorities for the next ten years, and identifies strategies to leverage partnerships and financing to achieve these priorities. HARD is currently undertaking a set of major park design and development projects, as well as improvements or renovations to several existing parks.

## City of Hayward General Plan

The following *Hayward 2040 General Plan* (City of Hayward 2014) policies that are relevant to the proposed Project:

- **Policy HQL-10.16 Public Facilities for Recreation.** The City shall coordinate with HARD to improve access to public facilities that can be used for open space and/or recreation activities.
- **Policy HQL-12.6 Public Spaces.** The City shall encourage incorporation of design features in new construction that can provide accessible venues and public spaces for community programs and activities.

## Union City General Plan

The *Union City 2040 General Plan* (City of Union City 2019) includes the following goals and policies relevant to the proposed Project:

- **Policy HQL-2.1 Increase Parkland.** The City shall strive to increase the number and/or size of neighborhood and/or community parks.

- **Policy RC-1.8 Protection of Significant Open Space Resources.** All significant open space resources (i.e., identified habitat for wildlife and rare, threatened, or endangered plant species, etc.) shall, to the extent feasible be protected or avoided through project design and appropriate mitigation. Removal of vegetation should be minimized, and replanting required to maintain soil stability, prevent erosion, and maximize regeneration. Existing wildlife habitats should be protected in a natural and undeveloped state as part of open space areas and as a means of preserving and attracting wildlife. Depleted habitats adaptable to restoration should also be included as open space where appropriate.

## City of Fremont General Plan

The following *City of Fremont General Plan* (Chapter 8, Parks and Recreation Element) (City of Fremont 2011) policies are pertinent to the proposed Project:

- **Policy 8-1.2 Acreage Standards for Park Acquisition and Development.** Acquire and develop park land using a standard of five (5) acres per one thousand (1000) residents.
- **Policy 8-4.1 Public Recreation Programs.** Continue to offer an array of recreational programs to the public.

## City of Fremont Park and Recreation Master Plan

The City of Fremont is in the process of updating its Parks and Recreation Master Plan dated February 1995. The goal of the updated plan is to provide guidance on how to meet the demands for future recreational, programming, environmental, and maintenance needs, strategize funding and establish priorities for facility improvements, future park development, and land acquisitions for the next 15 years (City of Fremont 2021a).

## City of Newark General Plan

The *Newark General Plan* (City of Newark 2013) includes the following pertinent policies and actions:

- **Policy T-2.9 Recreational Trails.** Develop and maintain trails in parks and open space areas, and between Newark neighborhoods and the City's open spaces.
- **Policy PR-1.1 Public Open Space.** Protect and where possible enhance the public open space resources available within or near Newark.
- **Action PR-1.B Environmental Review and Open Space.** Use the environmental review process to encourage new development to designate areas with unique vegetation, wildlife habitat, or natural resources as open space or to provide adequate mitigation for impacts to such areas.

## City of Newark Citywide Parks Master Plan

The *City of Newark Citywide Parks Master Plan* (City of Newark 2017) creates a framework for the future provision of parks in the City. The plan identifies recreation needs in Newark and explores opportunities to enhance the existing network, while evaluating the creation of new recreation amenities. The plan assesses the City's existing framework, generates a needs assessment for

recreation planning, and directs a plan and implementation for priority projects. The planning process identifies a total of 92 individual park projects for the City's consideration. These projects range from amenity enhancements to the creation of new facilities.

#### San Francisco Bay Trail Plan

Senate Bill 100, which was passed into law in 1987, created the vision of the Bay Trail and directed ABAG to develop a plan for this regional trail system. The *San Francisco Bay Trail Plan* (Bay Trail Plan) (ABAG 1989), adopted by ABAG in July 1989, includes a proposed alignment, a set of policies to guide the future selection and implementation of routes, and strategies for implementation and financing. Since its inception, the Bay Trail Plan has enjoyed widespread support. The majority of counties and cities through which the Bay Trail passes have included the Bay Trail in general plans, specific plans, bicycle plans, and/or pedestrian plans. The BCDC considers the Bay Trail Plan in making determinations as to whether a project is consistent with their policies.

### 3.17.2.5 Consistency with Plans, Policies, and Regulations

The proposed Project would comply with all relevant recreation regulations, including compliance with the California Public Park Preservation Act and all applicable goals and policies set forth by the local general plans and master plans, to the extent feasible.

## 3.17.3 Methods for Evaluating Environmental Impacts

This section defines the recreation RSA and describes the methods used to analyze potential impacts on recreational facilities within the RSA.

### 3.17.3.1 Resource Study Area

As defined in Section 3.1, Introduction, RSAs are the geographic boundaries within which the environmental investigations specific to each resource topic were conducted.

The RSA for recreation encompasses the areas directly and indirectly affected by the construction and operation of the proposed Project, which is defined as the Project footprint plus a 1,000-foot buffer area around the footprint.

### 3.17.3.2 Data Sources

For the analysis, GIS data and aerial imagery were collected on parks and other recreation facilities within the recreation RSA. Potential impacts from construction and operation of the proposed Project on these resources were evaluated through the following methods:

- Aerial imagery from Google Earth and collection of GIS data from the California Projected Areas Database (California State Geoportal 2023) to identify parks and other recreation facilities within a 1,000-foot radius of the Project footprint (i.e., the RSA);
- GIS analysis to measure the distance of recreational facilities from the Project footprint;
- Evaluation of temporary construction and permanent operational activity that could impact the use of recreational facilities; and

- Analysis of the requirements of all plans, policies, and regulations listed in the regulatory context noted above.

### 3.17.3.3 CEQA Thresholds

To satisfy CEQA requirements, recreation impacts were analyzed in accordance with Appendix G of the CEQA Guidelines. According to the CEQA Guidelines, CCR, Title 14, Section 15002(g), "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in CEQA Guidelines Section 15064(b)(1), the significance of an activity may vary with the setting. The impact analysis identifies and analyzes construction (short-term) and operation (long-term) impacts, as well as direct and indirect impacts (see PRC Section 21065). The proposed Project would have significant recreation impacts under CEQA if it would:

a. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated; or
b. Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

## 3.17.4 Affected Environment

### 3.17.4.1 Environmental Setting

#### Regional and Local Setting

Parks and recreation facilities within the RSA are managed by various state, regional, and local agencies. Figure 3.17-1 through Figure 3.17-4 provide an overview of the parks and recreation facilities within the RSA. Table 3.17-1 lists the existing parks and recreation facilities within the RSA by agency and their corresponding distances from the proposed Project footprint, listed from north to south.

**Figure 3.17-1. RSA Recreational Facilities, Extent 1**

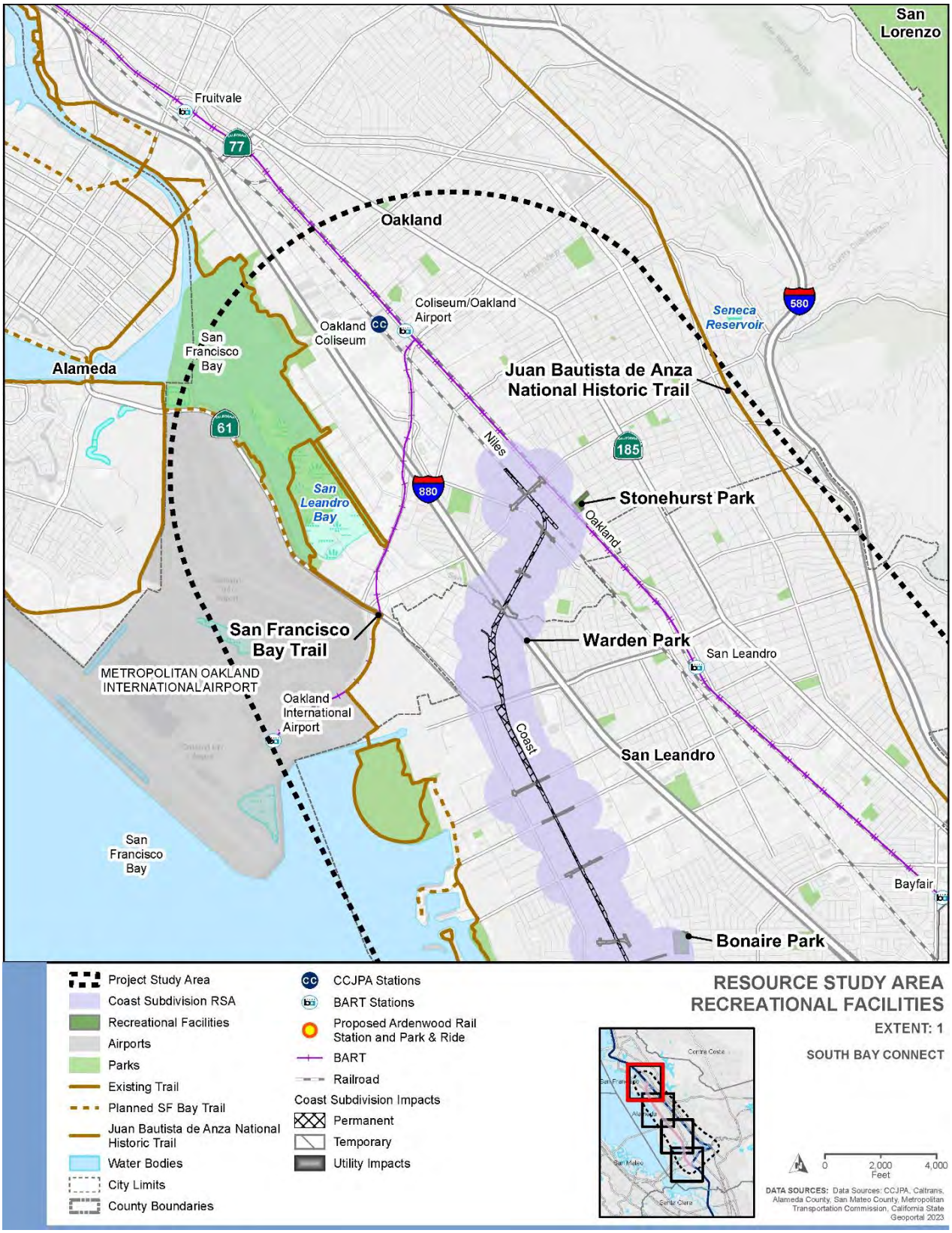


**Figure 3.17-2. RSA Recreational Facilities, Extent 2**

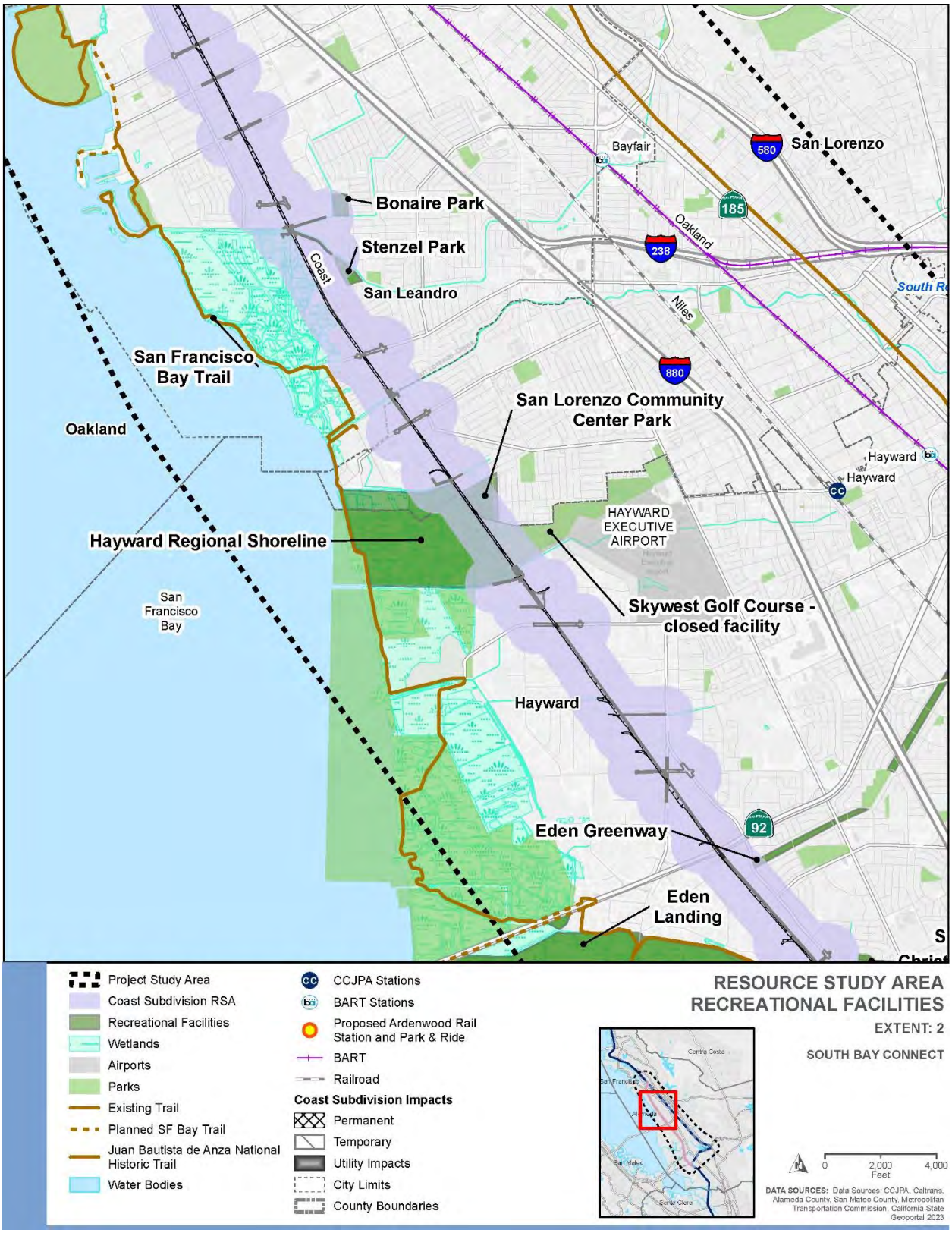


**Figure 3.17-3. RSA Recreational Facilities, Extent 3**

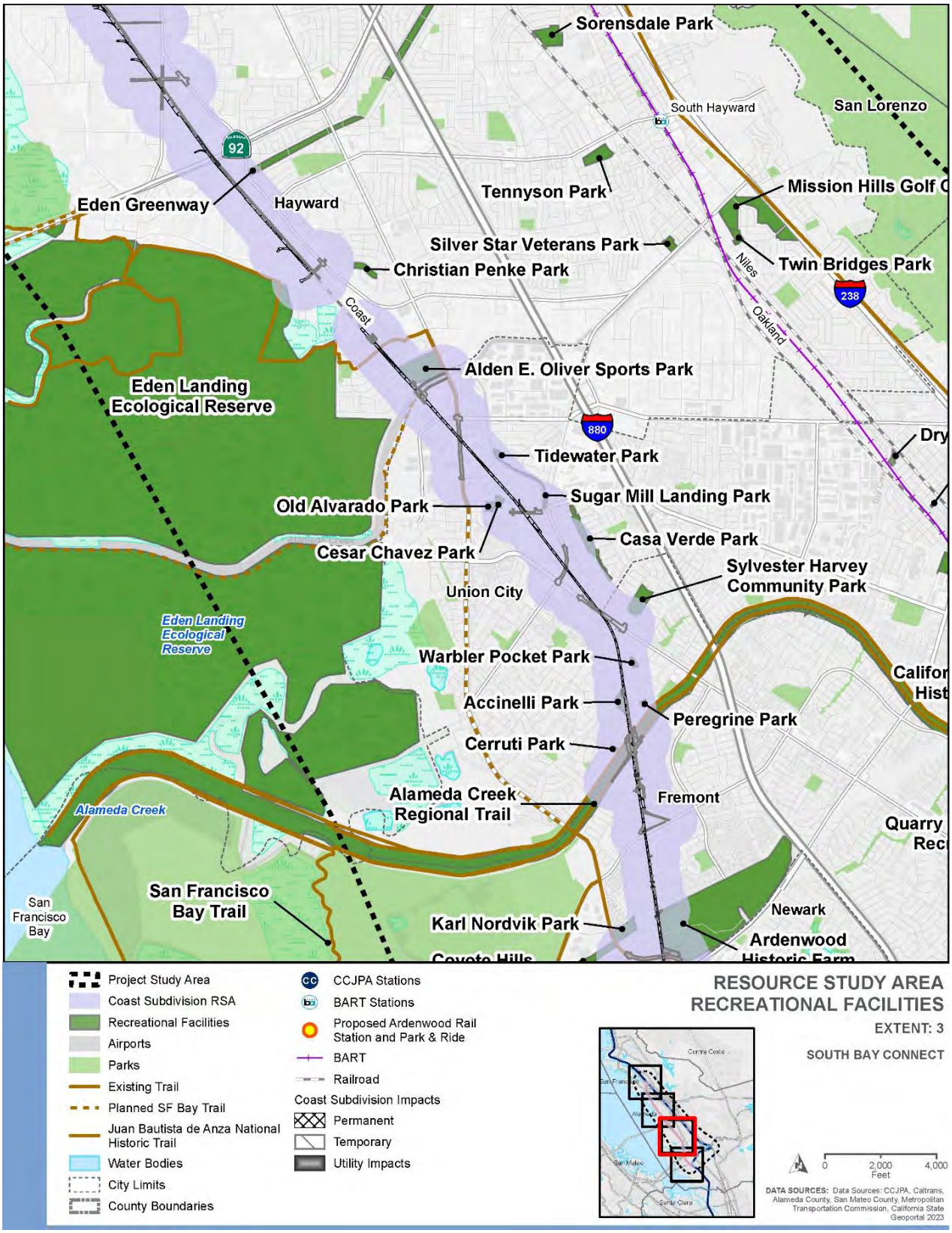


**Figure 3.17-4. RSA Recreational Facilities, Extent 4**

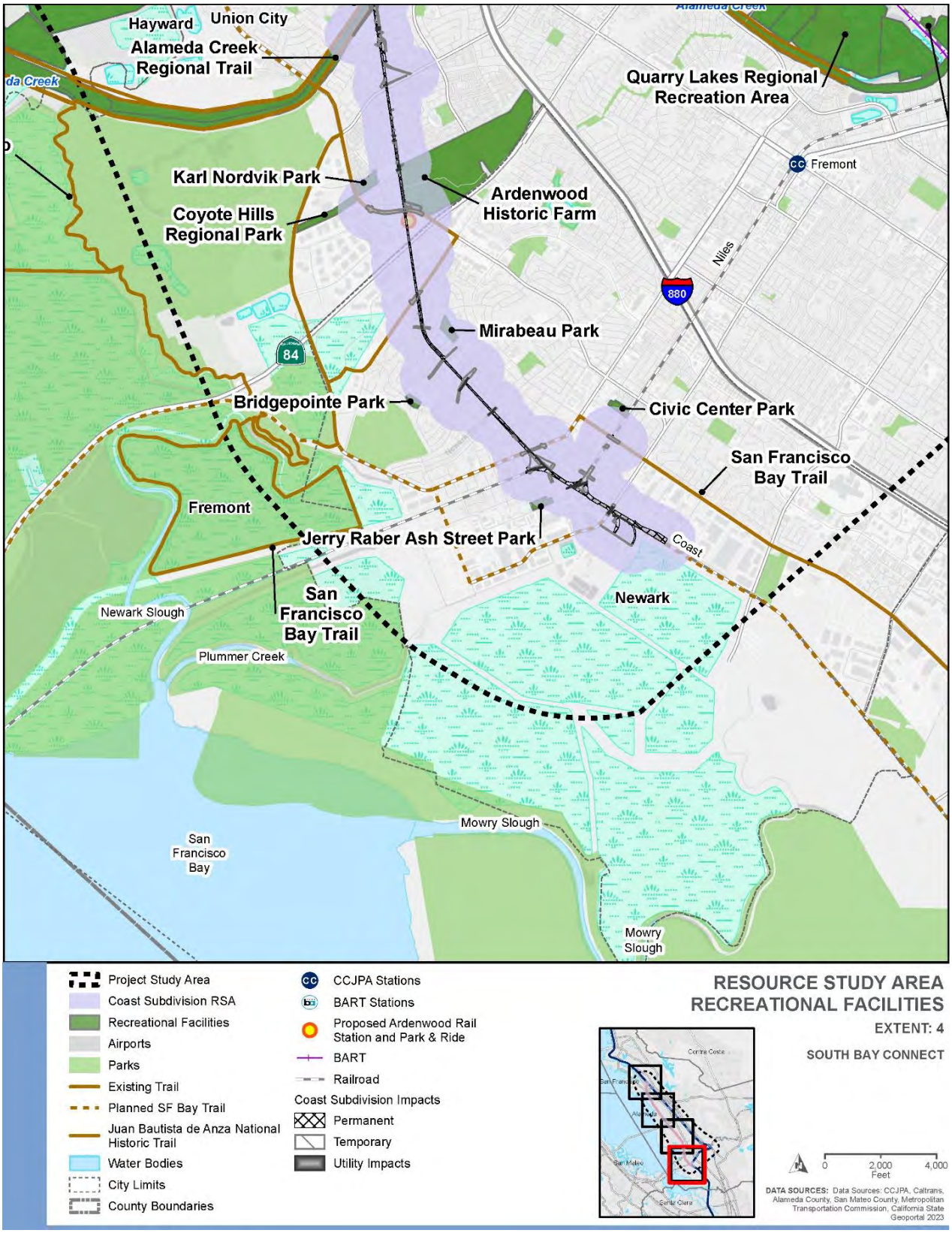


**Table 3.17-1. Recreation Facilities within RSA**

| Parks/Recreation Facilities by Agency | Distance from Project Footprint (feet) |
|---|---|
| ***CDFW*** | |
| Eden Landing Ecological Reserve | 543 |
| ***EBRPD*** | |
| Alameda Creek Regional Trail[1] | 0 (within/adjacent) |
| Coyote Hills Regional Park | 428 |
| Hayward Regional Shoreline | 0 (within/adjacent) |
| ***HARD*** | |
| Alden E. Oliver Sports Park | 0 (within/adjacent) |
| Christian Penke Park | 986 |
| Eden Greenway | 565 |
| San Lorenzo Community Center Park | 0 (within/adjacent) |
| ***City of Oakland*** | |
| Stonehurst Park | 923 |
| ***City of San Leandro*** | |
| Warden Park | 980 |
| Bonaire Park | 300 |
| Stenzel Park | 882 |

**Table 3.17-1. Recreation Facilities within RSA**

| Parks/Recreation Facilities by Agency | Distance from Project Footprint (feet) |
|---|---|
| ***City of Union City*** | |
| Accinelli Park | 0 (within/adjacent) |
| Casa Verde Park | 640 |
| Cerruti Park | 345 |
| Cesar Chavez Park | 305 |
| Old Alvarado Park | 514 |
| Sugar Mill Landing Park | 64 |
| Tidewater Park | 513 |
| ***City of Fremont*** | |
| Ardenwood Historic Farm | 0 (within/adjacent) |
| Karl Nordvik Park | 767 |
| Peregrine Park | 437 |
| Sylvester Harvey Community Park | 421 |
| Warbler Pocket Park | 346 |
| ***City of Newark*** | |
| Bridgepointe Park | 858 |
| Civic Center Park | 784 |
| Jerry Raber Ash Street Park | 411 |

**Table 3.17-1. Recreation Facilities within RSA**

| Parks/Recreation Facilities by Agency | Distance from Project Footprint (feet) |
|---|---|
| Mirabeau Park | 0 (within/adjacent) |
| ***ABAG*** | |
| San Francisco Bay Trail | 0 (within/adjacent) |

**California State Geoportal 2023:**

1. **The Alameda Creek Regional Trail is a part of the San Francisco Bay Trail system. The portion of San Francisco Bay Trail east of Ardenwood Boulevard/Union City Boulevard overcrossing, at the border of Fremont and Union City constitutes the Alameda Creek Regional Trail.**

The parks and recreational facilities within the RSA are described below.

### California Department of Fish and Wildlife - Eden Landing Ecological Reserve

The Eden Landing Ecological Reserve is approximately 6,400 acres of restored salt ponds, adjacent diked marshes, and transitional areas to uplands that are managed for resident and migratory waterbirds and tidal marsh habitats and species. The Eden Landing Ecological Reserve provides opportunities for wildlife viewing, hiking, kayaking, and waterfowl hunting. Along with a segment of the Bay Trail, the reserve now hosts a 3-mile seasonal loop trail along the managed ponds and the restored marsh. A 4-mile, year-round trail follows the perimeter of the restored and managed wetlands, where a boardwalk and interpretive exhibits allow wildlife viewing and education (CDFW 2021).

### East Bay Regional Park District

EBRPD is a system of parklands and trails in Alameda and Contra Costa Counties to the east of San Francisco. The system comprises nearly 125,000 acres in 73 parks, including over 1,250 miles of trails and 55 miles of shoreline (EBRPD 2021a). EBRPD's recreational facilities within the RSA are:

- **Alameda Creek Regional Trail:** The 12-mile Alameda Creek Regional Trail follows the banks of Alameda Creek in southern Alameda County from the mouth of Niles Canyon (in the Niles District of Fremont) westward to San Francisco Bay. The trail is accessible from several major roads in Fremont, Union City, and Newark. The south side of the trail is paved and designed for bicyclers, hikers, joggers, and runners. The north side trail is unpaved and designed for horseback riding (EBRPD 2021b). The Alameda Creek Regional Trail is a part of the Bay Trail system. The portion of Bay Trail east of Ardenwood Boulevard/Union City Boulevard overcrossing, at the border of Fremont and Union City constitutes the Alameda Creek Regional Trail.
- **Coyote Hills Regional Park:** Comprising 1,266 acres of marshland and rolling grassland-covered hills, the Coyote Hills Regional Park is located along the eastern shore of San Francisco Bay, northwest of the cities of Fremont and Newark. The most popular visitor activities include

bicycling, walking, bird watching, jogging, nature exploration, and picnicking (EBRPD 2021c). The following trails within or adjacent to the park are a part of the Bay Trail system: Bayview Trail, No Name Trail, Apay Way Trail, and Alameda Creek Regional Trail.

- **Hayward Regional Shoreline:** Hayward Regional Shoreline consists of 1,841 acres of salt, fresh, and brackish water marshes, seasonal wetlands, and public trails. Activities at Hayward Regional Shoreline include hiking, bicycling, jogging, birdwatching, picnicking, and fishing (EBRPD 2023). The Hayward Regional Shoreline has 5 miles of graveled public trails along the shoreline that are a part of the Bay Trail system.

### Hayward Area Recreation and Park District (HARD)

HARD's service area spans 104 square miles of Alameda County from the East Bay hills to the eastern shore of San Francisco Bay. HARD provides park and recreation services to the City of Hayward and the unincorporated areas of Ashland, Castro Valley, Cherryland, Fairview, and San Lorenzo. HARD's park system includes some 104 sites covering 1,357 acres. The system includes local and community parks, school recreation sites, aquatic centers, golf courses, and other special facilities as diverse as the Hayward Shoreline Interpretive Center, Hayward Japanese Gardens, the Douglas Morrisson Theater, Sulphur Creek Nature Center, and the Rowell Ranch Rodeo Park (HARD 2019). The following HARD recreational facilities are located within the RSA:

- **Alden E. Oliver Sports Park:** The 25-acre Alden E. Oliver Sports Park has synthetic turf soccer fields, baseball/softball fields, a National Fitness Campaign fitness court, a basketball court, play area, reservable group picnic area, parking, and a restroom (HARD 2019, 2023a).
- **Christian Penke Park:** The 4.2-acre Christian Penke Park in Hayward includes barbeques, basketball court, open lawn area, picnic tables, and playground (HARD 2019, 2021a).
- **Eden Greenway:** The 36.1-acre Eden Greenway is a recreation area in Hayward that includes a dog park, basketball court, fitness court, barbeques, open lawn area, par course, picnic tables, playground, and trails (HARD 2019, 2021b).
- **San Lorenzo Community Center Park:** Features at the 31.4-acre San Lorenzo Community Center Park in San Lorenzo include barbecues, baseball/softball, basketball, community center, lagoon, meeting rooms, open lawn area, par course, parking, picnic tables, playground, restrooms, snack bar, soccer, and trails (HARD 2019, 2023b).

### City of Oakland

Oakland has approximately 2,942 acres of parkland, a dozen creeks, 19 miles of shoreline, and a saltwater lake. There are more than 130 parks and athletic field complexes in Oakland, ranging from undeveloped open space lands to intensely developed urban spaces (City of Oakland 1996). The following park is located within the RSA:

- **Stonehurst Park**: This park includes a public athletic field (Google Earth 2023).

### City of San Leandro

San Leandro has 104 acres of City-owned parks, including three community parks, 12 neighborhood parks, seven mini-parks, and four special use recreation areas (City of San Leandro 2016). The City

of San Leandro also operates a 178-acre municipal golf course and a 462-berth public marina (City of San Leandro 2016). The following City of San Leandro parks are located within the RSA:

- **Warden Park:** The 0.3-acre Warden Park provides recreation amenities to nearby residents such as barbeque pits, picnic tables, a basketball court, and a playground for children (City of San Leandro 2016, 2023a).
- **Bonaire Park:** This 5-acre neighborhood park includes amenities such as picnic areas, playground, restrooms, and horseshoe pits (City of San Leandro 2023b).
- **Stenzel Park:** This 9.3-acre neighborhood park is developed with four regulation ball fields for baseball league play. The park also includes barbeque pits, picnic tables, a half basketball court, restrooms, and a concession booth (City of San Leandro 2016, 2023c).

### Union City

Union City maintains 35 City parks totaling over 138 acres that range from small pocket parks to larger community parks (City of Union City 2019). The pocket parks are typically located in residential neighborhoods and provide passive recreational facilities such as picnic sites and children's play area. The larger community parks provide recreational opportunities for more active uses and include court areas, multi-use sports fields, and performance areas.

The following Union City parks are located within the RSA:

- **Accinelli Park:** This park includes restrooms, play equipment, open grass area, picnic tables, and barbeque grill (City of Union City 2022).
- **Casa Verde Park:** This park includes three play areas, open grass area, three full basketball courts, picnic tables, and grills (City of Union City 2022).
- **Cerruti Park:** This neighborhood park has a play area, open grass area, and picnic tables (Google Earth 2023).
- **Cesar Chavez Park:** This park has restrooms, open grass area, horseshoe pits, one full volleyball court, picnic tables, and barbeque grills (City of Union City 2022).
- **Old Alvarado Park:** This park includes restrooms, two play areas, one full basketball court, a gazebo, picnic tables, and barbeque grills (City of Union City 2022).
- **Sugar Mill Landing Park:** This neighborhood park has an open grass area and a play area (Google Earth 2023).
- **Tidewater Park:** This neighborhood park is made up of two small sections of green along Tidewater Drive. One section has a playground and the other section has a gazebo. The two sections are connected by the sidewalk and a small strip of grass (Google Earth 2023).

### City of Fremont

The City of Fremont has an extensive park system, anchored by 434-acre Central Park and supplemented by numerous citywide and neighborhood parks, which provide a range of recreational facilities, including sports fields, children play areas, tennis and basketball courts,

walking paths, and water features (City of Fremont 2011). The following City of Fremont parks and recreational facilities are located within the RSA:

- **Ardenwood Historic Farm:** The Ardenwood Historic Farm is owned by the City of Fremont but is operated by the EBRPD as a fully functioning, turn-of-the-last century farm since 1985 (City of Fremont 2011; EBRPD 2021d). The park features include the following: Arden Station and Deer Park Station, Victorian Garden, Patterson House, Farmyard Café, and animal farms (EBRPD 2021d).
- **Karl Nordvik Park:** Amenities at the Karl Nordvik Park include barbeque, bike rack, drinking fountain, half basketball court, open lawn area, parking lot, picnic area, playground, and restrooms (City of Fremont 2023a).
- **Peregrine Park:** This neighborhood park has an open lawn area, playground, and path (City of Fremont 2023b).
- **Sylvester Harvey Community Park:** Amenities at the Sylvester Harvey Community Park include a basketball court, drinking fountain, open lawn area, path, picnic area, playground, restrooms, softball field, and tennis court (City of Fremont 2023c).
- **Warbler Pocket Park:** This park has an open lawn area, path, playground, and trail (City of Fremont 2023d).

### City of Newark

The City of Newark has 131 acres of developed parks with 50 percent of the City's open space, nearly 4,500 acres, consisting of undeveloped or non-urbanized land (City of Newark 2017). The City of Newark maintains 13 parks in total: 8 neighborhood parks, 3 community parks, and the 2 special use parks—Shirley Sisk Grove and MacGregor Play Fields (City of Newark 2017). The following City of Newark parks are located within the RSA:

- **Bridgepointe Park:** This 4-acre neighborhood park includes play structures and picnic facilities (City of Newark 2017).
- **Civic Center Park:** This 5-acre neighborhood park includes play structures, basketball court, pathways, and picnic facilities (City of Newark 2017).
- **Mirabeau Park:** This 6-acre neighborhood park includes play structures, paths, and picnic facilities (City of Newark 2017).
- **Jerry Raber Ash Street Park:** This 6-acre neighborhood park includes play structures, softball fields, basketball court, and picnic facilities (City of Newark 2017).

### San Francisco Bay Trail

The Bay Trail, administered by ABAG, is a partly existing and planned 500-mile walking and cycling path around the entire San Francisco Bay, running through all nine San Francisco Bay Area counties, 47 cities, and across seven toll bridges (Metropolitan Transportation Commission 2023). The Bay Trail, when completed, would encircle the San Francisco and San Pablo bays with a network of continuous cycling and walking trails. Currently, more than 350 miles of the Bay Trail connect communities, parks, open spaces, schools, and transit across the San Francisco Bay Area. Because

the Bay Trail leads to and runs along the shoreline of the San Francisco Bay, it also provides access for fishing, picnicking, windsurfing, boating, nature education, and other waterfront activities. Within the RSA, a portion of the Alameda Creek Regional Trail serves as the Bay Trail system (as shown in Figure 3.17-4). The portion of Bay Trail east of the Ardenwood Boulevard/Union City Boulevard overcrossing, at the border of Fremont and Union City, constitutes the Alameda Creek Regional Trail.

## 3.17.5 Best Management Practices

As noted in Chapter 2, Project Alternatives, CCJPA would incorporate a range of BMPs to avoid and minimize adverse effects on the environment that could result from implementation of the proposed Project. BMPs are included in the proposed Project description, and the impact analyses were conducted assuming application of these practices. The BMPs relevant to recreation are listed below. Full descriptions of the BMPs are provided in Chapter 2, Project Alternatives.

**BMP REC-1 Protection of Alameda Creek Regional Trail**

**BMP REC-2 Coordinate and Provide Advance Notice of Construction Activities Adjacent to Public Trails**

**BMP AQ-1 Implement BAAQMD Basic Construction Mitigation Measures**

**BMP TR - 1 Transportation Management Plan (TMP)**

## 3.17.6 Environmental Impacts

This section describes the potential environmental impacts on parks and recreation facilities as a result of implementation of the proposed Project. Lettering shown within title for each environmental factor below correlates with CEQA Statute and Guidelines, Appendix G table lettering and numbering.

### 3.17.6.1 (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?

#### No Project Alternative

**No Impact.** Under the No Project Alternative, the Capitol Corridor passenger rail service between Oakland and San Jose would not be relocated from the Niles Subdivision to the Coast Subdivision. Improvements proposed for the Niles and Coast Subdivisions associated with the proposed Project would not occur. Capitol Corridor passenger trains would continue to operate based on current routes with no changes. Therefore, the No Project Alternative would not result in direct impacts or changes to existing recreational resources within the RSA.

### 3.17.6.2 (b) Would the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?

## Proposed Project

#### Construction and Operations

**No Impact.** The proposed improvements would occur primarily within the existing UPRR ROW as well as within existing public roads. Capitol Corridor passenger trains and goods movement via freight rail would not increase the use of existing parks and recreational facilities during operational activities. The existing parks and recreational facilities within the RSA that serve local communities would continue to serve these communities. A new Ardenwood Station is proposed at the existing Ardenwood Park-and-Ride facility. The Ardenwood Historic Farm is located adjacent to the existing Coast Subdivision and is within ¼ mile of the proposed Ardenwood Station. As described in Section 3.15, Population and Housing, proposed improvements associated with the new Ardenwood Station could indirectly foster population growth; however, this indirect population growth is already planned for by the City of Fremont. Therefore, the proposed Project would not result in an increased demand for parks and recreational facilities, and it would not increase the use of the existing recreational facilities in the area or cause substantial or accelerate physical deterioration of these facilities. As a result, no impacts would occur.

## No Project Alternative

**No Impact.** Under the No Project Alternative, the Capitol Corridor passenger rail service between Oakland and San Jose would not be relocated from the Niles Subdivision to the Coast Subdivision. Improvements proposed for the Coast and Niles Subdivisions associated with the proposed Project would not occur. Capitol Corridor passenger trains would continue to operate based on current routes with no changes. Therefore, the No Project Alternative would not result in direct impacts or changes to existing recreational resources within the RSA.

## Proposed Project

#### Construction

**Less than Significant Impact with Mitigation Incorporated.** The proposed Project does not include recreational facilities or any features within the RSA that would require construction of new or expanded recreational facilities. The proposed improvements would occur primarily within the existing UPRR right-of-way as well as within existing public roads.

No improvements are proposed adjacent to or within the following parks and recreation facilities located within the RSA:

- Stonehurst Park.
- Warden Park.
- Bonaire Park.
- Stenzel Park.
- Eden Greenway.
- Eden Landing Ecological Reserve.
- Christian Penke Park.
- Tidewater Park.

- Sugar Mill Landing Mill Park.
- Cesar Chavez Park.
- Old Alvarado Park.
- Casa Verde Park.
- Sylvester Harvey Community Park.
- Warbler Pocket Park.
- Peregrine Park.
- Cerruti Park.
- Coyote Hills Regional Park.
- Karl Nordvik Park.
- Mirabeau Park.
- Bridgepointe Park.
- Civic Center Park.
- Jerry Raber Ash Street Park.

As shown in Figure 3.17-1 through Figure 3.17-4, proposed improvements would occur adjacent to the following parks and recreational facilities within the RSA:

- San Lorenzo Community Center Park: Permanent track improvements.
- Hayward Regional Shoreline: Permanent track improvements.
- Alden E. Oliver Sports Parky: Permanent track improvements.
- Accinelli Park: Permanent track improvements.
- Ardenwood Historic Farm: Construction of the new Ardenwood Station at the existing Ardenwood Park-and-Ride facility.
- Bay Trail: Permanent track and temporary road improvements.

However, none of the proposed permanent improvements (Chapter 2 Project Alternatives) would alter any recreational features within the San Lorenzo Community Center Park, Hayward Regional Shoreline, Alden E. Oliver Sports Park, Accinelli Park, or Ardenwood Historic Farm. Right-of-way would not be acquired from any of the parks. Further, temporary and permanent improvements adjacent to the Bay Trail would occur within the existing UPRR right-of-way or within existing public roads and would not alter any recreational features of the Bay Trail.

Nearby road closures during construction of the proposed Project may temporarily impact local access to the San Lorenzo Community Center Park, Hayward Regional Shoreline, Alden E. Oliver Sports Park, Accinelli Park, Ardenwood Historic Farm, and the Bay Trail. BMP TR-1, as described in Chapter 2, Project Alternatives, requires the development of a Transportation Management Plan that would provide for temporary alternative access.

Finally, construction activities could affect parks and recreation facilities located adjacent to the proposed improvements through an increase in noise and dust levels. This could result in temporary impacts on park users. However, temporary impacts related to noise and dust during construction would be reduced with the implementation BMP AQ-1. BMP AQ-1 requires implementation of the BAAQMD's basic construction Mitigation Measures, as described in Chapter 2, Project Alternatives. Once construction is completed, dust and noise levels within the recreation RSA would return to pre-existing levels. With the implementation of these BMPs, temporary impacts on parks and recreation facilities located within the RSA would be less than significant.

**Alameda Creek Regional Trail**

The Project construction activities would occur adjacent to and over Alameda Creek, which would affect the use of a segment of the Alameda Creek Regional Trail (Figure 3.17-5).

As depicted in Figure 3.17-5, the segment of the Alameda Creek Regional Trail that would be affected crosses under an existing railroad bridge south of Lowry Road in Union City. Construction of a double-track bridge to replace the existing single-track bridge at Alameda Creek would take place above the Alameda Creek Regional Trail.

During proposed Project construction, all efforts would be made to keep this segment of the trail open to the public; however, there may be occasions when this segment of the Alameda Creek Regional Trail would need to be closed to facilitate construction activities and to ensure the safety of the public and construction workers. To reduce direct impacts to the Alameda Creek Regional Trail during construction activities, BMP REC-1, BMP REC-2, and MM REC-1 are proposed.

BMP REC-1 would have CCJPA include a contractor construction specification to require protection of the Alameda Creek Regional Trail and its users utilizing CCJPA-approved protective measures over the segment of the trail that is under the bridge. BMP REC-2 would require CCJPA to coordinate construction activities adjacent to the Alameda Creek Regional Trail with the EBRPD. As part of BMP REC-2, CCJPA's contractors will inform and provide advance notice to trail users regarding upcoming construction activities and any potential detours.

MM REC-1 would require CCJPA, in coordination with the EBRPD, to develop a detour plan for short-term closures of the Alameda Creek Regional Trail during construction activities. To the extent feasible, short-term closures will be scheduled during off-peak trail use days or times and the detour plan prepared would ensure that pedestrian and bicycle access would be maintained. With implementation of BMP REC-1, BMP REC-2, and MM REC-1, short-term impacts to the Alameda Creek Regional Trail during construction activities would be reduced to less than significant.

**Operations.**

**No Impact**. The proposed Project does not include any recreational facilities. Long-term operations of the proposed Project would not influence the use of existing parks and recreational facilities within the RSA. Therefore, there would be no impacts to parks and recreational facilities within the RSA during operations.

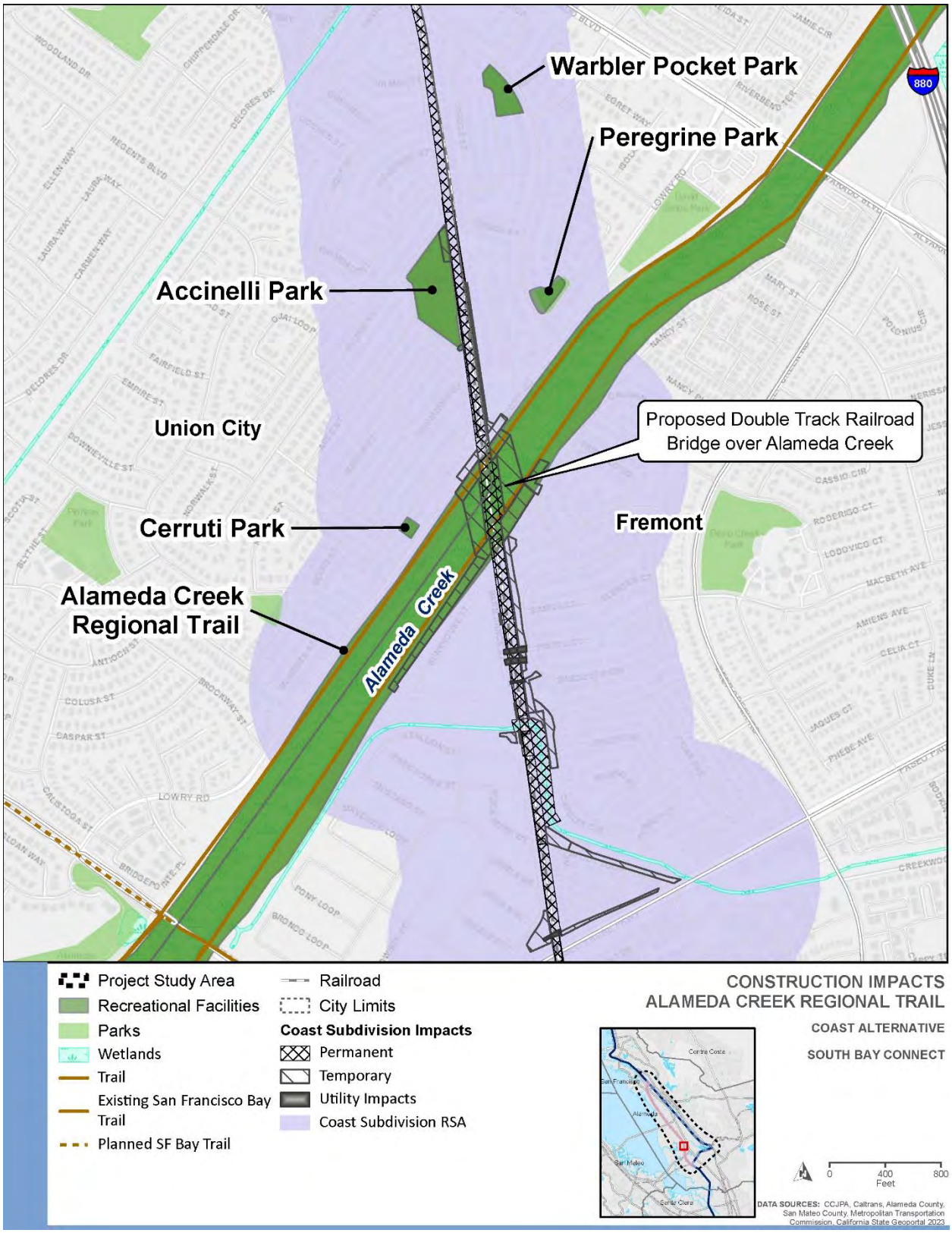
## 3.17.7 Mitigation Measures

The following mitigation measure would be implemented for the proposed Project.

**MM REC-1 Detour Plan for the Alameda Creek Regional Trail**

Two weeks prior to temporary trail closures, CCJPA in coordination with the EBRPD, as possible, will develop a detour plan for short-term closures of the Alameda Creek Regional Trail. The detour plan will be available to the public on EBRPD and CCJPA's websites. To the extent feasible, short-term closures will be scheduled during off-peak trail use days or times.

**Figure 3.17-5. Construction Impacts for Proposed Project along Alameda Creek Regional Trail**



## 3.17.8 Cumulative Impact Analysis

Cumulative impacts can result from individually minor, but collectively substantial, impacts from past, present, and reasonably foreseeable future projects. A cumulatively considerable impact to recreational resources would occur if the proposed Project, when combined with past, present, and reasonably foreseeable projects, results in cumulatively considerable impact to the recreational resources in the Project Study Area. The cumulative impact study area for recreational resources is defined by the proposed Project's Recreation RSA. For purposes of this analysis, the cumulative RSA for recreation is defined by the Project footprint plus a 1,000-foot buffer area around the footprint.

A significant cumulative impact on recreation would occur if the cumulative projects identified in the cumulative recreation RSA, combined with the proposed Project, result in a shortage of park facilities for communities or loss of parkland that communities presently use within the cumulative recreation RSA. Cumulative impacts would also occur if the development or expansion of recreational facilities in the cumulative recreation RSA results in environmental impacts.

Cumulative impacts are addressed only for those thresholds that would result in a Project-related impact. If the Project would result in no impact with respect to a particular threshold, it would not contribute to a cumulative impact. Therefore, no cumulative analysis related to impacts associated with the increased demand for or degradation of recreational facilities is presented. The remainder of the cumulative analysis will address CEQA recommended threshold (b): Would the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse impact on the environment?

The cumulative projects are identified in Section 3.1, Introduction. Construction of planned projects located on, adjacent to, or in close proximity to existing recreational resources could potentially disrupt use of the resource and contribute to a cumulative impact. Construction activities near recreational resources could result in temporary increases in noise and dust, trail and road closures, and visual degradation experienced by users of these recreational resources. Construction of cumulative projects that are located completely or partially on the site of recreational resources could also require temporary construction easements within a recreational resource or the temporary closure or disruption to the use of a recreational resource. A cumulative construction-period impact on recreational resources is considered significant if these activities prevent the function of a recreational resource from continuing or would diminish the ability of users to use or access the recreational resource, leading to the increased use of other park areas, such that substantial physical deterioration of those facilities could occur and/or be accelerated.

Planned park and recreation projects, would result in additional recreation facilities within the cumulative RSA; these projects would provide more recreation options for the public and decrease the demand on existing parks, thereby preserving their current conditions. Any planned recreational projects would be subject to compliance with state and local regulatory plans and policies.

The population growth in and around these planned infrastructure and transit projects would not be substantial or unplanned. The resultant demand on existing recreational resources from shifting housing or improving park access is expected to be minor and substantial physical deterioration is not anticipated to occur necessitating the construction for new facilities. The planned projects would not directly result in permanent acquisition, displacement, or relocation of parks or recreation facilities. However, temporary road closures may be required during construction of

planned projects, including the proposed Project, which could limit access to parks or recreation facilities.

In general, planned projects and the proposed Project must comply with state and local regulatory plans and policies related to recreation. These mitigation measures would limit exposure of construction activities, minimize potential construction air quality and dust impacts, and limit noise of construction activities to users of nearby recreational resources. Thus, the proposed Project's contribution to cumulative impacts on recreational resources because of construction would be less than significant with mitigation.

Operation of cumulative rail and other regional transportation projects would not induce substantial population growth beyond that already projected for the region. These projects alone would not induce substantial population growth requiring the need for additional recreational resources to serve the population. Operation of cumulative infrastructure and land development projects would increase demand for recreational resources. Although proposed Project operations would shift passenger rail service to a new adjacent route, as well as construct a new passenger rail station, it is anticipated that the existing and future passenger rail users would adapt to the new Capitol Corridor passenger route and not create substantial and unplanned population growth around the proposed Ardenwood Station.

The proposed Project would not be the direct reason for any substantial and unplanned population growth in the proposed Ardenwood Station area, as described in Section 3.15, Population and Housing, and, therefore, would not be responsible for providing additional recreational resources to serve the increase in population as a result of planned projects. The passengers and employees associated with the proposed Ardenwood Station are expected to use the adjacent Ardenwood Historic Farm, but the resultant demand is expected to be staggered (depending on the train schedule) and substantial physical deterioration is not anticipated to occur necessitating the construction for new facilities. Thus, the proposed Project's contribution to cumulative impacts on recreational resources as a result of operations would be less than significant.

## 3.17.9 CEQA Significance Findings Summary Table

Table 3.17-2 summarizes the recreation resources impacts of the proposed Project.

**Table 3.17-2: Recreation Resources Impacts Summary**

| Impact | Level of Significance Before Mitigation | Incremental Project Contribution to Cumulative Impacts | Mitigation | Level of Significance with Mitigation Incorporated | Incremental Project Cumulative Impact after Mitigation |
|---|---|---|---|---|---|
| **(a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated** | NI | NCC | N/A | NI | NCC |
| **(b) Include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment** | S/M | NCC | MM REC-1 | LTS | NCC |

Notes: LTS = Less than Significant Impact, NI = No Impact, N/A = Not Applicable, SI = Significant Impact, S/M = Significant Impact but Mitigable to a Less than Significant Level, CC = Cumulatively Considerable, NCC = Not Cumulatively Considerable.

## 3.17.10 References

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# 3.18 Transportation

## 3.18.1 Introduction

This section describes the regulatory setting and affected environment for transportation. This section addresses the regional and local transportation system, including rail, transit, roadway, bicycle, and pedestrian facilities within the transportation RSA and describes the potential impacts on those facilities during construction and operation of the proposed Project. This section also identifies the potential for cumulative impacts of the proposed Project on transportation when considered in combination with other relevant projects.

## 3.18.2 Regulatory Setting

This section identifies the federal, state, regional and local laws, regulations, and orders that are relevant to the analysis of transportation. This section also addresses the proposed Project's consistency with the regulations described herein.

### 3.18.2.1 Federal

#### Federal Passenger Rail Investment and Improvement Act of 2008

The federal Passenger Rail Investment and Improvement Act requires the State of California to prepare a federal statewide transportation improvement program covering a period of at least four years. This program compiles all transportation projects that have been programmed throughout the state using federal funds. In accordance with the Federal Passenger Rail Investment and Improvement Act of 2008 (Title 49 United States Code [USC] Section 20101), the State of California adopted the 2018 California State Rail Plan in September 2018 (California Department of Transportation (Caltrans), 2018).

#### Railroad Revitalization and Regulatory Reform Act of 1976

The Railroad Revitalization and Regulatory Reform Act (Title 45 USC) often called the "4R Act," provides the means to rehabilitate and maintain the physical facilities, improve the operations and structure, and restore the financial stability of the nation's railway systems and to promote its revitalization.

#### Federal Transit Law

The Federal Transit Law Chapter 53 of Title 49 USC states that "it is in the interest of the United States, including its economic interest, to foster the development and revitalization of public transportation systems that (1) maximize the safe, secure, and efficient mobility of individuals; (2) minimize environmental impacts; and (3) minimize transportation-related fuel consumption and reliance on foreign oil."

### Highways, Statewide Planning

Title 23 of the USC for highways and statewide and non-metropolitan transportation planning provides the general requirements for statewide planning to encourage and promote the safe and efficient management, operation, and development of the surface transportation system.

### Passenger Equipment Safety Standards

In 2018, the Federal Rail Administration (FRA) updated the train safety requirements for passenger trains. The 2018 final rule, which was codified at Title 49 of the Code of Federal Regulations (CFR) Part 238, added standards for alternative compliance with crashworthiness and occupant protection performance requirements for Tier I passenger trainsets, which removed regulatory barriers and enabled use of new technological designs, allowing a more open U.S. rail market.

## 3.18.2.2 State

### California Department of Transportation – 2018 California State Rail Plan

The *2018 California State Rail Plan* (Caltrans, 2018) is a plan to strategize the state's operational and capital investments toward its statewide travel system. The plan is considered an important element in the comprehensive planning and analysis of statewide transportation investment strategies illustrated in the *California Transportation Plan 2040* (Caltrans, 2016). Specifically, the State Rail Plan calls for re-routing passenger rail service from the Niles Subdivision to the Coast Subdivision and re-routing freight operations from the Coast Subdivision to the Niles Subdivision to facilitate faster travel times.

### California Department of Transportation – California Transportation Plan 2050

The *California Transportation Plan 2050* (Caltrans, 2021a) is a plan that outlines the goals and recommendations to achieve a vision for a safe, sustainable, universally assessable, and globally competitive transportation system to provide reliable and efficient mobility for people, goods, and services. The plan will also concurrently help the state to meet its greenhouse gas (GHG) emission reduction goals and preserve the unique character of communities within the state.

### Global Warming Solutions Act of 2006 (Assembly Bill 32, Chapter 728)

The Global Warming Solutions Act of 2006, or Assembly Bill (AB) 32, required California to reduce its GHG emissions to 1990 levels by 2020—a reduction of approximately 15 percent below emissions expected under a "business as usual" scenario. The full implementation of AB 32 will help mitigate risks associated with climate change, which will improve energy efficiency, expand the use of renewable energy resources, provide for cleaner transportation, and reduce waste.

### California Sustainable Communities and Climate Protection Act of 2008 (Senate Bill 375, Chapter 728)

The California Sustainable Communities and Climate Project Act, or Senate Bill (SB) 375, requires regional planning agencies to develop sustainable community strategies and/or relevant regional land use plans to meet the GHG emissions reduction goals set by the California Global Warming Solutions Act, or AB 32. These strategies address the reduction of vehicle miles traveled (VMT) by the development of shortened and more efficient travel.

### Senate Bill 743

SB 743 changed the way transportation impacts are analyzed under the California Environmental Quality Act (CEQA) from levels of service (LOS) to VMT. State guidelines require all lead agencies to update their transportation impact analysis metrics to VMT before July 1, 2020. CEQA generally defers to the lead agencies on the choice of methodology to analyze VMT impacts. Pursuant to Section 15064.3(b)(2) of State CEQA Guidelines, transportation projects that reduce, or have no impact on, VMT should be presumed to cause a less-than-significant transportation impact.

### Assembly Bill 1358

The Complete Streets Act requires cities and counties to include complete streets policies as part of their general plans so that roadways are designed to safely accommodate all users, including motorists, bicyclists, pedestrians, transit riders, children, older people, and disabled people. Beginning in January 2011, any substantive revision of the circulation element in the general plan of a California local government would include complete streets provisions.

### Governor's Office of Planning and Research Technical Advisory Evaluating Transportation Impacts in CEQA

Pursuant to Public Records Code (PRC) Section 21099 (b)(1), the criteria for determining the significance of transportation impacts must "promote the reduction of GHG emissions, the development of multimodal transportation networks, and a diversity of land uses." To that end, in developing the criteria, the Governor's Office of Planning and Research (OPR) has proposed, and the California Natural Resources Agency has certified and adopted, changes to the CEQA Guidelines that identify VMT as the most appropriate metric to evaluate a project's transportation impacts. With the California Natural Resources Agency's certification and adoption of the changes to the CEQA Guidelines, automobile delay, as measured by LOS and other similar metrics, generally no longer constitutes a significant environmental effect under CEQA (PRC Section 21099[b][3]). The advisory contains technical recommendations regarding assessment of VMT, thresholds of significance, and mitigation measures (OPR, 2018). OPR issued the Technical Advisory as a resource for agencies and other entities to use at their discretion.

### Caltrans' 2020 Transportation Analysis Framework and Transportation Analysis under CEQA

Caltrans's Transportation Analysis Framework (2020a) and Transportation Analysis under CEQA (2020b) provide guidance for assessing induced travel impacts from prospective projects on the State Highway System.

## 3.18.2.3 Regional

At the regional level, the Metropolitan Transportation Commission (MTC) is the transportation planning, coordinating, and financing agency for the San Francisco Bay Area (Bay Area). MTC screens state and federal grant requests from local agencies to ensure their consistency with the Regional Transportation Plan. At the countywide level, the Alameda County Transportation Commission (Alameda CTC) manages the County's transportation information and funding stream. Alameda CTC was created in 2010 through the merger of the Alameda County Congestion Management Agency and the Alameda County Transportation Improvement Authority. The

combined agency manages Alameda County's half-cent transportation sales tax (Measure B), which is used to support capital projects and operations. It also distributes pass-through funds to cities and other agencies for streets, transit, special needs transportation, bicycle and pedestrian safety projects, and transit-oriented development. The agency also performs countywide traffic modeling to help coordinate development across jurisdictional lines, direct transportation funding, and plan for future regional transportation improvements.

## Metropolitan Transportation Commission and Association of Bay Area Governments – Plan Bay Area 2050 Transportation Element

The *Plan Bay Area 2050* (MTC and Association of Bay Area Governments [ABAG], 2021) identifies a roadmap for the Bay Area's future. It is a long-range plan for the future of nine counties in the Bay Area. The plan focuses on four key elements – housing, economy, transportation, and environment and identifies a path to make the Bay Area more equitable for all residents and more resilient in the face of unexpected challenges. Building on the work of the Horizon Initiative, this plan outlines regional strategies for growth and investment through the year 2050. The following three key transportation strategies are included under the Transportation Element of the plan:

- **Maintain and Optimize the Existing System**: First and foremost, the plan identifies funding to operate and maintain our existing system of transit routes, roads, and bridges, laying a strong foundation for further investments and policies. Strategies include reversing pandemic-related cuts to total transit service hours, creating a seamless transit experience with reformed fare payments, addressing near-term highway bottlenecks, implementing road pricing on select corridors for long-term congestion relief, funding community-led transportation investments in Equity Priority Communities, and supporting ongoing regional programs and local priorities.
- **Create Healthy and Safe Streets:** On top of this optimized system, roads would be made safer for all users—including drivers, cyclists, rollers (for example, people that use a wheelchair or scooter), and pedestrians—through context-specific speed limit reductions and a network of protected bike lanes and trails designed for people of all ages.
- **Build a Next Generation Transit Network:** Finally, a slate of investments in transit steers the Bay Area toward a 21st century system that meets the needs of a growing population and delivers fast, frequent, and reliable service throughout the region. Strategies invest in improving the frequency and reliability of local transit, selectively extend regional rail and increase frequencies to address crowding, and build out the express lanes network with coordinated express bus service.

## San Mateo County Transit District – Dumbarton Transportation Corridor Study

The *Dumbarton Transportation Corridor Study* (San Mateo County Transit District, 2017) identifies alternatives to improve transit connectivity between the East Bay and the Peninsula and connects alternatives with existing Capitol Corridor routes. The study proposes developing a rail station at Ardenwood with a 1,200-space parking structure.

## Capitol Corridor Joint Powers Authority – 2016 Vision Implementation Plan

The 2016 Capitol Corridor Vision Implementation Plan is a plan for the implementation of capital improvements that are needed to accommodate for future trends such as population increase, business demands, and climate change trends along the Capitol Corridor. Key elements of the Capitol

Corridor Vision Plan include improvements related to speed, frequency, reliability, connectivity, electrification, level boarding and clockface headways. For passenger train travel between Oakland and Diridon Station in Downtown San Jose, several possible rights-of-way already exist. Each is a freight corridor, and the Capitol Corridor currently uses segments of two of them. If the Capitol Corridor had exclusive use of any of the alignments—with existing freight relocated to another right-of-way (ROW)—then service could be greatly expanded prior to electrification and other improvements to speed up service.

## Alameda County – Community Climate Action Plan

The *Alameda County Community Climate Action Plan* (Alameda County, 2014) addresses the reduction of GHG in unincorporated areas of Alameda County through a series of 37 local programs and policies. The climate action area for transportation is to identify ways to reduce auto emissions, including improving pedestrian and bicycle infrastructure, enhancing public transit service, and supporting reductions in single-occupancy vehicle use.

## Alameda County Transportation Commission – Goods Movement Plan

Alameda CTC sets the following vision and goals for the goods movement system, prioritizing quality of life, safety and reliability, innovation, interconnectedness and multimodal operations, and economic prosperity (Alameda CTC, 2016a). The plan identifies and prioritizes short-and long-term strategies to address goods movement needs in Alameda County and the Bay Area.

## Alameda County Transportation Commission – Alameda Countywide Transit Plan

In 2016, Alameda CTC coordinated with local transit providers and local jurisdictions to better align transit, land use, and economic development goals, and objectives throughout the county. The *Alameda Countywide Transit Plan* (Alameda CTC, 2016b) identifies near- and long-term transit capital and operating priorities aimed to create a transit system that is dependable, easy to use, safe, affordable, and competitive with travel by other modes. Relevant policy strategies include the following:

- **All Tiers Strategy 1:** Maintain all assets in their optimal condition.
- **Inter-Regional Strategy:** Separate goods movement and passenger rail service.
- **Local Frequency Tier Strategy 1:** improve access for persons with disabilities in conjunction with fixed route service improvements.

## Alameda County – Eden Area General Plan

The Alameda County General Plan consists of several documents. Three area plans contain land use and circulation elements for their respective geographic areas, as well as area-specific goals, policies, and actions for circulation, open space, conservation, safety, and noise. The *Eden Area General Plan* circulation element (Alameda County, 2010) comprises the communities of Ashland, Cherryland, Hayward Acres, San Lorenzo, and Fairview and contains the following goals and policy:

- **Goal 6.1-1:** Provide a safe, efficient, multimodal transportation system to meet the diverse needs of residents, workers, businesses, and visitors.
- **Policy 6.1-1:** Comprehensive Circulation System. Provide a comprehensive system of transportation facilities that include streets and highways for regional access; transit

facilities; a continuous network of pedestrian sidewalks and bicycle routes; and transportation and parking management programs and measures to encourage the efficient use of these facilities and services.

- **Goal 6.5-1:** Expand and improve local bikeway connections and provide a safe environment for bicycle travel throughout the community.
- **Goal 6.6-1:** Provide a safe and attractive walking environment accessible for all users, particularly disabled users, seniors, transit users, and children.

### Alameda County – County Neighborhood Traffic Calming Program

The Alameda County Neighborhood Traffic Calming Program (Alameda County, 2001) provides a process for neighborhoods to request the installation of traffic calming devices on local and minor collector streets to the Alameda County Public Works. These measures include striping, streetscape improvements such as street trees or enhanced pedestrian crossings, bulb-outs, speed humps, roundabouts, and partial or full roadway closures.

## 3.18.2.4 Local

Within the transportation RSA, the cities of Oakland, Fremont, and Hayward have updated their CEQA thresholds of significance guidelines (an increase in VMT is considered a potentially significant impact) to comply with state law SB 743 and have adopted traffic impact guidelines with screening criteria, impact criteria, and a method for determining if a transportation project would induce additional VMT. Currently, the cities of San Leandro and Newark have not updated their CEQA thresholds of significance to VMT for transportation impact analysis.

### City of Oakland General Plan

The City of Oakland adopted the Land Use and Transportation Element in 1998 (City of Oakland, 1998). This element focuses on how land in Oakland is used for various uses, such as housing, jobs, and public facilities. This element includes the following relevant objectives and strategies, as they relate to transportation:

- **Objective T4:** Increase use of alternative modes of transportation.
- **Transit and Transportation Improvement Strategies Objectives:** To enhance existing transit system to encourage alternatives to automobiles.

### City of Oakland Bicycle Plan

In July 2019, the Oakland City Council unanimously adopted *Let's Bike Oakland* (City of Oakland, 2019). Objectives of *Let's Bike Oakland* include the following:

- **Objective A:** Increase access to jobs, education, retail, parks, libraries, schools, recreation, transit, and other neighborhood destinations.
- **Objective C:** Support public transit service.
- **Objective F:** Serve people with disabilities.

## City of San Leandro General Plan

The City of San Leandro updated its *City of San Leandro 2035 General Plan* (City of San Leandro, 2016) in September 2016. The General Plan establishes the vision for the city's future and guides its future developments. The General Plan includes the following pertinent goals and policy related to transportation:

- **Policy T-1.1:** Decision Making: Ensure that future land use and development decisions are in balance with the capacity of the city's transportation system and consistent with the city's goal of reducing GHG gas emissions.
- **Goal T-2:** Design and operate streets to be safe, attractive, and accessible for all transportation users whether they are pedestrians, bicyclist, transit riders, or motorists, regardless of age or ability.
- **Goal T-3:** Promote and accommodate alternative, environmentally friendly methods of transportation, such as walking and bicycling.
- **Goal T-4:** Ensure that public transportation is safe, convenient, and affordable and provides a viable alternative to driving.

## City of San Leandro Bicycle and Pedestrian Master Plan

The City of San Leandro's 2018 Bicycle and Pedestrian Master Plan (BPMP) (City of San Leandro, 2018) contains goals and policies for developing and implementing a bikeway system and pedestrian improvements that can meet the city's vision for: "A city where walking and bicycling are fully integrated into daily life, providing environmentally friendly and healthy transportation alternatives that are safe, convenient, and practical for people of all ages and abilities." The BPMP includes the following relevant goals related to transportation:

- **Goal 1**: A Comprehensive System: Support the development of a comprehensive bicycle and pedestrian transportation system that links residential communities with local and regional destinations and transit hubs to reduce motor vehicle trips.
- **Goal 5**: Maximize bicycle and pedestrian access to transit.

## City of Hayward 2040 General Plan

The City of Hayward adopted the *Hayward 2040 General Plan* (City of Hayward, 2014). The General Plan establishes a community-based vision for the future of the city and establishes goals, policies, and programs to help the city and its community achieve the vision. The General Plan includes the following pertinent land use and planning-related goals:

- **Goal M-1:** Provide a comprehensive, integrated, and connected network of transportation facilities and services for all modes of travel.
- **Goal M-2:** Connect Hayward to regional and adjacent communities' transportation networks and reduce the impacts of regional through traffic in Hayward.
- **Goal M-5:** Provide a universally accessible, safe, convenient, and integrated pedestrian system that promotes walking.
- **Goal M-6**: Create and maintain a safe, comprehensive, and integrated bicycle system and support facilities throughout the city that encourage bicycling that is accessible to all.

- **Goal M-7:** Improve coordination among public agencies and transit providers to meet public transit needs and provide greater mobility.

## City of Hayward Transportation Impact Analysis Guidelines

On June 16, 2020, the Hayward City Council amended the City of Hayward General Plan (2014) to replace LOS with VMT as the measurement to be used when conducting Transportation Impact Analysis under CEQA. The guidelines assist in evaluating CEQA transportation analysis, which requires an evaluation of a project's potential impacts related to VMT (City of Hayward, 2020).

## City of Union City General Plan

The City of Union City adopted the *Union City 2040 General Plan* (City of Union City, 2019) in December 2019. The General Plan provides the long-term vision for the physical, economic, and social evolution in Union City and outlines the policies, standards, and programs to guide city development decisions. The General Plan includes the following mobility goals and policies as they relate to transportation:

- **M-1.1 Complete Streets for All Users:** The city shall strive to create a comprehensive, integrated network of roadways that includes green infrastructure (including streets, roads, highways, bridges, and other portions of the transportation system) and provides safe, comfortable, and convenient travel for all users, including pedestrians, bicyclists, persons with disabilities, motorists, movers of commercial goods, users and operators of public transportation, emergency responders, seniors, children, youth, and families.
- **M-1.7 ADA Accessibility:** The city shall strive to ensure that all streets are safe and accessible to people with limited mobility and other disabilities. New and reconstructed facilities shall meet the requirements of the Americans with Disabilities Act of 1990 (ADA).
- **M-2.4 Bicycle Connections to Transit:** The city shall work with Bay Area Rapid Transit District (BART), Alameda-Contra Costa Transit District (AC) Transit, and Union City Transit to ensure the bicycle route network provides direct and convenient access to local and regional transit lines and that bicyclists are provided access to transit vehicles whenever feasible.
- **M-2.10 Pedestrian Connections:** The city shall require new development projects, projects that propose substantial redevelopment, or major expansions to install sidewalks along the project frontage to improve pedestrian connectivity if none currently exist, add pedestrian connections between new and existing development, and add walkways that link to adjacent transit service.
- **M-4.4 Use VMT Threshold to Evaluate Project Impacts:** The city shall use VMT to evaluate the transportation impacts of new development proposals under CEQA.
- **M-7.5 Support Freight Rail Activity on Northern Corridors:** The city shall support freight rail activity from the Port of Oakland to the Central Valley to use northern corridors, which are the shortest freight routes and may allow for more passenger rail activity in southern Alameda County.

## City of Union City Bicycle and Pedestrian Master Plan

The purpose of the *Union City Bicycle and Pedestrian Master Plan* (City of Union City, 2021) is to build upon the potential for walking and bicycling in Union City by defining a community-driven

vision for Union City's active transportation network and developing a framework for the implementation of projects, programs, and policies to turn the vision into a reality. The Bicycle and Pedestrian Master Plan includes the following relevant goals:

- **Goal 2 Connectivity:** A well-connected bicycle and pedestrian network with increased access to transit, schools, trails, and other key destinations.
- **Goal 4 Accessibility:** A transportation network where all streets are safe and accessible to people walking, bicycling, and rolling (e.g., people using a wheelchair or scooter), regardless of age or ability.

## City of Fremont General Plan 2030 Mobility Element

On June 9, 2020, the Fremont City Council adopted Policy 3-4.2: Transportation Analysis to replace Policy 3-4.2: Variable LOS Standards, establishing VMT as the measure to be used in determining transportation impacts under CEQA. The new policy was effective beginning July 1, 2020, and is in compliance with SB 743 and the CEQA Guidelines. LOS may no longer be used to determine a project's impacts under CEQA but may be used for local transportation analysis, as outlined in Implementation 3-4.2. B: Local Transportation Analysis.

The *City of Fremont General Plan 2030 Mobility Element* (City of Fremont 2011) addresses the movement of people and goods in and around Fremont. The element establishes policies for expanding transportation choices, reducing dependence on single passenger automobiles, and making it easier to walk, bicycle, and use public transportation in the city. The General Plan includes the following relevant goals:

- **Policy 3-1.1: Complete Streets.** Design major streets to balance the needs of automobiles with the needs of pedestrians, bicyclists, and transit users. Over time, all Fremont's corridors should evolve into multimodal streets that offer safe and attractive choices among different travel modes.
- **Policy 3-1.5: Improving Pedestrian and Bicycle Circulation.** Incorporate provisions for pedestrians and bicycles on city streets to facilitate and encourage safe walking and cycling throughout the city.
- **Policy 3-1.7: Sidewalks.** Require the provision of sidewalks in all new development, including infill development and redevelopment, to eventually complete the city's sidewalk network. Sidewalks shall be required on both sides of all public streets, except in hillside areas where a single sidewalk may be adequate. Sidewalks and direct pedestrian connections between uses should also be provided in parking lots.
- **Policy 3-2.4: Improving Bicycle Circulation.** Enhance bicycle circulation, access, and safety throughout Fremont, particularly in the City Center, the Town Centers, around existing and planned BART stations, and near schools and other public facilities. Barriers and impediments to bicycle travel should be reduced.
- **Policy 3-3.3: Grade Separations.** Consider grade-separated crossings where major streets bisect railroads or where such crossings are necessary to meet a regional transportation need.
- **Policy 3-5.4: Passenger Rail Service.** Support the provision of convenient and affordable commuter rail service to Fremont residents, visitors, workers, and businesses.

## City of Fremont Bicycle Master Plan

The City of Fremont Bicycle Master Plan (City of Fremont, 2018) identifies projects and programs to make Fremont a city in which bicycling is safe, comfortable, and convenient for people of all ages and abilities. The Master Bicycle Plan includes the following relevant goals:

- **Goal 1:** Implement a safe, convenient, connected, and comfortable citywide bicycling network for people of all ages and abilities who live, work, and visit Fremont.
- **Goal 2:** Prioritize bicycle safety to support the city's Vision Zero Policy to significantly reduce fatalities and severe injuries by 2020.

## City of Fremont Pedestrian Master Plan

The *City of Fremont Pedestrian Master Plan* (City of Fremont, 2016) envisions Fremont as a community that inspires people of all ages and abilities to walk for everyday transportation, recreation, and health. The plan identifies goals in the areas of activity, safety, infrastructure and design, connectivity and accessibility, and land development. The plan contains capital projects including sidewalk gap closures, intersection improvements, streetscapes, roadway projects, pathway, and trail projects. The Pedestrian Master Plan includes the following relevant goals:

- **Goals:** increase activity, enhance safety, and reduce conflicts; provide a walkable environment; and ensure safe, continuous, and convenient pedestrian access to essential pedestrian destinations for all residents, workers, and visitors.

## City of Fremont Transportation Impact Analysis Handbook

In June 2020, the Fremont City Council amended the General Plan Mobility Element to replace LOS with VMT as the measurement to be used when conducting Transportation Impact Analysis under CEQA. The handbook assists in evaluating CEQA transportation analysis, which requires an evaluation of a project's potential impacts related to VMT (City of Fremont, 2020). The handbook also states that the city aims to maintain vehicle levels of service (LOS) goals without negatively impacting nonmotorized street users.

## City of Newark General Plan

The City of Newark adopted the *Newark General Plan* (City of Newark 2013) in December 2013. The General Plan provides the goals, policies, and actions that will guide future growth and conservation in Newark. The plan establishes a 20- to-25-year vision for the city and provides the vision for the city's future. The General Plan includes the following pertinent transportation-related goals and policies:

- **Goal T-1:** Plan, fund, design, construct, operate, and maintain all transportation improvements to provide mobility for all users, appropriate to the function and context of each facility.
- **Goal T-2:** Create a citywide pedestrian and bicycle network that provides safe access to destinations within the city, connects to an integrated regional network, and is accessible to users of all ages, abilities, and means.
- **Goal T-3:** Support safe, affordable public transportation, which provides an alternative means of travel through Newark and convenient access to destinations throughout the Bay Area.

- **Goal T-4:** Reduce VMT and dependency on motor vehicles through land use and transportation strategies.

### City of Newark Pedestrian and Bicycle Master Plan

The *City of Newark Pedestrian and Bicycle Master Plan* (City of Newark, 2017) was approved by Newark City Council on February 23, 2017, and it is a comprehensive planning document that provides a vision for Newark's future biking and walking environment. The goal is to prioritize and implement infrastructure improvements and educational/enforcement programs that will improve the biking and walking environment in Newark. This will result in reduced traffic congestion and improve the overall health of the community. The Pedestrian and Bicycle Master Plan includes the following pertinent goals and policies:

- **Goal 1:** Create a citywide pedestrian and bicycle network that provides safe access to destinations within the city, connects to an integrated regional network, and is accessible to users of all ages, abilities, and means (General Plan Goal T-2).
- **Goal 2:** Increase the number of people of all ages, abilities, and means who bicycle and walk for transportation, recreation, and health.
- **Goal 3:** Develop a safe system for walking and bicycling.
- **Policy T-2.1:** Work to close gaps in the pedestrian network and improve sidewalk connectivity between residential and commercial area.
- **Policy T-2.2:** Maintain and expand an interconnected network of bicycle routes, paths, and trails. The existing bicycle network should be expanded to provide connections to developing areas.
- **Policy 1-4:** Develop facilities that are continuous across city boundaries and integrate with the regional system, particularly Fremont's on-street bicycle network and the regional trails network.
- **Policy 1-5:** Provide bicycle and pedestrian connections to public transportation systems in the city and region.

## 3.18.2.5 Consistency with Plans, Policies, and Regulations

The purpose and objectives of the proposed Project as detailed in the following information address needs and goals that are consistent with federal, state, regional, and local transportation plans, policies, and regulations.

The purpose of the proposed Project is to create a more direct passenger rail route; significantly reduce rail travel time between Oakland and San Jose, facilitating more auto competitive travel times for intercity passenger rail trips throughout the Northern California area; and promote environmental sustainability by reducing regional VMT and associated GHG emissions. The proposed Project would create new connections to Transbay Transit services and destinations on the San Francisco Peninsula.

The proposed Project would reduce regional VMT and associated GHG emissions, provide more efficient passenger rail service and improve accessibility by providing ADA access to the station with a pedestrian bridge, underpass, and bicycle connections to the new Ardenwood Station. The proposed Project would also provide ADA sidewalks and bicycle striping and safety enhancements

(upgraded signals and gates) for at-grade crossings where needed. The proposed Project also includes a new rail station at Ardenwood that would connect to the bicycle and pedestrian network and connect to transit, which would be consistent with federal, state, regional, and city plans. The proposed Project would also comply with all federal, state, and local policies and regulations related to transportation, access, and circulation. The proposed Project would ensure that all transportation-related regulations are followed, which includes compliance with all applicable goals and policies set forth by the local general plans.

## 3.18.3 Methods for Evaluating Environmental Impacts

This section defines the transportation RSA and describes the methods used to analyze impacts on transportation within the RSA.

### 3.18.3.1 Resource Study Area

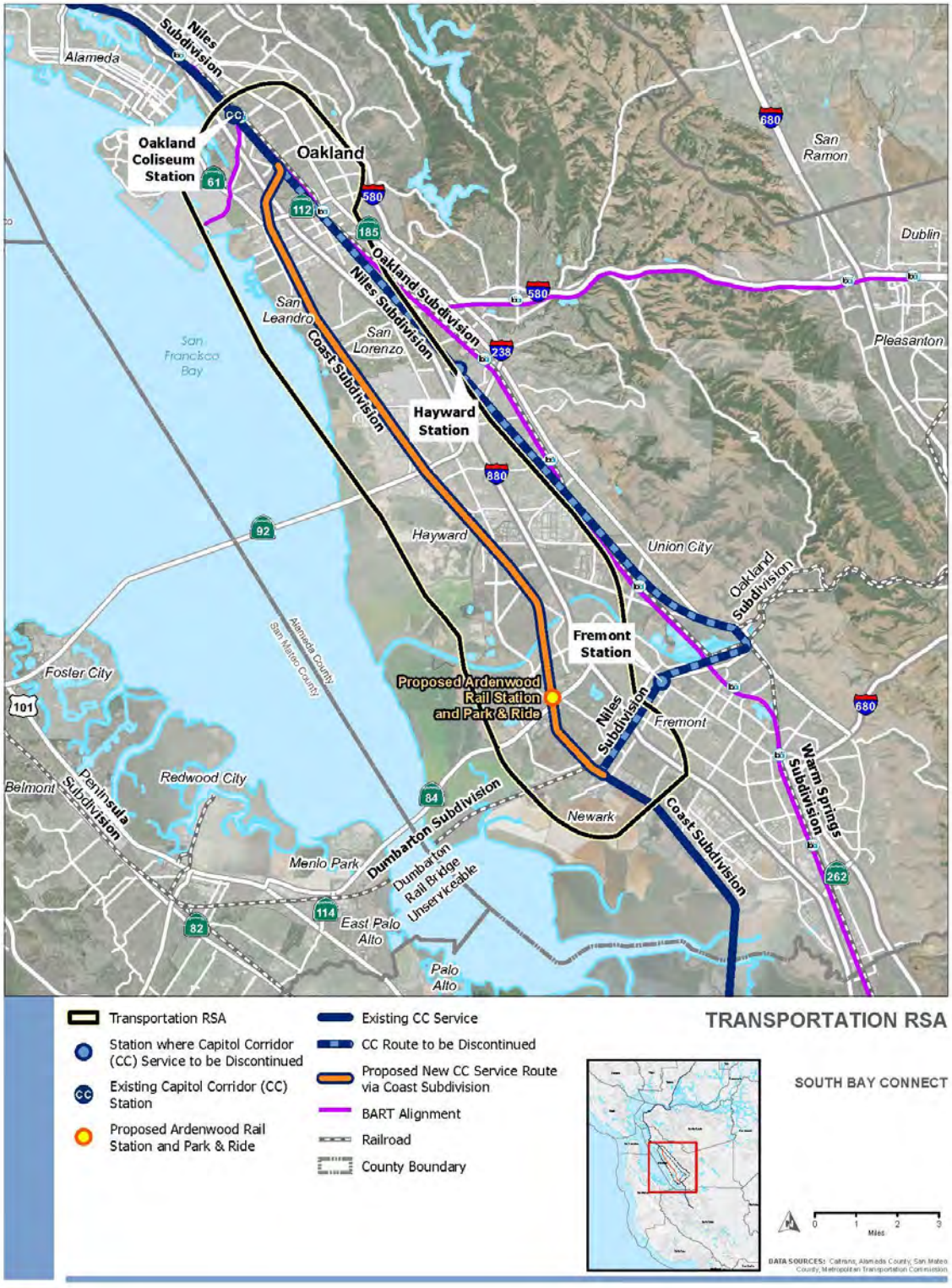
RSAs are the geographic boundaries within which the environmental investigations specific to each resource topic were conducted. The transportation RSA encompasses the transportation network that could be directly and indirectly affected by the construction and/or operation of the proposed Project. The following RSAs are for the transportation analysis:

1. The transportation RSA is defined as the Project footprint, and a 2-mile buffer around the footprint is used to analyze potential transportation related impacts as depicted in Figure 3.18-1.

2. The regional RSA is used to evaluate daily regional VMT. This RSA includes Capitol Corridor services from Sacramento to San Jose and the associated vehicle trips in these areas.

3. The emergency vehicle access RSA is used to analyze the emergency vehicle response analysis and considers areas served by grade crossings on the Coast and Niles subdivisions where the proposed Project could result in changes in train volumes. A list of at-grade crossings that will be affected during construction by the proposed Project is included in Table 2-2.1. Proposed Improvements to At-Grade Crossings along the Coast Subdivision. Grade separated crossings that will be affected are listed in Section 2.2.3.3, Grade Separated Crossing Improvements. The Centerville portion of the Niles Subdivision is included in the quantitative analysis even though it is anticipated to see a substantial reduction in the number of grade crossing events as a result of the proposed Project. The locations of fire, police, and hospital facilities (with emergency room facilities) are also considered in the analysis.

**Figure 3.18-1: Transportation Resource Study Area**



## 3.18.3.2 Data Sources

A comprehensive review of relevant state, regional, county, and city websites was conducted regarding applicable federal, state, and local regulations and planning documents within the specified RSAs.

### Ridership Forecasts Regional and VMT Analysis

To evaluate regional impacts using VMT, a 2025 and 2040 model was developed (Fehr and Peers, 2023) to estimate the increase in ridership associated with the Project improvements. The model estimated future passenger rail ridership within the regional RSA through a forecasting analysis that used data from the following three travel demand models (TDM):

1. A composite City/County Associations of Governments of San Mateo county-Santa Clara Valley Transportation Authority TDM (C/CAG-VTA Model)
2. The Mode Choice Amtrak California Ridership Model (Amtrak Model)
3. A Direct Ridership Model (DRM) built specifically for the Capitol Corridor System

The C/CAG-VTA Model provides information about the travel time competitiveness of Capitol Corridor service versus the automobile mode; this information is a key input into the DRM developed for the proposed Project (discussed below). The C/CAG-VTA TDM also provides a structure for the analysis of land uses around stations. The C/CAG-VTA Model also considers the effects of planned regional transportation improvements.

The Mode Choice version of the Amtrak Model has historically been used to estimate ridership for the Capitol Corridor System. Ridership estimates from the model were previously used to determine ridership potential for planning purposes. For the environmental analysis, however, the Amtrak Model lacks specific details for land uses that can be reached by new Transbay transfers (such as those provided at the proposed Ardenwood Station). Thus, outputs from the Amtrak Model were used to provide guidance as to the reasonability of the DRM forecasts especially for long distance trips (e.g., from Sacramento to San Jose).

The DRM is a set of statistical equations that estimate ridership based on several land use, travel time, station design, and Capitol Corridor schedule and frequency variables. The DRM addresses the limitations of the C/CAG-VTA model to forecast Capitol Corridor ridership but preserves the relationship to the C/CAG-VMT model by relying on travel time competitiveness and land use inputs from the C/CAG-VTA model to inform the ridership estimation process. The DRM forecasts ridership along the entire Capitol Corridor route, including in the Sacramento region, for the following periods: AM peak, PM peak and Off-Peak (the summation of which equals total daily ridership). The DRM is a statistical model that was calibrated to average weekday ridership data from April 2019.

Two models were estimated and used in tandem to provide a bracketed analysis of ridership, VMT, and other model-produced metrics. The “Pre-COVID Basis” model assumes that future travel behavior returns to a state that mimics pre-COVID conditions (model based on April 2019 ridership data), and the “Post-COVID Basis” model assumes that post-pandemic effects carry forward into the future (model based on April 2023 ridership data). It is noted that recent 2023 CCJPA ridership data indicates a higher level of ridership above the April 2023 data used for the Post-COVID Basis model (i.e. the Post-COVID Basis model conservatively represents the lower end of the modeling bracket approach).

## Land Use Forecasts/Transportation Network Assumptions

Land use forecasts were determined within the regional RSA using published data from regional and local transportation agencies. For the Sacramento region, land use forecasts are based on the latest projections from the Sacramento Area Council of Governments as provided in the SACMET (Sacramento Regional) TDM. For the nine-county San Francisco Bay Area, land use forecasts are based on published information in *Plan Bay Area 2050* (MTC and ABAG, 2021). For Alameda, Contra Costa, and Solano counties, the C/CAG-VTA Model land use was adjusted for more refined land use assumptions as documented in the Alameda CTC, Contra Costa Transportation Authority (CCTA), and Solano Transportation Authority TDMs, respectively. Several regional transportation network improvements were assumed to be in place by Opening Year 2025 and Horizon Year 2040 based on recently published information and other regional planning documents.

## Traffic Volume Assumptions

Existing and future traffic volume assumptions within the transportation RSA were used to evaluate potential changes in traffic and circulation around the proposed Ardenwood Station.

- Existing Year 2019 traffic volumes reflect Year 2019 conditions based on available traffic counts and retrospective traffic volume data from the StreetLight Data intersection turning movement count database.
- Opening Year 2025 traffic volumes represents the year the proposed Project would be open to the public.
- Horizon Year 2040 traffic volumes represents the design year that is 15 years after the opening year.

Opening Year 2025 and Horizon Year 2040 No Project scenario traffic forecasts were developed using outputs from the C/CAG-VTA Model. The C/CAG-VTA Model considers changes in regional land use patterns and planned modifications to the regional transportation system.

Opening Year 2025 and Horizon Year 2040 Plus Project scenario traffic volume forecasts were estimated by adding the number of new automobile trips generated through the new ridership at Ardenwood Station to the No Project forecasts. The ridership forecasting process includes a mode-of-access model that estimates the amount of travel demand by mode (e.g., automobile, bicycle, transit, etc.) generated by ridership at each Capitol Corridor station. Thus, projected ridership at Ardenwood Station was converted into automobile demand.

## Operations and Queuing Analysis Methods

The operations of roadway facilities are described with the term LOS. LOS is a qualitative description of traffic flow from a vehicle driver's perspective based on factors such as speed, travel time, delay, and freedom to maneuver. Six categories of LOS have been defined ranging from LOS A (free-flow conditions) to LOS F (over capacity conditions). LOS E corresponds to operations "at capacity." When volumes exceed capacity, stop-and-go conditions result, and operations are designated LOS F. While LOS impacts alone are not considered significant for CEQA purposes under CEQA Guidelines Section 15064.3, the LOS analysis can reveal if the proposed Project would substantially increase travel times or queues at key intersections in the RSA.

General plan circulation/mobility elements for cities within the transportation RSA were reviewed and revealed a variety of LOS-based intersection operations standards. Based on this review, an LOS

E standard was identified as an appropriate metric to determine whether an intersection is operating at an acceptable or unacceptable level. As previously noted, LOS E represents "at capacity" operations, and thus intersections operating at LOS A, B, C, D or E during the peak hours of travel retain capacity to serve demand. A project would have a substantial effect on intersection operations if it were to result in new LOS deficiencies or increase delays at the intersection by five or more seconds; this principle was used to assess informational, non-CEQA intersection effects in the Bay Area.

## Intersection Analysis Methodology (Signalized and Unsignalized)

The method described in Chapter 18 of the Transportation Research Board's *Highway Capacity Manual, 6th Edition* (HCM 6th Edition) (Transportation Research Board, 2016) was used to conduct the LOS calculations within the transportation RSA for 10 intersections around the proposed Ardenwood Station. The signalized study intersections and Chapter 19 of the HCM 6th Edition was used to conduct the LOS for the all-way stop-controlled intersections. The average control delay for unsignalized intersections was also calculated using a variety of traffic analysis software packages described in the following subsection. For side-street stop-controlled intersections, the worst movement (for multi-lane approaches) or worst approach (for single-lane approaches) delay was used to determine the LOS for the intersection. For all-way stop-controlled intersections and roundabouts, the whole-intersection average delay was used to determine the LOS for the intersection.

## Operations and Queuing Analysis Software

Multiple software packages were used to analyze intersection operations within the transportation RSA near at-grade rail crossings and near the proposed Ardenwood Station.

- The Synchro software analysis package was used to evaluate queues at isolated, at-grade rail crossings where vehicle operations are not affected by nearby intersections. Similarly, the Synchro software package was used to evaluate intersections near the Ardenwood Station, where intersection operations are not substantially affected by congestion at downstream or upstream intersections. The Synchro software package applies the HCM 6th Edition methodologies to evaluate operations and produce queuing, delay, and LOS metrics.
- The SimTraffic microsimulation software analysis package was used to evaluate operations at intersections near at-grade crossings where intersection operations are influenced by at-grade crossings and Railroad traffic signal preemption was coded into the SimTraffic models when traffic signal timing sheets for the intersections noted that preemption was present. The SimTraffic microsimulation software package provides delay and other metrics that are compared to the HCM 6th Edition delay and LOS definitions.
- The VISSIM microsimulation software analysis package was used to evaluate operations at particularly congested or closely spaced intersections (1) near the Ardenwood Station and (2) near at-grade crossings where intersection operations are influenced by at-grade crossings, and Railroad traffic signal preemption was coded into the VISSIM models when traffic signal timing sheets for the intersections noted that preemption was present. The VISSIM microsimulation software package provides delay and other metrics that are compared to the HCM 6th Edition delay and LOS definitions.

## Emergency Vehicle Access Analysis

The emergency vehicle access analysis uses a geographic information system (GIS)-based analysis approach to estimate the change in emergency vehicle access times within the emergency vehicle assess RSA for locations along the Coast and Niles Subdivisions. The change in average emergency vehicle response times throughout the course of a typical day was estimated for fire, police, and hospitals (with Emergency Rooms) services in the areas alongside the following portions of the study area rail lines:

- Coast Subdivision: From the junction of Coast and Niles subdivisions at Elmhurst in the north where Coast Subdivision starts, to Newark Junction in the south where Coast and Niles subdivisions meet again and the Niles Subdivision ends (Figure 3.18-1).
- Niles Subdivision: Junction of Coast and Niles subdivisions at Elmhurst in north to Newark Junction in south (same as above; Figure 3.18-1). The Niles Subdivision was included in the quantitative analysis even though it is expected to see a reduction in passenger rail services after completion of the proposed Project.

The GIS analysis assumes that the grade crossings are open to vehicular traffic (i.e., no train is present) for a portion of the day and closed to all vehicular traffic for a portion of the day when a train is present. When grade crossings are closed, emergency vehicles must take a longer diversion route to either provide service or access fire, police, and hospital services. The portion of the day that the crossings are open or closed is based on passenger and freight train movement data developed from at-grade crossing counts taken from the public ROW taken during a two-week period in summer 2021.

## Intersection and At-Grade Crossing Analysis

The following assumptions were used in the evaluation of operations at intersections and at-grade crossings within the transportation RSA for the at-grade crossing analysis. These assumptions apply to Opening Year 2025 and Horizon Year 2040 analysis scenarios. The assumptions below represent maximum number of trains during peak hour of commute travel.

## At-Grade Crossing Analysis Scenarios

The analysis was performed for the morning peak hour of commute travel (the highest vehicle volume in a 60-minute period between 7:00 AM and 9:00 AM) and the evening peak hour of commute travel (the highest vehicle volume in a 60-minute period between 4:00 PM and 6:00 PM) within the transportation RSA.

- **No Project Scenario** – Coast Subdivision: 1 freight train in the AM and PM peak hour (each) with an average gate down time of 240 seconds
- **Plus Project Scenario** – Coast Subdivision: 2 passenger trains in the AM and PM peak hour (each) with an average gate down time of 60 seconds and 1 freight train in the AM and PM peak hour (each) with an average gate down time of 240 seconds
- **No Project Scenario** – Niles Subdivision1: 2 passenger trains in the AM and PM peak hour (each) with an average gate down time of 60 seconds

[1] These assumptions are applicable to the portion of the Niles Subdivision between Elmhurst Junction and Niles Junction only.

- **Plus Project Scenario** – Niles Subdivision1: Removal of Capitol Corridor service from Niles Subdivision (i.e. substantially fewer peak hour trains than No Project scenario)
- **No Project Scenario** – Oakland Subdivision: No passenger or freight service
- **Plus Project Scenario** – Oakland Subdivision: Same as No Project Scenario

The gate down time assumptions were based on published information regarding train lengths and operating speeds. Field observations of train movements taken in late summer 2021 indicate that the assumptions above are generally conservative.

The Plus Project Scenario analysis assumes that gate down times remain the same as in the No Project Scenario and includes a 13,000-foot train length assumption.

### 3.18.3.3 CEQA Thresholds

To satisfy CEQA requirements, transportation impacts were analyzed in accordance with Appendix G of the CEQA Guidelines. According to the CEQA Guidelines, CCR, Title 14, Section 15002(g), "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in CEQA Guidelines Section 15064(b)(1), the significance of an activity may vary with the setting. The impact analysis identifies and analyzes construction (short-term) and operation (long-term) impacts, as well as direct and indirect impacts (see PRC Section 21065). The proposed Project would have significant transportation impacts under CEQA if it would:

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 geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment); or

d. Result in inadequate emergency access.

#### VMT Analysis

Section 15064.3 of the CEQA Guidelines provides for the application of VMT, instead of LOS and other measures of traffic flow, to evaluate the transportation impacts associated with rail and transit projects. VMT provides a metric for determining vehicle trip changes across the regional roadway network and is the amount and distance of automobile travel attributable to a project. Reductions to VMT are beneficial because fewer cumulative vehicle miles are being generated daily for a particular alternative. Based on guidance contained in Section 15064.3 of the CEQA Guidelines, if a transportation project is presumed to have a less-than-significant impact then a detailed VMT analysis is not required for transit projects.

The Governor's OPR (2018) issued a *Technical Advisory on Evaluating Transportation Impacts in CEQA*, which includes a specific directive that transit and active transportation projects generally reduce VMT and therefore are presumed to cause a less-than-significant impact on transportation. This presumption may apply to all passenger rail projects, bus and bus rapid transit projects, and bicycle and pedestrian infrastructure projects. Streamlining transit and active transportation projects aligns with each of the three state goals contained in SB 743 by reducing GHGs, increasing multimodal transportation networks, and facilitating mixed use development.

Lead agencies have discretion to choose a threshold of significance for transportation projects. PRC Section 21099(b)(1) provides criteria for determining the significance for transportation impacts stating, "Those criteria shall promote the reduction of [GHGs], the development of multimodal transportation networks, and a diversity of land uses."

## Hazards due to Geometric Design Feature or Incompatible Uses

The CEQA Guidelines do not describe specific significance thresholds for geometric design features or incompatible uses; therefore, the evaluation is made based upon conformity of the proposed Project to applicable local, state, and local design standards and allowable uses. Examples of hazards in geometric design would include misaligned lanes across intersections, lane drops with inadequate distance for merging, or sight distance limitations due to curves or grades ahead of conflict points. Examples of incompatible use would include improper mixing of modes, such as routing heavy truck traffic on local roadways.

## Emergency Access

CEQA Guidelines do not provide quantitative thresholds for emergency access. A qualitative evaluation was made based on the potential of the proposed Project to substantially degrade emergency access. For example, requiring emergency vehicles to re-route or perform out-of-direction maneuvers or adding travel time that would be considered significant because of changes to the roadway configuration or project. While no established state or federal standards for response times have been established for the purposes of identifying CEQA thresholds of significance, the *California High Speed Rail Authority San Jose to Merced Project Section Draft Environmental Impact Report/Environmental Impact Statement* (California High Speed Rail Authority, 2020) indicated that a conservative CEQA threshold of significance for change in emergency vehicle access times would be 30 seconds (i.e., 10 percent of 300 seconds [or 5 minutes] standard emergency response time for fire, police, or medical emergencies). This threshold was used for this analysis and is consistent with the Alameda County Fire Department (ACFD), which serves as the Fire Department for Union City, Newark, San Leandro, and unincorporated Alameda County and maintains a 5-minute standard response time for fire and medical emergencies. It is assumed that other fire agencies in the transportation RSA maintain similar standard response times; standard response times for other fire agencies and responders in the transportation RSA were not readily available on these other agencies' websites.

Emergency vehicle access analysis considers areas served by grade crossings on the Coast and Niles Subdivisions where the proposed Project would result in changes in train volumes. The analysis considered 20 intersections and eight additional isolated at-grade crossings along the following rail lines between the RSA:

- Coast Subdivision: From the junction of Coast and Niles subdivisions at Elmhurst in the north where Coast Subdivision starts, to Newark Junction in the south where Coast and Niles subdivisions meet again and the Niles Subdivision ends (Figure 3.18-1).
- Niles Subdivision: Junction of Coast and Niles subdivisions at Elmhurst in north to Newark Junction in south (same as above; Figure 3.18-1). The Niles Subdivision was included in the quantitative analysis even though it is expected to see a reduction in passenger rail services after completion of the proposed Project.

# 3.18.4 Affected Environment

## 3.18.4.1 Environmental Setting

### Regional Setting

The Capitol Corridor is an intercity passenger train system that provides a convenient alternative to traveling along the congested Interstate (I) 80, I-680 and I-880 freeways by operating fast, reliable, and affordable intercity rail service to 18 stations in Placer, Sacramento, Yolo, Solano, Contra Costa, Alameda, San Francisco, and Santa Clara counties, along a 170-mile rail corridor. An extensive, dedicated motorcoach network provides bus connections to serve the second-largest urban service area in the western United States. The Capitol Corridor serves more than 1.7 million annual riders and offered 15 daily roundtrips between Sacramento and the Bay Area, seven of which continued south through Oakland to San Jose. Capitol Corridor Joint Powers Authority (CCJPA) is the managing agency for the Capitol Corridor service.

### Local Setting

The proposed Project is in Alameda County between the Capitol Corridor Oakland Coliseum Station in the City of Oakland to the north and Newark Junction in the City of Newark to the south. The proposed Project passes through the Cities of Oakland, San Leandro, Hayward, Fremont, Newark, and Union City. The following section describes the existing transportation network within the transportation RSA.

#### Passenger Rail Service

Within the transportation RSA, passenger rail service is provided by Capitol Corridor, Altamont Corridor Express (ACE), Amtrak, and BART. Union Pacific Railroad (UPRR) owns and manages the rail corridors within the RSA, and passenger trains operate on UPRR's tracks. UPRR's primary business is goods movements, and UPRR's freight train operations reflect market demands. The following passenger rail services operate within the RSA:

- **Amtrak.** Amtrak operates intercity and interstate passenger rail service on the Capitol Corridor and Coast Starlight. The Capitol Corridor route connects San Jose to the Sacramento area and uses the Niles Subdivision of the UPRR track. Capitol Corridor (up to 11 trains daily each way), Amtrak's Coast Starlight (9 trains daily) each way (Amtrak, 2022).
- **ACE.** ACE is a commuter rail service in California, connecting Stockton and San Jose (8 trains weekdays). The majority of the route runs on UPRR freight lines. From Santa Clara to Stockton ACE uses the Coast Subdivision and the Niles subdivision from Newark to Niles (ACE, 2022).
- **BART.** BART is a heavy-rail public transit system that connects the San Francisco Peninsula with communities in the East Bay and South Bay. BART service currently extends as far as Millbrae, Richmond, Antioch, Dublin/Pleasanton, and Berryessa/North San José. BART operates in five counties (San Francisco, San Mateo, Alameda, Contra Costa, and Santa Clara) with 131 miles of exclusive BART track and 50 stations, carrying approximately 414,131 trips on an average annual weekday according to the BART 18523-Quarterly Report, Fourth Quarter Fiscal Year 2019 – Service Performance Review Presentation (BART, 2019).

### Freight Service

UPRR provides freight service on the Coast, Niles, and Oakland Subdivisions. The north/south stem of the Niles Subdivision is a main route for UPRR freight trains heading south from Oakland to Milpitas and further beyond. The east/west section of the Niles Subdivision is a main route for freight trains heading to or from Niles Canyon to key destinations within the Central Valley. UPRR freight trains also use the Coast Subdivision for north/south freight movement. UPRR's LOS and freight train volume is market driven and varies based on the reliability and availability of the transportation network. Typically, up to 6 freight trains per day use the portion of the Niles Subdivision between Niles Junction and Newark Junction, which is the most heavily travelled portion of the lines in the transportation RSA based on published data from the Congressional Budget Office (2021).

### Number of Passenger and Freight Trains by Segment in a Typical Day

The following information represents the number of passenger and freight trains by segment in a typical day:

- Coast Subdivision (Junction at Elmhurst to Newark Junction) approximately 2 freight and 2 passenger trains.
- Niles Subdivision and Oakland Subdivision (Junction at Elmhurst to junction at Niles where Oakland and Warm Springs subdivisions meet) approximately 3 freight and 14 passenger trains.
- Niles Subdivision (Centerville Line: Niles Junction to Newark Junction) approximately 6 freight and 22 passenger trains.

### The Freeway Network

The existing Interstates in the transportation RSA are described as follows.

- **I-880.** I-880 is a six- to eight-lane freeway running north and south between the San Francisco-Oakland Bay Bridge and San Jose. The freeway passes through Oakland, San Leandro, Hayward, Fremont, Newark, and Union City. I-880 serves as the major truck route in western Alameda County.

### Bus Transit

The AC Transit is the third-largest public bus system in California, serving 13 cities and adjacent unincorporated areas in Alameda and Contra Costa counties. AC Transit operates a network of bus lines that provide connections within these counties, to and from the BART stations, and to adjacent cities. AC Transit has 58 local lines, 47 school lines that operate on school days only and are suspended during summer. There are three early bird, six all-nighter, and 15 Transbay lines that serve Alameda County and the Cities of Oakland, San Leandro, Hayward, Fremont, Newark, and Union City. The following bus transit services are within the transportation RSA by city:

- **Oakland** – AC Transit, East Bay Paratransit
- **San Leandro** – AC Transit, Links Free Shuttle, Flex Shuttle – East Bay Paratransit Service
- **Hayward** – AC Transit, Greyhound, East Bay Paratransit
- **Fremont** – AC Transit, Santa Clara Valley Transportation, City of Fremont Paratransit, East Bay Paratransit

- **Newark** – AC Transit, Dumbarton Express, East Bay Paratransit
- **Union City** – AC Transit, Union City Transit, Union City Paratransit, Dumbarton Express, East Bay Paratransit

### Local Roadway System

The local roadway system within the transportation RSA is classified based on their function and generally consist of principal arterials, minor arterials, collector roads, and local streets defined in the Federal Highway Administration's (FHWA) *Highway Functional Classification Concepts, Criteria and Procedures* (FHWA, 2017) and described in the following information:

**Principal Arterial.** These roadways serve major centers of metropolitan areas, provide a high degree of mobility, and can also provide mobility through rural areas. Unlike their access-controlled counterparts, abutting land uses can be served directly. Forms of access for Other Principal Arterial roadways include driveways to specific parcels and at-grade intersections with other roadways.

Principal Arterials within the RSA are described in Table 3.18-1.

**Table 3.18-1: Principal Arterials Within the RSA**

| City | Principal and Major Arterials |
|---|---|
| Oakland | Doolittle Drive (State Route (SR) 61)<br>International Boulevard (SR 185) |
| San Leandro | Davis Street (SR 112)<br>E. 14th Street (SR 185)<br>San Leandro Boulevard<br>Hesperian Boulevard<br>Lewelling Boulevard |
| Hayward | Hesperian Boulevard<br>W. Jackson Street (SR92)<br>A Street<br>B Street<br>W. Tennyson Road<br>Dyer Street |
| Fremont | Mowry Avenue (SR 84) |

| City | Principal and Major Arterials |
|---|---|
| Newark | Thornton Avenue |
| | Newark Boulevard |
| | Cherry Street |
| | Mowry Avenue |
| Union City | Union city Boulevard |
| | Alvarado Boulevard |
| | Dyer Street |
| | Alvarado-Niles Road |
| | Paseo Padre Parkway |
| | Fremont Boulevard |
| | Decoto Road (SR84) |

Source: *Caltrans, 2022*

**Minor arterials.** Minor arterials provide service for trips of moderate length, serve geographic areas that are smaller than their higher arterial counterparts and offer connectivity to the higher Arterial system. In an urban context, they interconnect and augment the higher Arterial system, provide intra-community continuity and may carry local bus routes.

**Collector roads***.* Collectors serve a critical role in the roadway network by gathering traffic from Local Roads and funneling them to the Arterial network. Within the context of functional classification, Collectors are broken down into two categories: Major Collectors and Minor Collectors. Until recently, this division was considered only in the rural environment. Currently, all Collectors, regardless of whether they are within a rural area or an urban area, may be sub-stratified into major and minor categories. The determination of whether a given Collector is a Major or a Minor Collector is frequently one of the biggest challenges in functionally classifying a roadway network.

**Local streets.** Locally classified roads account for the largest percentage of all roadways in terms of mileage. They are not intended for use in long distance travel, except at the origin or destination end of the trip, due to their provision of direct access to abutting land. Bus routes generally do not run on Local Roads. They are often designed to discourage through traffic. As public roads, they should be accessible for public use throughout the year.

### Bicycle Facilities

Bicycle facilities in the transportation RSA are illustrated in Figure 3.18-2 through Figure 3.18-4. In accordance with Article 3, Section 890.4 Streets and Highway Code (September 2012), bikeways were categorized as follows:

a) Bike paths or shared use paths, also referred to as “Class I bikeways,” which provide a completely separated ROW designated for the exclusive use of bicycles and pedestrians with crossflows by motorists minimized.

b) Bike lanes, also referred to as "Class II bikeways," which provide a restricted ROW designated for the exclusive or semi-exclusive use of bicycles with through travel by motor vehicles or pedestrians prohibited, but with vehicle parking and crossflows by pedestrians and motorists permitted. Currently, there are Class II bikeways that link to the Hayward and Fremont stations in the Niles Subdivision. The passenger service to these stations would be discontinued as part of the proposed Project.

c) Bike Routes, also referred to as "Class III bikeways," which provide a ROW on Street or off-street, designated by signs or permanent markings and shared with pedestrians and motorists.

d) Cycle tracks or separated bikeways, also referred to as "Class IV bikeways," which promote active transportation and provide a ROW designated exclusively for bicycle travel adjacent to a roadway and which are separated form vehicular traffic. Types of separation include, but are not limited to, grade separation, flexible posts, inflexible physical barriers, or on-street parking (a) Class I bikeways, such as a "bike path" which provide a completely separated ROW designated for the exclusive use of bicycles and pedestrians with crossflows by motorists minimized.

### Pedestrian Facilities

The existing pedestrian network varies across the transportation RSA, depending on the roadway ROW, lane configurations, and density of adjacent land uses. In general, most of the public roadway network is considered open to pedestrians, either with sidewalks or road shoulders, except for locations where no shoulder exists. The existing pedestrian network is generally fully built with ADA-compliant sidewalks; curb ramps are provided with pedestrian crossings and are generally provided at major intersections with some mid-block crossings at select locations where there are pedestrian-oriented land uses such as schools. However, in some areas non-ADA-compliant sidewalk conditions may exist (i.e., sidewalks that lack ADA curb ramps or crossing; no sidewalks, connectivity gaps in the network, or long crossings on wide arterials where pedestrians may be required to traverse). Other than sidewalk facilities, there are multi-use trails built for recreational purposes.

The San Francisco Bay Trail runs within the transportation RSA, extending from the northern to the southern parts of the Coast Subdivision. Similarly, the Alameda Creek Regional Trail is within the RSA, following the banks of Alameda Creek in southern Alameda County from the mouth of Niles Canyon. The trail crosses under the Niles Subdivision (in the Niles District of Fremont) westward to San Francisco Bay a distance of about 12 miles (East Bay Regional Park District, 2022).

### Fire, Police, and Hospitals

The existing fire, police, and hospital facilities (with Emergency Room facilities) considered in the analysis are shown on Figure 3.18-5. The analysis considers all land uses within the transportation RSA and their access to fire, police, and hospital facilities.

**Figure 3.18-2: Bicycle Facilities within the Transportation Resource Study Area (north extent)**

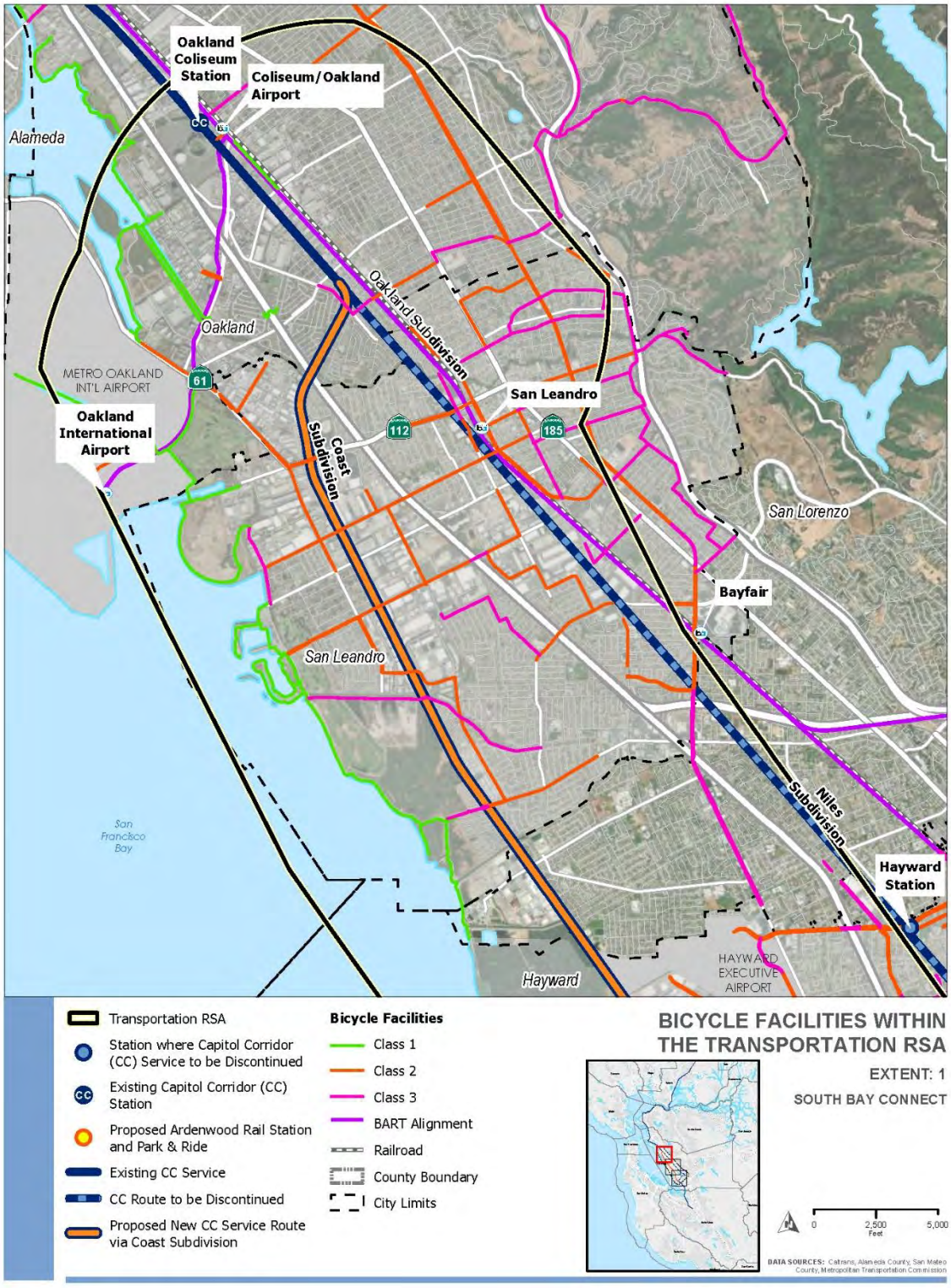


**Figure 3.18-3: Bicycle Facilities within the Transportation Resource Study Area (central section)**

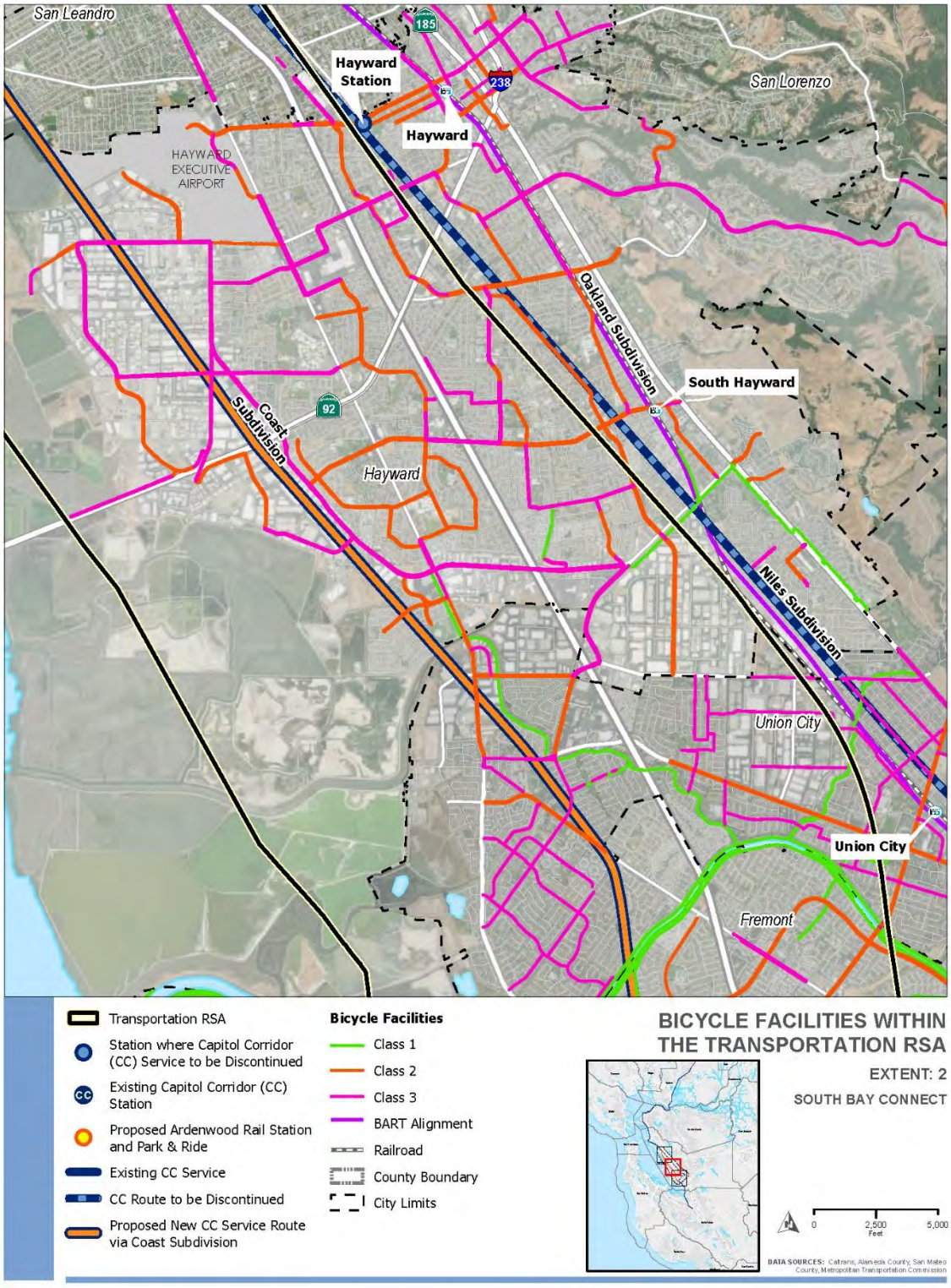


**Figure 3.18-4: Bicycle Facilities within the Transportation Resource Study Area (southern extent)**

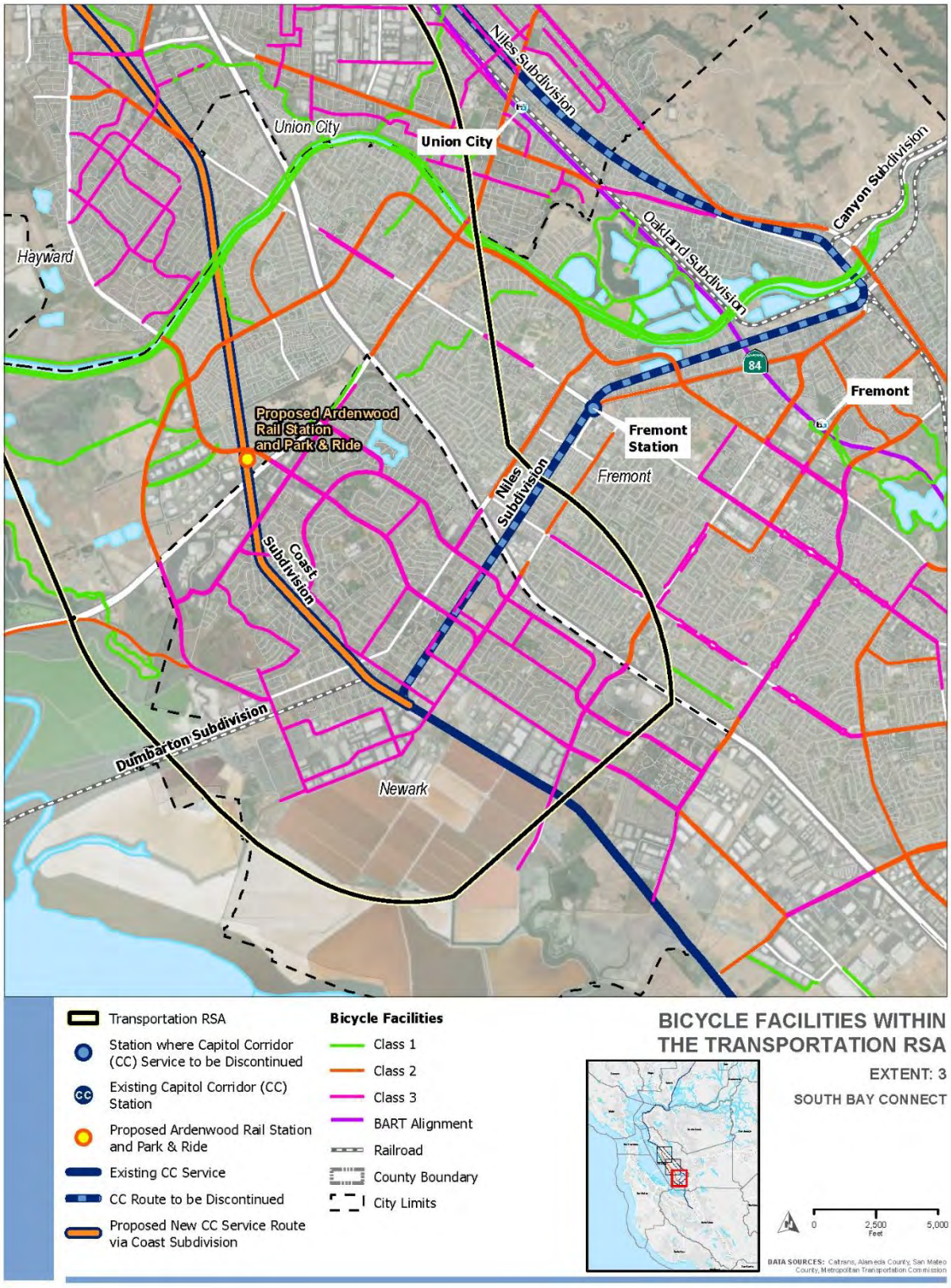
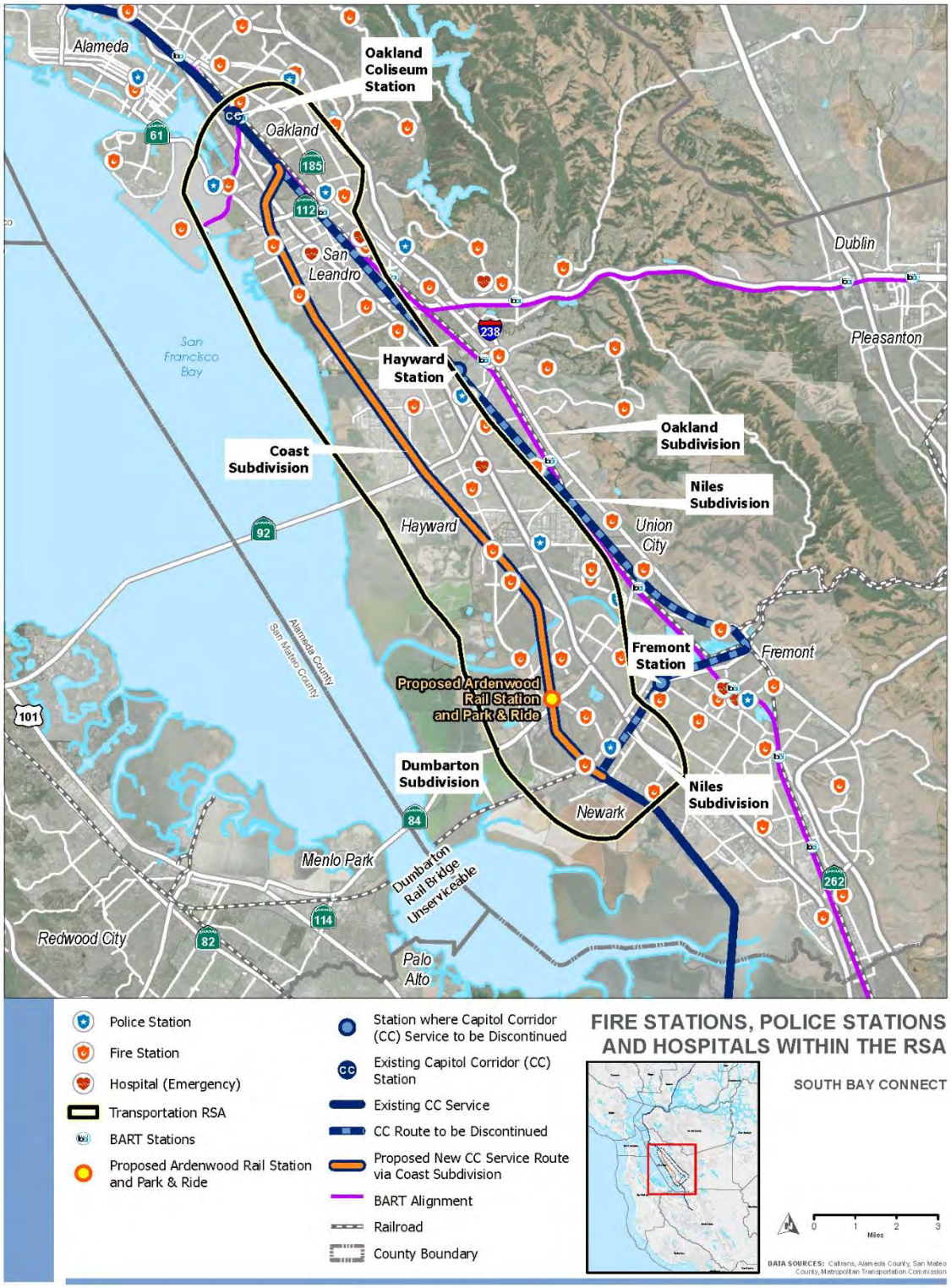


**Figure 3.18-5: Fire Stations, Police Stations, and Hospitals Within the Transportation Resource Study Area**



## 3.18.5 Best Management Practices

As noted in Chapter 2, Project Alternatives, CCJPA would incorporate a range of BMPs to avoid and minimize adverse effects on the environment that could result from implementation of the proposed Project. BMPs are included in the proposed Project description, and the impact analyses were conducted assuming application of these practices. The BMPs relevant to transportation are summarized below. Full descriptions of the BMPs are provided in Chapter 2, Project Alternatives.

**BMP TR-1: Transportation Management Plan (TMP).**

## 3.18.6 Environmental Impacts

This section describes the potential environmental impacts on transportation as a result of implementation of the proposed Project. Lettering shown within title for each environmental factor below correlates with CEQA Statute and Guidelines, Appendix G table lettering and numbering.

### 3.18.6.1 (a) Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?

#### No Project Alternative

**No Impact.** Under the No Project Alternative, the Capitol Corridor passenger rail service between Oakland and San Jose would not be relocated from the Niles Subdivision to the Coast Subdivision. Improvements proposed for the Niles and Coast Subdivisions associated with the proposed Project would not occur. Capitol Corridor passenger trains would continue to operate based on current routes with no changes to rail connectivity or operational efficiency. Therefore, the No Project Alternative would conflict with a key element of the CCJPA's 2014 Vision Plan update and 2016 Implementation Plan, but it would not conflict with a program, plan, ordinance, or policy addressing the circulation system, including roadway, bicycle, and pedestrian facilities.

#### Proposed Project

***Construction.***

**Less-than-Significant Impact**. During construction of the proposed Project, BMPs would be implemented as part of the proposed Project. With implementation of BMP TR-1: Transportation Management Plan (TMP), a TMP would be developed during final design in coordination with local jurisdictions and first responders within the transportation RSA to maintain emergency, transit, roadway, bicycle, and pedestrian access and to avoid or reduce impacts to traffic circulation and minimize delays. The TMP would address how construction-related activities would be carried out to ensure that access to businesses, residences, schools, hospitals, and public services would be maintained, and delay would be minimized to the extent feasible for multimodal travel and construction. The TMP would provide advance notice to the public for road detours with appropriate signage to avoid and minimize impacts to circulation and to maintain access to adjacent properties. Therefore, the proposed Project would result in a less-than-significant impact during construction.

***Operations.***

**Less-than-Significant Impact.** The proposed Project would not conflict with a program, plan, ordinance, or policy addressing the circulation system, including roadway, transit, bicycle, or pedestrian facilities. The proposed Project is a key element in CCJPA's 2014 Vision Plan Update (CCJPA, 2014) and 2016 Vision Implementation Plan (CCJPA, 2016), both of which call for relocating Capitol Corridor service from Oakland and Newark Subdivisions to the Coast Subdivision to provide a shorter and more direct route from Oakland to San Jose and improve the rail network and operations between Oakland and San Jose. The proposed Project is also consistent with an important component of the 2018 California State Rail Plan (Caltrans, 2018), which calls for re-routing passenger rail service from the Niles Subdivision to the Coast Subdivision and re-routing freight operations from the Coast Subdivision to the Niles Subdivision to facilitate faster travel times and a more direct route from Oakland to San Jose.

In addition, based on the LOS analysis of the Transportation Assessment (Fehr and Peers, 2023), the proposed Project is consistent with the Fremont transportation handbook LOS goals for signalized intersections. Moreover, the proposed Project was designed to be consistent with all applicable regional and local plans, ordinances, and policies related to circulation, transportation, and mobility in Alameda County and the cities of Oakland, San Leandro, Hayward, Fremont, Newark, and Union City. Therefore, the proposed Project would result in a less-than-significant impact during operations.

## 3.18.6.2 (b) Would the project conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)

### No Project Alternative

**No Impact.** Under the No Project Alternative, the Capitol Corridor passenger rail service between Oakland and San Jose would not be relocated from the Niles Subdivision to the Coast Subdivision. Improvements proposed for the Niles and Coast Subdivisions associated with the proposed Project would not occur. Capitol Corridor passenger trains would continue to operate based on current routes with no changes to rail connectivity or operational efficiency. Therefore, the No Project Alternative would not conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b).

### Proposed Project

***Construction.***

**Less-than-Significant Impact**. Construction activities would include track and signal work, construction of sidings and grade separated crossings, improvements to existing at-grade crossings, and construction of the new Ardenwood Station, parking structure, and pedestrian access. During the anticipated 3-year construction period, the proposed Project would temporarily generate additional VMT related to construction work activities, including the hauling of excavated materials and/or construction equipment or supplies. In addition, travelers may temporarily experience delays and increases in VMT and travel time when traveling through construction zones with detours or temporary lane closures; however, the VMT generated during construction would be offset by the reduction to VMT during operations and result in no impact.

BMPs for transportation would be implemented as part of the proposed Project and a TMP would be developed during final design in coordination with the affected local jurisdictions and first responders to maintain access and reduce impacts to circulation and VMT in accordance with BMP TR-1. The TMP would address how construction-related activities would be carried out to minimize inconvenience and to help ensure access is maintained and delays and VMT are minimized to the extent feasible for travelers and workers. The TMP would include advance notice of road closures and detours with appropriate signage to avoid and minimize impacts to circulation and to maintain access to adjacent properties.

In accordance with CEQA Guidelines Section 15064.3(b)(2), "Transportation projects that reduce, or have no impact on VMT should be presumed to cause a less than significant transportation impact." Therefore, based on CEQA and OPR guidance, the proposed Project would not conflict with CEQA Guidelines Section 15064.3, subdivision (b), and VMT-related construction impacts would be less than significant.

***Operations.***

**Less-than-Significant Impact.** The proposed Project would result in changes in ridership patterns along the Capitol Corridor route due to the opening of new travel markets (e.g., Transbay travel connections at Ardenwood Station), reducing service travel times between Oakland and San Jose, using a more direct route for Capitol Corridor services. The proposed Project is anticipated to result in a reduction of regional VMT due to increases in passenger rail ridership. Additional ridership at the proposed Ardenwood Station location in the City of Fremont would result in an increase in traffic around the station.

The proposed Project would result in an additional 950 to 1,050 Capitol Corridor systemwide riders per day in the Opening Year 2025 Pre-COVID Basis scenario. For the Opening Year 2025 Post-COVID Basis scenario, there is an expected increase of 480 to 530 riders per day. Systemwide riders per day in the Horizon Year 2040 Pre-COVID Basis scenario would increase by an additional 1,050 to 1,170, and for the Post-COVID Basis scenario, the increase would be an additional 940 to 1,040 (Table 3.18-2).

**Table 3.18-2. Ridership Forecast Overview**

| Scenario | Pre-COVID Basis Systemwide total Daily Boardings | | | Post-COVID Basis Systemwide Total Daily Boardings | | |
|---|---|---|---|---|---|---|
| | Total | Range Low | Range High | Total | Range Low | Range High |
| ***Year 2023 – Existing*** | | | | | | |
| No Project | 6,110 | - | - | 2,780 | - | - |
| ***Year 2025 – Opening Year*** | | | | | | |
| No Project | 10,050 | 9,550 | 10,550 | 4,800 | 4,560 | 5,040 |
| Plus Project | 11,050 | 10,500 | 11,600 | 5,300 | 5,040 | 5,570 |

**Table 3.18-2. Ridership Forecast Overview**

| Scenario | Pre-COVID Basis Systemwide total Daily Boardings | | | Post-COVID Basis Systemwide Total Daily Boardings | | |
|---|---|---|---|---|---|---|
| | Total | Range Low | Range High | Total | Range Low | Range High |
| ***Year 2040 – Horizon Year*** | | | | | | |
| No Project | 18,240 | 17,330 | 19,150 | 12,450 | 11,830 | 13,070 |
| Plus Project | 19,350 | 18,380 | 20,320 | 13,440 | 12,770 | 14,110 |

Source: Fehr & Peers Transportation Assessment (2023)

With the shift in the Capitol Corridor route, the existing Hayward and Fremont-Centerville stations on the Niles Subdivision would no longer be served by Capitol Corridor passenger trains; instead, a new station in the Coast Subdivision at the Ardenwood Park-and-Ride in western Fremont would be constructed to accommodate riders in southwestern Alameda County. The ridership analysis indicates that between 60 percent and 70 percent of this ridership increase is due to the new local and Transbay travel market served at the proposed Ardenwood Station. The remaining ridership increase is attributed to additional regional ridership resulting from reduced Capitol Corridor travel times in the transportation RSA associated with a more direct route between Elmhurst Junction and Newark Junction and the net removal of one stop from the schedule.

Increases in Capitol Corridor ridership would result in fewer drivers traveling between their destinations and an anticipated corresponding reduction in regional VMT. Based on the CEQA Guidelines, transportation projects that reduce or have no impact on VMT should be presumed to cause a less-than-significant transportation impact. Table 3.18-3 shows that VMT is forecasted to decrease by 38,000 VMT in Opening Year 2025 and by 40,000 VMT by Horizon Year 2040 based on the Pre-COVID Basis model and by 20,000 VMT by Opening Year 2025 and 33,000 VMT by Horizon Year 2040 based on Post-COVID Basis model based upon the increased ridership associated with the implementation of the proposed Project. Therefore, the proposed Project would result in a reduction to VMT during Project operation.

**Table 3.18-3: Weekday Daily Regional VMT**

| Scenario | Pre-COVID Basis VMT | Post-COVID Basis VMT |
|---|---|---|
| ***Opening Year 2025*** | | |
| No Project | 227,150,000 | 227,150,000 |
| Plus Project | 227,112,000 | 227,130,000 |
| **Delta** | -38,000 | -20,000 |

**Table 3.18-3: Weekday Daily Regional VMT**

| Scenario | Pre-COVID Basis VMT | Post-COVID Basis VMT |
|---|---|---|
| | ***Horizon Year 2040*** | |
| No Project | 256,390,000 | 256,390,000 |
| Plus Project | 256,350,000 | 256,357,000 |
| **Delta** | -40,000 | -33,000 |

Source: Fehr & Peers Transportation Assessment (2023)

The proposed Project is a passenger rail project that would create a more direct passenger rail route and greatly reduce rail travel time between Oakland and San Jose. Reducing travel times would facilitate more auto-competitive travel times for intercity passenger rail trips throughout the Northern California area. The proposed Project would increase ridership on transit, ease congestion on the Bay Area's stressed roadways, and reduce lengthy auto commutes. Increased ridership on transit would reduce regional VMT by 38,000 VMT by the Opening Year 2025 and 40,000 VMT by Horizon Year 2040 based on the Pre-COVID Basis model and by 20,000 VMT by Opening Year 2025 and 33,000 VMT by Horizon Year 2040 based on Post-COVID Basis model and achieve the goals of SB 743. In accordance with CEQA Guidelines Section 15064.3(b)(2), "Transportation projects that reduce, or have no impact on, VMT should be presumed to cause a less than significant transportation impact."

Therefore, based on CEQA and OPR guidance, the proposed Project would not conflict with CEQA Guidelines Section 15064.3, subdivision (b), and VMT-related operational impacts would be less than significant.

### 3.18.6.3 (c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

#### No Project Alternative

**No Impact.** Under the No Project Alternative, the Capitol Corridor passenger rail service between Oakland and San Jose would not be relocated from the Niles Subdivision to the Coast Subdivision. Improvements proposed for the Niles and Coast Subdivisions associated with the proposed Project would not occur. Capitol Corridor passenger trains would continue to operate based on current routes with no changes to rail connectivity or operational efficiency. Therefore, the No Project Alternative would not substantially increase hazards due to a geometric design feature or an incompatible use.

#### Proposed Project

***Construction.***

**Less-than-Significant Impact**. The proposed Project would not substantially increase hazards due to a geometric design feature or incompatible use. The proposed track, signal upgrades, and siding

improvements would be located within or adjacent to existing rail or public transportation ROW and designed based on standards set forth by CCJPA, the local jurisdiction, and/or the host railroad. All at-grade crossings in the transportation RSA are equipped with warning bells, crossing gates, and flashing lights. These rail corridors also currently serve passenger and/or freight rail trips, meaning that trains would run on rail lines that currently experience rail traffic.

Construction activities would include track and signal work; construction of sidings and grade separated crossings; improvements to existing at-grade crossings; and construction of the new Ardenwood Station, parking structure, and pedestrian access. Prior to construction, CCJPA and the host railroad would coordinate with the local jurisdiction in developing a construction traffic management plan which would be implemented during construction activities. As part of BMP TR-1, the construction contractor would provide early notification to local jurisdictions, emergency responders, and to the public of potential traffic control measures and alternative access and/or detours during construction activities. The TMP would be compliant with the provisions of the current *California Manual on Uniform Traffic Control Devices* (Caltrans, 2021b) and local ordinances. With implementation of BMP TR-1, construction activity traffic impacts associated with the proposed Project are anticipated to be less than significant.

***Operations.***

**Less-than-Significant Impact**. As previously stated, the proposed Project would not change the existing rail alignment, and rail improvements would be predominantly constructed within existing rail ROW. The proposed Project would be designed according to applicable passenger and freight rail criteria, city, safety, and ADA standards, codes and guidelines to maximize safety for both motorized and non-motorized forms of transportation. Pedestrian improvements include signal-protected pedestrian movements, channelization, barriers to protect and route pedestrians where needed at-grade crossings, ADA-compliant curb ramps, along with warning signs to provide for convenient and safe access to boarding areas. Therefore, the proposed Project would result in less-than-significant impacts for operational activities.

## 3.18.6.4 (d) Result in inadequate emergency access?

### No Project

**No Impact.** Under the No Project Alternative, the Capitol Corridor passenger rail service between Oakland and San Jose would not be relocated from the Niles Subdivision to the Coast Subdivision. Improvements proposed for the Niles and Coast Subdivisions associated with the proposed Project would not occur. Capitol Corridor passenger trains would continue to operate based on current routes with no changes to rail connectivity or operational efficiency. Therefore, the No Project Alternative would have no impact to current conditions for emergency access.

### Proposed Project

***Construction.***

**Less Than Significant Impact.** The proposed Project would result in the shifting of Capitol Corridor service from the Niles Subdivision to the Coast Subdivision and is not expected to result in changes in freight rail services along the Niles, Oakland, and Coast Subdivisions. An emergency vehicle access analysis was completed for the proposed Project, which considered the locations of existing fire and police stations and hospitals with emergency services. While no established state or federal

standards for response times have been established for the purposes of identifying CEQA thresholds of significance, for purposes of this analysis, the CEQA threshold of significance for change in emergency vehicle access times would be an increase of 30 seconds (i.e., 10 percent of 300 seconds). The analysis was conducted to determine whether emergency response times (at the daily average level) were projected to decrease, increase by a less-than-significant amount (i.e., less than 30 seconds), or increase by a significant amount (i.e., 30 seconds or more).

Figure 3.18-6 through Figure 3.18-8 show the change in emergency vehicle response times for fire, police, and hospitals (with emergency services) for opening and horizon year as a result of proposed Project implementation. The figures include locations where emergency vehicle response times (at the daily average level) are projected to decrease or increase by a less-than-significant amount (less than 30 seconds). Based upon the analysis, no areas would result in an increase by a significant amount (30 seconds or more).

The following conclusions can be drawn for the proposed Project regarding emergency access:

- **Niles and Oakland Subdivisions**: Shifting of Capitol Corridor service to the Coast Subdivision without a shift in freight trains to the Niles and Oakland Subdivisions will result in a decrease in aggregate crossing closure times. Thus, emergency response times are expected to be minimally affected (or improve) as a result of the proposed Project.
- **Centerville portion of Niles Subdivision**: Shifting of Capitol Corridor service to the Coast Subdivision and retention of No Project-level freight trains will result in a decrease in emergency access times. Therefore, a decrease in access times is projected as a result of the proposed Project.
- **Coast Subdivision**: It is assumed that freight service on the Coast Subdivision stays similar to No Project levels (to be conservative). The proposed Project is projected to result in only a slight increase in access time.

A new driveway would be provided at the Ardentech Court cul-de-sac to connect the new Ardenwood Station parking area to the public roadway system. The existing Ardenwood Boulevard and Ardenwood Terrace entrances to the Ardenwood Park-and-Ride lot, located at 34867 Ardenwood Boulevard in Fremont, California, would be maintained. With implementation of BMP TR-1, CCJPA would coordinate with ACFD Police and/or Sheriff Departments' emergency response providers during development of the TMP to ensure that access remains in compliance with ACFD, county, and local police requirements.

During construction, lane closures, traffic detours, and designated truck routes associated with construction could temporarily result in reduced access and delayed response times for emergency services. BMP TR-1 would require that a TMP be developed and implemented that is compliant with the provisions of the current *California Manual on Uniform Traffic Control Devices* (Caltrans, 2021b) and local ordinances, as applicable, to avoid and minimize impacts on emergency access. The construction contractor would provide early notification of traffic disruption to emergency service providers to ensure that the proposed Project construction activities would not interfere with emergency response. Therefore, the proposed Project would result in less-than-significant impacts related to construction activities.

**Figure 3.18-6: Emergency Vehicle Access Time - Fire**

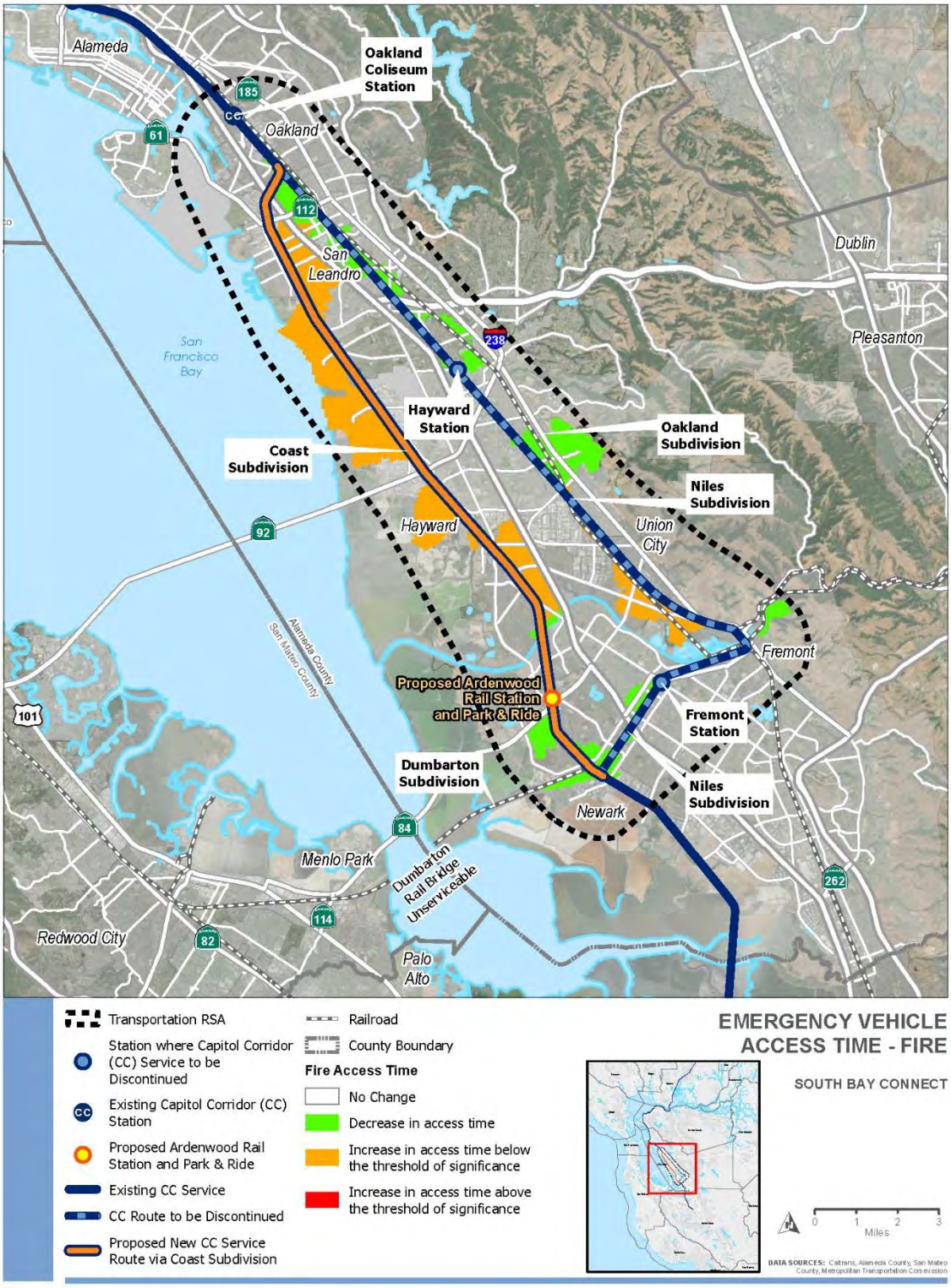


**Figure 3.18-7: Emergency Vehicle Access Time - Police**

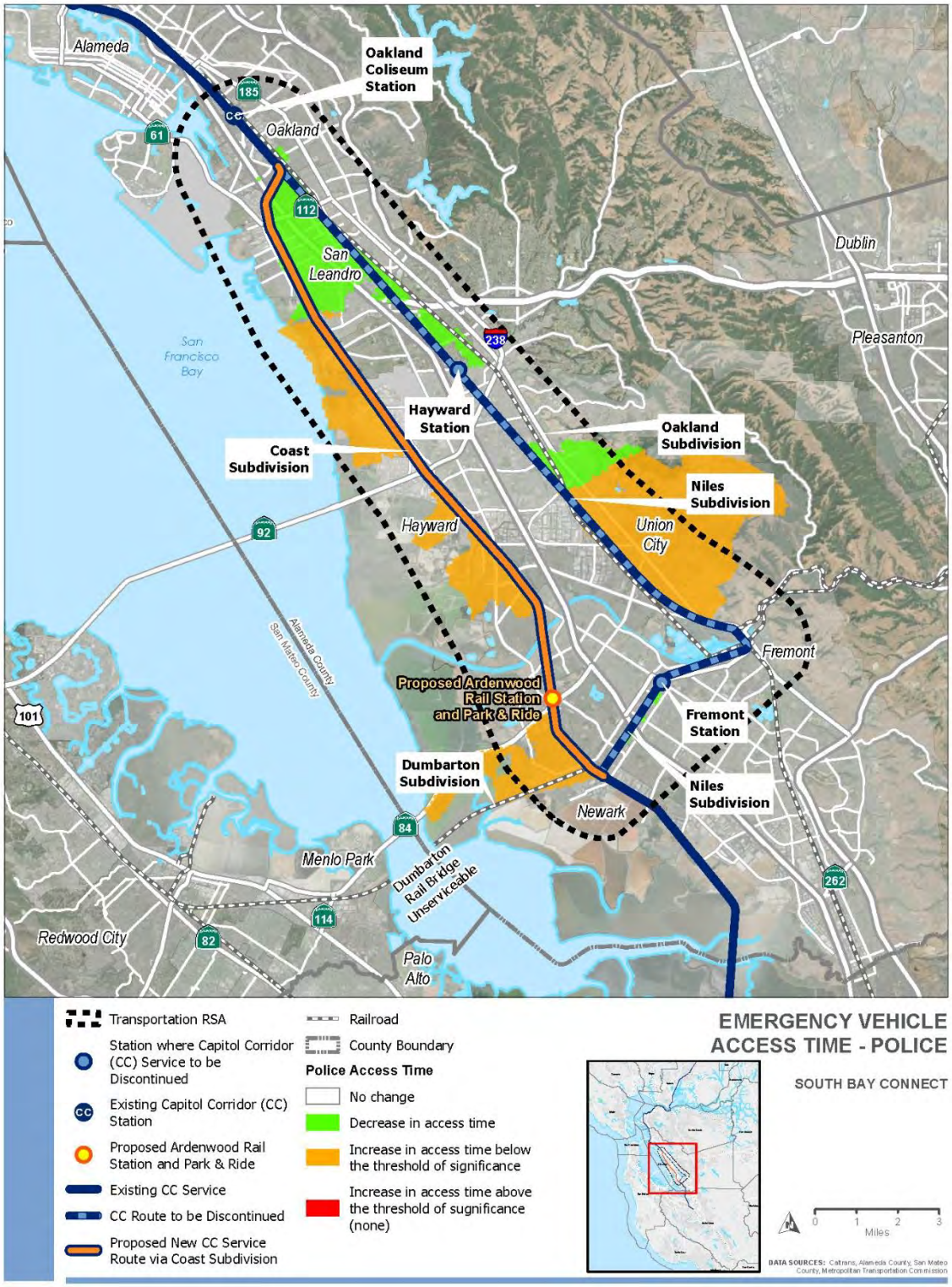
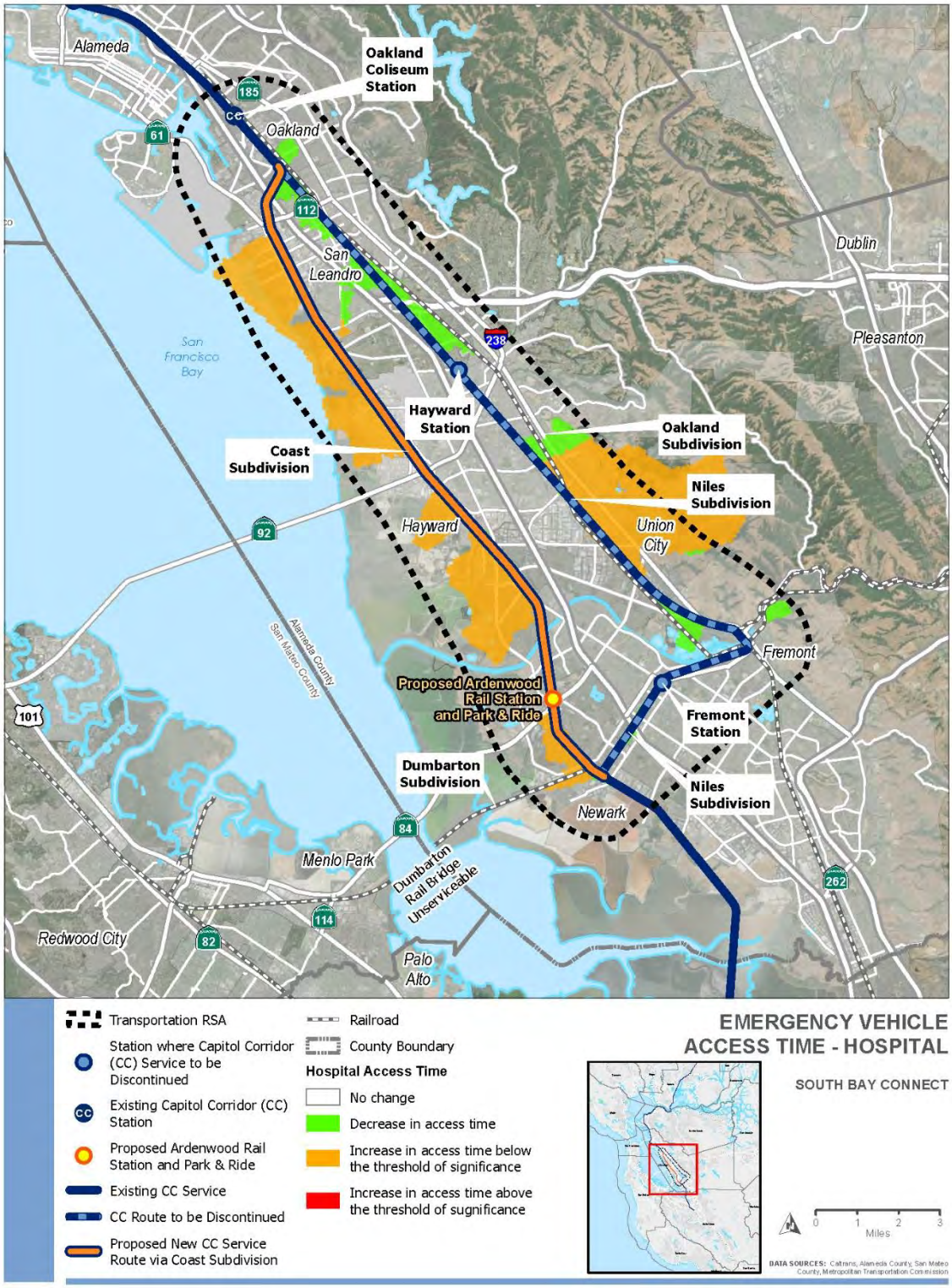


**Figure 3.18-8: Emergency Vehicle Access Time - Hospital**



***Operations.***

**Less-than-Significant Impact**. During operations, in the event that there is a derailment or situation at a station facility, the accident or incident would be communicated to all rail operators in the area and any safety measures, cleanup, and emergency access would be under the control of local jurisdiction emergency responders with assistance from rail operators. Therefore, the proposed Project would result in less-than-significant impacts related to operational activities.

## 3.18.7 Mitigation Measures

No Mitigation Measures for transportation are required for the proposed Project.

## 3.18.8 Cumulative Impact Analysis

Cumulative impacts can result from individually minor but collectively substantial impacts from past, present, and reasonably foreseeable future projects (those actions that are likely or probable, versus actions that are merely possible) taking place over a period of time. A cumulatively considerable impact to transportation would occur if the proposed Project, when combined with past, present, and reasonably foreseeable projects, results in cumulatively considerable impact to the transportation network.

The cumulative RSA for transportation includes a 2-mile buffer around the proposed Project improvements in the Cities of Oakland, San Leandro, Hayward, Fremont, Newark, and Union City. The cumulative RSA includes current and reasonably foreseeable transportation improvements and infill development projects. A summary of current and reasonably foreseeable future transportation and infill development projects (cumulative projects) that may affect the transportation network within the cumulative RSA is included in Table 3-1 in Section 3.1, Introduction.

Cumulative projects may require temporary road closures and detours during construction that could affect traffic circulation within the cumulative RSA. However, each identified cumulative project is required to analyze project-specific impacts on the roadway network and mitigate resulting significant impacts. Each cumulative project would be required to adhere to local jurisdiction transportation policies to avoid and/or minimize construction-related impacts on the transportation system and to maintain existing access.

The proposed Project is projected to reduce daily regional VMT by 38,000 miles in Opening Year 2025 and by 40,000 miles in Horizon Year 2040 based on the Pre-COVID Basis model and by 20,000 miles VMT by Opening Year 2025 and 33,000 miles VMT by Horizon Year 2040 based on the Post-COVID Basis model. Therefore, the proposed Project in combination with current and reasonably foreseeable projects would not cumulatively contribute to increases in VMT. The proposed Project would ultimately result in reduced regional cumulative impacts to VMT when combined with other cumulative projects and would provide beneficial impacts. The proposed Project would reduce, not increase, VMT and would have beneficial operational and safety effects when combined with projects that improve rail, such as the Washington Avenue/UPRR Crossing Improvement Project and Centerville Railroad Safety Improvement Project. The proposed Project would also provide increased regional transit connectivity benefits when combined with the SR 84 Intermodal Bus Facility, which would be located next to the new Ardenwood Station and to the development of future transit-oriented development projects close to the proposed Project like the Bayside Network development in the City of Newark.

The proposed Project would not have a cumulatively considerable or potentially significant impact on transportation when combined with other cumulative transportation or infill projects.

## 3.18.9 CEQA Impact Analysis Table

Table 3.18-4 summarizes the transportation resources impacts of the proposed Project.

**Table 3.18-4. Transportation Resources Impacts Summary**

| Impact | Level of Significance Before Mitigation | Incremental Project Contribution to Cumulative Impacts | Mitigation | Level of Significance with Mitigation Incorporated | Incremental Project Cumulative Impact after Mitigation |
|---|---|---|---|---|---|
| **Would the project conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?** | LTS | NCC | N/A | LTS | NCC |
| **Would the project Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?** | LTS | NCC | N/A | LTS | NCC |
| **Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?** | LTS | NCC | N/A | LTS | NCC |
| **Would the project result in inadequate emergency access?** | LTS | NCC | N/A | LTS | NCC |

Notes: LTS = Less-than-Significant Impact, NI = No Impact, N/A = Not Applicable, SI = Significant Impact, S/M = Significant Impact but Mitigable to a Less-than-Significant Level, CC = Cumulatively Considerable, NCC = Not Cumulatively Considerable.

## 3.18.10 References

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# 3.19 Tribal Cultural Resources

## 3.19.1 Introduction

The Tribal Cultural Resources (TCR) section describes the environmental setting and regulatory setting for TCRs in the vicinity of the proposed Project. It also describes the impacts on TCRs that would result from construction and operation of the proposed Project and mitigation measures that would avoid or reduce significant impacts, where feasible. Pursuant to the requirements of AB 52, this section also summarizes consultation efforts conducted with the Native American tribes, organizations, and individuals listed with the NAHC's as having traditional and cultural affiliations with the proposed Project's geographic area.

## 3.19.2 Regulatory Setting

This section summarizes state regulations related to TCRs and applicable to the proposed Project.

### 3.19.2.1 State

#### Tribal Cultural Resources (PRC Section 21074)

As defined at PRC Section 21074, a TCR is a site, feature, place, cultural landscape, sacred place or object that is of cultural value to a California Native American tribe and is either: (1) in or eligible for the CRHR or a local historic register; or (2) the lead agency, at its discretion, chooses to treat the resource as a TCR. TCRs are similar to traditional cultural properties in terms of their characteristics, identification, and treatment, and may include a cultural landscape to the extent that the landscape is geographically defined in terms of the size and scope of the landscape. Additionally, as defined at PRC Section 21074, a historical resource, a unique archaeological resource, or a non-unique archaeological resource may also be a TCR if it conforms to the criteria of a TCR in PRC Section 21074(a). CEQA mandates that lead agencies determine whether a project will have a significant impact on TCRs that are eligible for listing in the CRHR (i.e., a historical resource), or are determined to be significant by the lead agency in order to appropriately mitigate any such impacts.

Consultation with California Native American tribes is an integral component of each of the cultural resources investigation steps described above.

#### Assembly Bill 52 and Consultation

The lead agency for CEQA, in this case CCJPA, is responsible for consultation with Native American tribes regarding the potential for a project to impact TCRs, pursuant to AB 52 and PRC Sections 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2, 21084.3, and 5097.94(m). AB 52 recognizes that "… tribes may have expertise with regard to their tribal history and practices, which concern the tribal cultural resources with which they are traditionally and culturally affiliated …" and that consultation will occur between a lead agency and Native American tribes for covered projects.

As described in Section 3.6, Cultural Resources, a proposed project may induce a significant impact to a historical resource, unique archaeological resource, or a TCR if it causes a substantial adverse

change (i.e., physical demolition, destruction, relocation, or alteration) to the resource or immediate surroundings (14 CCR Section 15064.5[b]), thereby demolishing or significantly altering the physical characteristics that qualify it for listing on the CRHR or local registers (PRC Sections 5020.01[k] and 5024.1[g]). A project that may cause a substantial adverse change in the significance of a TCR is a project that may have a significant effect on the environment (PRC Section 21084.2). A lead agency will establish measures to avoid impacts that would alter significant characteristics of a TCR, when feasible (PRC Section 21084.3).

## Health and Safety Code 7050.5: Human Remains

Section 7050.5 of the California Health and Safety Code states that, in the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the remains are discovered has determined whether the remains are subject to the coroner's authority. If the human remains are of Native American origin, the coroner must notify the NAHC within 24 hours of this identification.

## Public Resources Code 5097.98: Notification of Most Likely Descendant

PRC Section 5097.98 states that the NAHC, upon notification of the discovery of Native American human remains pursuant to Health and Safety Code Section 7050.5, shall immediately notify the MLD of the deceased. With permission of the landowner or a designated representative, the MLD may inspect the remains and any associated cultural materials and make recommendations for treatment or disposition of the remains and associated grave goods. The MLD shall provide recommendations or preferences for treatment of the remains and associated cultural materials within 48 hours of being granted access to the site.

## California Native American Graves Protection and Repatriation Act (California Health and Safety Code Section 8010 et seq.)

The California Native American Graves Protection and Repatriation Act establishes a state repatriation policy consistent with, and facilitates implementation of, the federal Native American Graves Protection and Repatriation Act. The act strives to ensure that all California Native American human remains and cultural items are treated with dignity and respect, and asserts intent for the state to provide mechanisms for aiding California Native American tribes, including non-federally recognized tribes, in repatriating remains and cultural items.

## Native American Historical, Cultural, and Sacred Sites

Pursuant to PRC Section 5097.94 the NAHC has authority and duty to "identify and catalog places of special religious or social significance to Native Americans and known graves and cemeteries of Native Americans on private lands" and has the power and duty to make recommendations for acquisition by the state or other public agencies regarding Native American sacred places that are located on private lands, are inaccessible to Native Americans, and have cultural significance to Native Americans.

# 3.19.3 Methods for Evaluating Environmental Impacts

## 3.19.3.1 Resource Study Area

As defined in Section 3.1, Introduction, RSAs are the geographic boundaries within which the environmental investigations specific to each resource topic were conducted. The RSA includes TCRs identified through cultural resources identification efforts combined with consultation with California Native American tribes.

## 3.19.3.2 Data Sources

### Native American Heritage Commission

The NAHC is a state agency that maintains the Sacred Lands File, an official list of sites that are of cultural and religious importance to California Native American tribes.

ICF requested a review of the NAHC Sacred Lands File on July 15, 2020, for any Native American cultural resources within the 2019 proposed station areas. ICF received a response on July 16, 2020, from Sarah Fonseca, Cultural Resources Analyst at the NAHC, stating that, "The results of any Sacred Lands File (SLF) check conducted through the NAHC was positive. Please contact the North Valley Yokuts and the Ohlone Indian Tribes on the attached list for more information." A list of nine tribal contacts and their information was also provided with the NAHC's response.

On September 20, 2021, ICF requested a subsequent and expanded search and contact list from the NAHC that encompassed the entire project footprint. ICF received a response on October 25, 2021, from Kathy Sanchez, Associate Environmental Planner at the NAHC, stating that, "The results of any Sacred Lands File (SLF) check conducted through the NAHC was positive. Please contact the Ohlone Indian Tribe and the Northern Valley Yokuts Tribe on the attached list for more information." A list of 12 tribal contacts and their information was also provided with the NAHC's response.

### Consultation Outreach per Public Resources Code Section 21080.3.1

ICF conducted initial information scoping and outreach for the proposed station areas. CCJPA conducted tribal outreach pursuant to the requirements of consultation for the proposed Project footprint pursuant to PRC Section 21080.3.1(i.e., AB 52) and PRC Section 21084.3.

#### Station Area Information Scoping and Outreach

On July 24, 2020, letters were sent to each of the nine contacts on the list provided by the NAHC notifying them of the proposed Project, per PRC Section 21080.3.1(i.e., AB 52).

On August 10 and 12, responses were received from representatives of the North Valley Yokuts Tribe and The Confederated Villages of Lisjan, formally requesting tribal consultation with regard to alternatives, mitigation measures, and significant impacts of the proposed Project. They further recommended that the proposed Project be monitored by both a Native American monitor and a qualifying archaeological firm, They also recommended:

1. Tribal cultural resources be preserved through avoidance;
2. Tribal cultural resources be treated with culturally appropriate dignity;

3. Permanent conservation easements be established; and

4. Tribal cultural resources be protected.

Also requested were archaeological maps of the known cultural resources within the proposed Project area, the results of any record searches, the results of any archaeological inventory surveys, the results of any Sacred Lands File searches, any ethnographic studies conducted in the proposed Project area, and any geotechnical reports.

### 2022 CCJPA Tribal Consultation

On February 10, 2022, letters were sent to each of the 12 contacts on the list provided by the NAHC informing them of updates to the Project and formally inviting them to consultation pursuant to PRC § 21080.3.1(i.e., AB 52). In addition to the formal invitation for consultation, the positive results of the NAHC SLF search were included in the letters to the Ohlone Indian Tribe and the Northern Valley Yokuts Tribe.

On February 15, 2022, the North Valley Yokuts Tribe responded. The tribe indicated that the area that would be affected by the proposed Project is considered sensitive and recommended that the proposed Project be monitored by both a qualified archaeologist and Native American monitor. No additional information was requested.

On March 8, 2022, the Confederated Villages of Lisjan responded that the tribe would like to consult for the proposed Project. On August 18, 2022, CCJPA met virtually with their representative. and provided a presentation on the Project, which included 1) project location, purpose, and need; 2) record search and survey results; and 3) current project alternatives under consideration.

Following the presentation, an open discussion was held in which the tribe expressed concern and interest in hearing more about where and how much track replacement will be occurring as the railroads have had a history of disturbing native sites. CCJPA responded that the team anticipated having that information available to share in the fall of 2023.

### 2023 CCJPA Tribal Consultation

On December 1, 2023, letters were sent to each of the 12 contacts on the list provided by the NAHC informing them of a change to the proposed Project and formally inviting them to consultation pursuant to PRC § 21080.3.1(i.e., AB 52).

On December 7, 2023, the Ohlone Indian Tribe responded via email that there are numerous locations along the Project corridor that they would like to discuss and requested a meeting with the lead agency regarding the Project. On January 11, 2024, CCJPA met virtually with the Ohlone Tribe. An overview of the Project and the proposed Project was provided and recorded site information was discussed in detail. The tribe's representative emphasized the Project area is situated in his family's traditional lands. He discussed nearby finds discovered in past housing development projects and other locations along the Project alignment, which he considered highly sensitive. He felt the identification efforts were sufficient and asked to be kept apprised of future developments.

On January 8, 2024, the Confederated Villages of Lisjan responded via email requesting to schedule a consultation meeting. On February 28, 2024, a virtual meeting was held with Corrina Gould of the Confederated Villages of Lisjan to update her on the changes in the proposed Project.

Consultation is ongoing.

### 3.19.3.3 CEQA Thresholds

To satisfy CEQA requirements, Tribal Cultural Resources impacts were analyzed in accordance with Appendix G of the CEQA Guidelines. According to the CEQA Guidelines, CCR, Title 14, Section 15002(g), "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in CEQA Guidelines Section 15064(b)(1), the significance of an activity may vary with the setting. The impact analysis identifies and analyzes construction (short-term) and operation (long-term) impacts, as well as direct and indirect impacts (see PRC Section 21065). The proposed Project would have significant Tribal Cultural Resources impacts under CEQA if it would:

a. Cause a substantial adverse change in the significance of a TCR, defined in PRC Section 21074 that is (a) listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in PRC Section 5020.1(k); or

b. Cause a substantial adverse change in the significance of a TCR, defined in PRC Section 21074 that is (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.

## 3.19.4 Affected Environment

### 3.19.4.1 Environmental Setting

The environmental setting for TCR is consistent with that described in Section 3.6, Cultural Resources, and is further detailed in the precontact, ethnohistoric, and historic cultural chronology Appendix D. The cultural resources records searches results identified three previously recorded precontact period archaeological resources within the RSA, of which surface evidence of three sites were located. These resources are assumed eligible for the CRHR for the purposes of the proposed Project. The NAHC SLF check was positive and consultation with tribes was conducted to help identify any resources of concern. No TCRs were identified through consultation with Tribes.

## 3.19.5 Best Management Practices

No TCRs were identified for the proposed Project; therefore, no BMPs for TCRs are included for the proposed Project.

## 3.19.6 Environmental Impacts

TCRs are defined as resources that are eligible for or listed in the CRHR, or resources that the lead agency determines to be a TCR with a substantial burden of evidence. No TCRs have been identified within the RSA of the proposed Project.

### No Project Alternative

The No Project Alternative would not impact any tribal cultural resources because no TCRs have been identified through consultation.

### Proposed Project

#### Construction

Since no TCRs were identified through consultation, impacts on TCRs would only be associated with new and unanticipated discovery of an eligible archaeological resource during construction of the proposed Project. Therefore, there is potential for inadvertent discovery of TCRs, including human remains, previously unknown as a result of the historic and ongoing tribal use of the Project Study area, as well as indirect impacts through increased access to the area. Impacts would be potentially significant (Impact TCR-1) during construction.

#### Operation

Once in operation, the proposed Project would not involve additional ground-disturbing activities that could impact potential TCRs. Therefore, impacts during operation would be less than significant.

## 3.19.7 Mitigation Measures

The potential for discovery of tribal cultural resources, including human remains, during construction of the proposed Project would be mitigated to less than significant with incorporation of mitigation measures MM-CUL-1 through MM-CUL-5, as discussed in Section 3.6.

## 3.19.8 Cumulative Impact Analysis

As described above, no TCRs have been identified during consultation with tribes. Therefore, no known TCRs would be impacted by the proposed Project. As such, it is determined that the proposed Project would not contribute to a significant cumulative impact to TCRs and cumulative impacts would not be cumulatively considerable.

## 3.19.9 CEQA Significance Findings Summary

Table 3.19-1 summarizes the tribal cultural resources impacts of the proposed Project.

**Table 3.19-1. Tribal Cultural Resources Impacts Summary**

| Impact | Level of Significance Before Mitigation | Incremental Project Contribution to Cumulative Impacts | Mitigation | Level of Significance with Mitigation Incorporated | Incremental Project Cumulative Impact after Mitigation |
|---|---|---|---|---|---|
| **Would the Project cause a substantial adverse change in the significance of a TCR, defined in PRC Section 21074 that is (a) listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in PRC Section 5020.1(k).** | SI | NCC | MM-CUL-1<br>MM-CUL-2<br>MM-CUL-3<br>MM-CUL-4<br>MM-CUL-5 | S/M | NCC |
| **Would the Project cause a substantial adverse change in the significance of a TCR, defined in PRC Section 21074 that is (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.** | SI | NCC | MM-CUL-1<br>MM-CUL-2<br>MM-CUL-3<br>MM-CUL-4<br>MM-CUL-5 | S/M | NCC |

Notes: SI = Significant Impact, S/M = Significant Impact but Mitigable to a Less than Significant Level, NCC = Not Cumulatively Considerable.

# 3.20 Utilities and Service Systems

## 3.20.1 Introduction

This section describes the regulatory setting and affected environment for public utilities and service systems. This section addresses the utilities and service systems that are known to occur or have the potential to occur in the utilities and service systems RSA and describes potential impacts on those systems during construction and operation of the proposed Project. This section also identifies the cumulative impacts of the proposed Project on utilities and service systems.

Public utilities and service systems are defined as any subsurface, aboveground, or overhead facility used for transmission or storage, regardless of size, shape, or method of conveyance. This impact evaluation focuses on major public utilities and service systems, which include the following types of facilities listed below:

- Electrical Transmission Facilities, including substations, transmission lines (designed to operate at or above 200 kilovolts [kV]), and power lines (designed to operate between 60 and 115 kV);
- Petroleum product trunk pipelines that serve as critical components of the overall network and region. Including but not limited to; natural gas, petroleum (crude oil), and other petroleum products;
- Water lines, including potable, irrigation, and recycled water lines of outside diameter ≥ 18 inches;
- Desalination plant intake and brine disposal lines;
- Wastewater (sewer) lines of outside diameter ≥ 18 inches;
- Stormwater, conduits, pipes, and storm drains of outside diameter ≥ 42 inches;
- Solid and hazardous waste storage facilities; and
- Telecommunications and fiber optic lines that serve as critical components to the overall network.

The public utilities and service system impact analysis focuses on utility lines and service systems in the right-of-way (ROW) of the proposed Project that may need to be relocated, protected in place (PIP), or newly installed during construction, as well as indirect effects to offsite resources, such as solid and hazardous waste storage facilities.

This section focuses on the capacity of the existing electrical network and any impacts associated with expanding or relocating these facilities. Although electrical transmission facilities are included in this section, energy usage and efficiency are addressed in Section 3.7, Energy. This Utilities and Service Systems section also focuses on water-related utility infrastructure and water efficiency. Project effects on water quality, hydrology, drainage patterns, groundwater, and stormwater runoff are addressed in Section 3.11, Hydrology and Water Quality. Although this Utilities and Service Systems section focuses on hazardous waste disposal facilities, hazards and hazardous materials and compliance with associated regulations are discussed in Section 3.10, Hazards and Hazardous Materials.

# 3.20.2 Regulatory Setting

This section identifies the applicable federal, state, regional, and local laws, regulations, and orders that are relevant to the analysis of utilities and service systems. This section also addresses the proposed Project's consistency with the regulations described herein. The proposed Project would not result in production of food waste during operation; therefore, regulations relating to diversion of organic food waste have not been included.

## 3.20.2.1 Federal

### Norman Y. Mineta Research and Special Programs Improvement Act

The Norman Y. Mineta Research and Special Programs Improvement Act (Public Law 108 426) established the United States Department of Transportation's Pipeline and Hazardous Materials Safety Administration, which regulates safe movement of hazardous materials to industry and consumers by all modes of transportation, including pipelines. This act requires pipeline owners and operators to participate in public safety programs that notify an operator of proposed demolition, excavation, tunneling, or construction near or affecting a pipeline. In California, the Office of the Fire Marshal administers pipeline safety.

### Federal Energy Regulatory Commission Regulations

The Federal Energy Regulatory Commission (FERC) regulates the interstate transmission of natural gas, oil, and electricity. As part of that responsibility, FERC regulates the transmission and sale of natural gas for resale in interstate commerce, the transmission of oil by pipeline in interstate commerce, and the transmission and wholesale of electricity in interstate commerce. FERC also approves the siting and abandonment of interstate natural gas facilities, including pipelines, storage, and liquefied natural gas; and oversees environmental matters related to natural gas projects and major electricity policy initiatives. The Commission's regulations are found under Title 18 Chapter I of the Code of Federal Regulations.

## 3.20.2.2 State

### California Green Building Standards Code

The California Green Building Standards Code (24 California Code of Regulations [CCR] Part 11) requires a minimum of 65 percent of the debris from certain construction and demolition (C&D) projects be recycled or salvaged for reuse. Section 5.408 is applicable to most non-residential new construction. This is tracked either by submitting a waste management plan or using a waste management company with verifiable documentation.

### California Integrated Waste Management Act

The California Integrated Waste Management Act of 1989 was enacted by Assembly Bill (AB) 939 in response to the Resource Conservation and Recovery Act (RCRA). It requires cities and counties to prepare an integrated waste management plan, including a countywide siting element, for each jurisdiction. Per California Public Resources Code 41700–41721.5, the countywide siting element provides an estimate of the total permitted disposal capacity needed for a 15-year period, or whenever additional capacity is necessary. Countywide siting elements in California must be

updated by each operator and permitted by the California Department of Resources Recycling and Recovery (CalRecycle), which is within the Natural Resources Agency, every five years. AB 939 mandated that local jurisdictions meet solid waste diversion goals of 50 percent by 2000.

## Assembly Bill 332

AB 332, signed on August 31, 2021, adopts new alternative management standards for treated wood waste (TWW) that are codified in Health and Safety Code 25230. AB 332 allows handling of non-RCRA hazardous TWW in accordance with alternative management standards in lieu of the requirements for hazardous waste (pursuant to Health and Safety Code Division 20, Chapter 6.5, Articles 6, 6.5, 9, and 22 of the CCR Division 4.5, Chapters 12–16, 18, and 20). Treated wood is wood that has been treated with a chemical preservative for purposes of protecting the wood against attacks from insects, microorganisms, fungi, and other environmental conditions that can lead to decay of the wood, and the chemical preservative is registered pursuant to the Federal Insecticide, Fungicide, and Rodenticide Act (7 United States Code 136 et seq.). The alternative management standards lessen storage requirements, extend accumulation periods, allow shipments without a hazardous waste manifest and a hazardous waste hauler, and allow disposal at specific non-hazardous waste landfills. Businesses that generate, handle, or accumulate more than 1,000 pounds of TWW in 30 days must meet specific handling, storage, security, shipping, training, and record-keeping requirements (Department of Toxic Substances Control [DTSC] 2021c).

## Assembly Bill 341 – Mandatory Commercial Recycling Law

AB 341, codified in the 2012 Mandatory Commercial Recycling Law, requires businesses with four or more cubic yards of weekly garbage to arrange for recycling service. Jurisdictions are required to implement a commercial recycling program that includes education of, outreach to, and monitoring of businesses within their boundaries.

## California Public Utilities Commission General Order 95

The California Public Utilities Commission (CPUC) regulates public electric utilities in California. The CPUC General Order 95, Rule for Overhead Electric Line Construction, formulates uniform requirements for overhead electrical line construction, the application of which provides for "adequate service and secure safety to persons engaged in the construction, maintenance, operation, or use of overhead electrical lines and to the public in general."

## California Public Utilities Commission General Order 131-D

General Order 131-D establishes CPUC rules for implementing Public Utilities Code 1001–1013 relating to the planning and construction of electric generation, transmission/power/distribution line facilities, and substations in California. A permit to construct must be obtained from CPUC for powerlines or for new or upgraded substations with high scale voltage exceeding 50 kV. A certificate of public convenience and necessity must be obtained from the CPUC for transmission lines, with some exceptions including "replacement of existing power line facilities or supporting structures with equivalent facilities or structures, the minor relocation of existing power line facilities, the conversion of existing overhead lines to underground, or the placing of new or additional conductors, insulators, or their accessories on or replacement of supporting structures already built." Both the permit to construct and the certificate of public convenience and necessity are discretionary decisions by CPUC that are subject to the California Environmental Quality Act (CEQA)

and the CPUC's general proceedings, which is a formal review process that considers how projects could benefit or harm the public.

## Designation of Transmission Corridor Zones

The regulation on Designation of Transmission Corridor Zones (20 CCR 2320–2340) specifies the scope and process required for identification, evaluation, and designation of new transmission corridor zones. This article includes upgrades to existing electrical transmission lines that are under the operational control of the California Independent System Operator or would result in an operating voltage of 200 kV or more.

## Protection of Underground Infrastructure

The Protection of Underground Infrastructure code (California Government Code 4216) requires that an excavator must contact a regional notification center (i.e., Underground Service Alert) at least two days before excavation of any subsurface installations. The Underground Service Alert then notifies utilities that may have buried lines within 1,000 feet of the excavation. Representatives of the utilities must mark the specific location of their facilities within the work area prior to the start of excavation. The construction contractor must probe and expose the underground facilities by hand prior to using power equipment.

## Urban Water Management Planning Act

The Urban Water Management Planning Act (California Water Code, Division 6, Part 2.6, 10610–10656) requires the preparation of an urban water management plan (UWMP) every five years by water suppliers that provide over 3,000 acre-feet of water annually or serve water for municipal purposes either directly or indirectly to 3,000 or more customers. California Water Code 10632 requires every urban water supplier that serves more than 3,000 acre-feet per year or has more than 3,000 connections to prepare and adopt a Water Shortage Contingency Plan (WSCP) as part of its UWMP. The WSCP is required to plan for a greater than 50 percent supply shortage. The proposed Project would be subject to the UWMPs and WSCPs prepared by the local water suppliers.

## Water Conservation Act of 2009 (Senate Bill [SB] X7-7) – 20x2020 Water Conservation Plan

The Water Conservation Act of 2009 requires urban and agricultural water suppliers to increase water use efficiency. The urban water use goal within the state is to achieve a 20 percent reduction in per capita water use by December 31, 2020. The 20x2020 Water Conservation Plan set forth a statewide road map to maximize the state's urban water efficiency and conservation opportunities between 2009 and 2020, and beyond (California Department of Water Resources et al. 2010). It outlined a range of activities designed to achieve the 20 percent per capita reduction in urban water demand by 2020. The statewide target for 2020 was 154 gallons per capita per day, which was a 20 percent reduction from 192 gallons per capita per day (the 2005 baseline). The San Francisco Bay Area Region had a 2020 target of 131 gallons per capita per day, down from 157 in 2005. Alameda County Water District's (ACWD) SB X7-7 gallons per capita per day target was 137 gallons. ACWD has maintained gallons per capita per day under 137 since 2014 and therefore has met its SB X7-7 20x2020 target.

## Assembly Bill 1668 and Senate Bill 606 – Making California Conservation a Way of Life

AB 1668 and SB 606 establish new water use targets beyond SB X7-7 to better prepare the state for droughts and climate change. New standards must be adopted by the State Water Resources Control Board by July 2022 and urban retail water suppliers must start reporting on compliance with the water use objective in November 2023. Bill provisions include establishing standards for the following:

- Outdoor irrigation (residential and dedicated landscape water meters)
- Performance measures for commercial, industrial, and institutional water use
- Water loss standards

## California Model Water Efficient Landscape Ordinance

On December 1, 2015, the State of California's revision to the Model Water Efficient Landscape Ordinance (MWELO, 23 CCR Div. 2, Chapter 2.7) became effective. It requires cities and counties to ensure MWELO compliance for new construction projects with total landscape area equal to or greater than 500 square feet in size and rehabilitated landscape projects with total landscape area of 2,500 square feet or larger. The MWELO is in effect in every city and county unless a local or regional Water Efficient Landscape Ordinance has been adopted.

The MWELO was created by the California Department of Water Resources as a model for local agencies to enforce minimum standards in landscape design, construction, and management. It achieves this through specific requirements related to soil, plants, irrigation, stormwater, and non-potable water supplies. It sets an upper limit for the water budgets of landscape projects, thereby driving water-efficiency through the thoughtful selection of climate-appropriate plants, organic soil amendments, water-saving irrigation devices, and the use of alternative water supplies. MWELO encourages landscapes that require less water than the water budget's upper limit. It also encourages the innovation of landscaping equipment.

## California Water Recycling Criteria

The California Water Recycling Criteria (22 CCR 60307) outline allowable uses for types of recycled water. The following uses would require that any recycled water be filtered and disinfected: industrial process water that may come into contact with workers and consolidation of backfill around potable water pipelines. The following uses would require that any recycled water be at least oxidized and disinfected: backfill consolidation around non-potable piping, soil compaction, mixing concrete, dust control on roads and streets, cleaning roads, sidewalks and outdoor work areas, and industrial process water that would not come into contact with workers. Recycled water used for flushing sanitary sewers shall be at least undisinfected recycled water.

## 3.20.2.3 Regional

### Alameda County Measure D, the Alameda County Waste Reduction and Recycling Act

Measure D, approved in 1990, established the Alameda County Source Reduction and Recycling Board. It also established a countywide goal of diverting/recycling 75 percent of solid waste generated (StopWaste 2021).

### Alameda County Integrated Waste Management Plan – Countywide Element

The Alameda County Countywide Integrated Waste Management Plan serves as a roadmap for Alameda County's solid waste management and recycling issues. The Countywide Siting Element and the Countywide Summary Plan describe the current and desired long-term state of waste and materials management in the County. It addresses core infrastructure needs – collection, transport, processing facilities, and landfills – and provides the context and rationale for a comprehensive approach to the current and future waste management issues. The Countywide Siting Element demonstrates the ability to provide 15 years of permitted disposal capacity for all jurisdictions within the County. The Countywide Summary Plan provides an overview of significant waste management issues in the County; steps to be taken with member agencies; goals, objectives, and policies; a summary of waste management issues identified in the incorporated and unincorporated areas of the County; a summary of waste management programs and infrastructure; and existing and proposed solid waste facilities. Alameda County's goal is to move in the direction of landfill obsolescence by reducing waste production and increasing waste diversion. The County is working towards achieving the statewide goals of 75 percent waste diversion from landfills compared to 1990 and a 75 percent reduction in organics from landfills compared to 2014.

The Alameda County Waste Management Authority (ACWMA) has adopted the goals, objectives, and policies included in the Alameda County Countywide Integrated Waste Management Plan. The ACWMA manages long-range development of solid waste facilities and projects related to source reduction and recycling (Alameda County 2020). The ACWMA, Source Reduction and Recycling Board, and Energy Council are three separate organizations that function as one integrated agency collectively known as StopWaste.

### Alameda County Mandatory Recycling Ordinance (2012-01)

Alameda County Mandatory Recycling Ordinance requires businesses, institutions, and multifamily properties with five or more units to sort their recyclables separate from waste. The following jurisdictions have opted into Phase 2 requirements (effective 2014): cities of Fremont, Hayward, Newark, Oakland, and Union City as well as unincorporated areas within Alameda County. All businesses and institutions (regardless of garbage service volume) must provide and service sufficient containers, recycle all recyclable materials, and separate organics, recycling, and other waste.

### Plant Debris Landfill Ban

The Plant Debris Landfill Ban (ACWMA Ordinance 2008-01) requires businesses and institutions in Alameda County generating four or more cubic yards of garbage per week to separate all plant debris from garbage and recyclable materials. Those with on-site service must place plant debris in a designated organics collection bin. Businesses can arrange for the removal of plant debris by their

landscaper. The landscaper must haul to an approved facility and must deposit plant debris in the facility's designated "clean green" area (ACWMA 2021).

## 3.20.2.4 Local

### City of Oakland General Plan

The water resources section of the City of Oakland's General Plan, Open Space, Conservation and Recreation Element (1996) includes directives to conserve water and water recycling strategies. The following water conservation objectives and policies are included in the general plan:

- **Objective CO-4: Water Supply** – To maintain a water supply sufficient to meet local needs while minimizing the need to develop new water supply facilities.
    - **Policy CO-4.1: Water Conservation** – Emphasize water conservation and recycling strategies in efforts to meet future demand.
    - **Policy CO-4.2: Drought-Tolerant Landscaping** – Require use of drought-tolerant plants to the greatest extent possible and encourage the use of irrigation systems which minimize water consumption.
    - **Policy CO-4.3: Use of Reclaimed Water** – Promote the use of reclaimed wastewater for irrigating landscape medians, cemeteries, parks, golf courses, and other areas requiring large volumes of non-potable water.

### City of Oakland Equitable Climate Action Plan

The City of Oakland's Equitable Climate Action Plan (City of Oakland 2020) includes a "deconstruction requirement to reduce demolition waste from construction and renovation and facilitate material reuse. Regulate hauling and processing of construction and demolition debris to ensure that salvageable materials are identified and removed for reuse instead of being recycled or disposed to landfill."

### City of San Leandro General Plan

The City of San Leandro's General Plan (2016) includes the following goals and policies related to water conservation, waste reduction, community services, and facilities:

- **Goal OSC-7**: Promote recycling, water conservation, green building, and other programs which reduce greenhouse gas (GHG) emissions and create a more sustainable environment.
    - Policy OSC-7.1: Recycling - Actively promote recycling, composting, and other programs that reduce the amount of solid waste requiring disposal in landfills.
    - Policy OSC-7.2: Water Conservation - Promote the efficient use of existing water supplies through a variety of water conservation measures, including the use of recycled water for landscaping.
    - Policy OSC-7.3 Drought-Tolerant Landscaping - Encourage the use of native vegetation and Bay-friendly landscaping and enforce the California Department of Water Resources MWELO.

  - Policy OSC-7.4 Development Standards. Maintain local planning and building standards that require the efficient use of water through such measures as low-flow plumbing fixtures and water-saving appliances. Require water conservation measures as a condition of approval for major developments.

- **Goal CSF-6**: Ensure that local water, sewer, storm drainage, solid waste, energy, and telecommunications facilities are well maintained; improvements meet existing and future needs; and land use decisions are contingent on the adequacy and maintenance of such facilities.
  - Policy CSF-6.1: Development Impacts - Permit new development only when infrastructure and utilities can be provided to that development without diminishing the quality of service provided to the rest of the City.
  - Policy CSF-6.2: Fair Share Costs - Require future development to pay its fair share of the cost of improving the water, sewer, storm drainage, and other infrastructure systems needed to serve that development. Development impact fees, development agreements, and other appropriate forms of mitigation should be used to cover the costs of upgrading or expanding public infrastructure.
  - Policy CSF-6.3: Coordination - Coordinate local infrastructure planning with East Bay Municipal Utility District (EBMUD), the Oro Loma Sanitary District (OLSD), Alameda County, and other service providers to ensure that infrastructure remains adequate to serve existing and planned development.
  - Policy CSF-6.4: Wastewater Collection and Treatment - Maintain efficient, environmentally sound, and cost-effective wastewater collection and treatment services in San Leandro.
  - Policy CSF-6.5: Capacity - Maintain adequate capacity at the San Leandro wastewater treatment plant to accommodate projected levels of growth within the service area and encourage the OLSD to do the same. Support efforts to maintain and/or improve the high quality of treated effluent at both plants and increase the feasibility and cost-effectiveness of using recycled wastewater for non-potable purposes.
  - Policy CSF-6.7: Storm Drainage - Require storm drainage improvements for new development which ensure that stormwater runoff is adequately handled both on-site and off-site. Such regulations should fully implement state and federal clean water requirements. The city will also support legislation to increase funding for local storm drainage improvements, including improvements aimed at water quality.

## City of San Leandro Zoning Code Chapter 4.16 Landscape Requirements

The City of San Leandro adopted a Water Efficient Landscape Ordinance in 2010, including provisions to reduce water use and water waste. The ordinance applies to any single-family or multi-family residential, public, institutional, or commercial project that requires a permit, plan check or design review from the local reviewing agency and meets one of the following size thresholds:

- New construction projects with a total landscape area greater than 500 square feet
- Rehabilitations of existing landscape with a total landscape area greater than 2,500 square feet

## City of San Leandro Climate Action Plan

The City of San Leandro Climate Action Plan (City of San Leandro 2021a) includes a Waste Reduction and Reuse Strategy (WR-2) with respect to C&D waste. It directs the City to explore opportunities to exceed State requirements for C&D materials by encouraging deconstruction and material reuse. One of the actions in the plan is to evaluate, and implement if feasible, a deconstruction requirement to reduce demolition waste from construction and renovation and facilitate material reuse.

## Eden Area Plan

The Eden Area consists of unincorporated land in western Alameda County between the cities of San Leandro and Hayward, and includes the communities of San Lorenzo, Ashland, and Cherryland. The Public Facilities and Services Element provides information and policy guidance to ensure provision of facilities and services in the Eden Area (Alameda County Community Development Agency 2010). Goals and policies related to utilities and services are provided below.

- **Goal PF-8:** Reduce the volume of solid waste generated in the Eden Area through reduction, recycling, and resource conservation.
    - Policy P1. The County should continue to work actively with the ACWMA to reduce the volume of solid waste generated in the Eden Area.
    - Policy P2. The County shall strive to meet or exceed the goals for reducing, recycling and safely storing waste stated in the Alameda County Countywide Integrated Waste Management Plan.
    - Policy P3. The County shall encourage local businesses to expand their recycling efforts and to reduce packaging of products manufactured in the Eden Area.
    - Policy P4. Public buildings shall be designed or improved with on-site storage facilities for solid waste and recyclable materials.
    - Policy P5. The salvage and reuse of C&D materials and debris shall be encouraged at all construction projects in the Eden Area.
    - Policy P7. The County should work with residents, businesses and other members of the community, including architects, builders and contractors, to implement the County's Green Building Ordinance for residential and non-residential projects.
- **Goal PF-9:** Ensure sufficient water supplies and facilities to serve the residents of the Eden Area in an efficient and financially-sound manner.
    - Policy P1. The County shall support the efficient use of water through such means as conservation and recycling, and shall encourage the development of water recycling facilities to help meet the needs in the Eden Area.

  - Policy P2. The approval of new development shall be conditional on the availability of sufficient water for the project. Existing conditions should be considered in determining water availability.
  - Policy P3. Continue to support EBMUD's water conservation incentive and consumer outreach programs through partnerships and advocacy.
  - Policy P4. The County shall encourage the efficient use of water for non-residential landscape irrigation by supporting the use of recycled water.
  - Policy P5. The County shall require that new development meet the Landscape Water Conservation Guidelines adopted by the Alameda County Board of Supervisors as a condition of permit approval.
  - Policy P6. The County shall work with EBMUD to ensure effective management and long-term allocation of water resources, to develop a contingency plan for potential short-term water shortages and to develop uniform water conservation programs.
  - Policy P7. The County shall maintain regular communication with EBMUD and the HWS about upcoming street improvement projects and shall provide the Districts the opportunity to combine water service improvements with roadway improvements to minimize costs and reduce disruption to traffic.
  - Policy P8. The County shall identify opportunities to conserve water in public buildings in the Eden Area.
  - Policy P9. The County shall strive to balance water supplies for existing residences with demands of new development.

- **Goal PF-10:** Encourage the collection, treatment, and disposal of wastewater in a safe, sanitary, and environmentally acceptable manner.
  - Policy P1. The approval of new development shall be conditional on the availability of adequate, long-term capacity of wastewater treatment, conveyance and disposal sufficient to service the proposed development.
  - Policy P2. To the greatest extent feasible, upgrades to wastewater conveyance systems shall not disrupt the quality of life for Eden Area residents by significantly increasing noise, air pollution or traffic congestion.
  - Policy P3. All new development shall demonstrate to the County that the downstream sanitary sewer system is adequately sized and has sufficient capacity to accommodate anticipated sewage flows. If the downstream mains are found to be inadequate, the developer shall provide additional facilities to accept the additional sewage expected to be generated by the development.
  - Policy P4. The County shall ensure that OLSD maintains an up-to date, adequate plan and infrastructure for the delivery of wastewater collection, treatment and disposal in the Eden Area.
  - Policy P5. The County should encourage OLSD to find opportunities to expand the use of recycled water for industrial and irrigation purposes.

- **Goal PF-11:** Collect, store, and dispose of stormwater in ways that are safe, sanitary, and environmentally acceptable.
    - Policy P1. Stormwater infrastructure shall be maintained in good condition.
    - Policy P2. New development projects should be designed to preserve permeable surfaces, minimize the amount of impervious surface and reduce stormwater impacts. Specific strategies that should be considered include permeable paving materials, green roofs and swales.
    - Policy P3. Local storm drainage improvements should be designed to carry appropriate design-year flows resulting from build out of the General Plan.
    - Policy P4. The stormwater collection system for the Eden Area should be planned and managed in a logical, timely and appropriate manner.
    - Policy P5. Design of storm drainage facilities shall be consistent with the Stormwater Quality Management Plan (SQMP) and National Pollutant Discharge Elimination System requirements.
    - Policy P6. A watershed management approach should be used in addressing, planning and managing stormwater issues.
    - Policy P7. Natural or nonstructural stormwater drainage systems shall be encouraged to preserve and enhance the natural features of the Eden Area.
    - Policy P8. Installation or repair of stormwater collection systems should occur concurrently with the repair of roadways to maximize efficiency.
    - Policy P9. The County shall apply the Alameda County Clean Water Program's conditions of approval as development standards for new construction.
    - Policy P10. The County shall protect surface and groundwater resources by implementing the water quality policies in the County-wide Resource and Conservation , Open Space and Agricultural Element.
    - Policy P12. The County shall encourage new development to incorporate the measures contained in the Bay Friendly-Landscaping guidance document developed by StopWaste.org.

## City of Hayward 2040 General Plan

The City of Hayward's General Plan (2014) includes the following goals and policies related to water conservation, solid waste reduction, utilities, and communications:

- **Goal NR-6**: Improve overall water quality by protecting surface and groundwater sources, restoring creeks and rivers to their natural state, and conserving water resources.
    - Policy NR-6.9: Water Conservation - The City shall require water customers to actively conserve water year-round, and especially during drought years.
    - Policy NR-6.10: Water Recycling - The City shall support efforts by the regional water provider to increase water recycling by residents, businesses, non-profits,

industries, and developers, including identifying methods for water recycling and rainwater catchment for indoor and landscape uses in new development.

- Policy NR-6.11: Reclaimed Water Usage - The City shall take an active role in increasing the use of reclaimed water and educating the community about the methods of safe collection and benefits of using reclaimed water.
- Policy NR-6.13: Water Recycling Program Advocacy - The City shall coordinate with EBMUD and the Hayward Area Recreation and Park District (HARD) to advance water recycling programs, including using treated wastewater to irrigate parks, golf courses, and roadway landscaping and encouraging rainwater catchment system-wide and greywater usage techniques in new buildings.
- Policy NR-6.14: Native and Drought-Tolerant Landscaping - The City shall use native or drought-tolerant vegetation in the landscaping of all public facilities.
- Policy NR-6.16: Landscape Ordinance Compliance - The City shall continue to implement the Bay-Friendly Water Efficient Landscape Ordinance.

- **Goal PFS-3**: Maintain a level of service in the City's water system that meets the needs of existing and future development while improving water system efficiency.
  - Policy PFS-3.2: UWMP - The City shall maintain and implement the UWMP, including water conservation strategies and programs, as required by the Water Management Planning Act.
  - Policy PFS-3.13: New Development - The City shall ensure that water supply capacity is in place prior to granting building permits for new development.
  - Policy PFS-3.14: Water Conservation Standards - The City shall comply with provisions of the State's 20x2020 Water Conservation Plan.
  - Policy PFS-3.15: Water Conservation Programs - The City shall implement cost effective conservation strategies and programs that increase water use efficiency, including providing incentives for adoption of water efficiency measures. Water conservation strategies may include a combination of financial incentives, legislative actions, and public education.
  - Policy PFS-3.16: Recycled Water - The City shall increase use of recycled water where appropriate, cost effective, safe, and environmentally sustainable. The City shall work with regional partners to encourage expansion of recycled water infrastructure.
  - Policy PFS-3.17: Bay-Friendly Landscaping - The City shall promote landscaping techniques that use native and climate appropriate plants, sustainable design and maintenance, water-efficient irrigation systems, and yard clipping reduction practices.
- **Goal PFS-7**: Minimize the generation of solid waste, increase recycling, and provide for the collection and disposal of solid waste.

  - Policy PFS-7.4 Solid Waste Diversion - The City shall comply with State goals regarding diversion from landfill, and strive to comply with the provisions approved by the ACWMA.
  - Policy PFS-7.12: C&D Waste Recycling - The City shall require demolition, remodeling and major new development projects to salvage or recycle asphalt and concrete and all other non-hazardous C&D materials to the maximum extent practicable.

- **Goal PFS-8**: Ensure the provision of adequate gas and electric services to Hayward residents and businesses and ensure energy facilities are constructed in a fashion that minimizes their impacts on surrounding development and maximizes efficiency.
  - Policy PFS-8.5: Undergrounding New Utility Lines - The City shall require that all new utility lines constructed as part of new development projects are installed underground or, in the case of transformers, pad-mounted.
  - Policy PFS-8.6: Undergrounding Existing Utility Lines: The City shall encourage the undergrounding of existing overhead facilities.
- **Goal PFS-9**: Encourage state-of-the-art technology and telecommunications services for households, businesses, institutions, and public agencies throughout the city to connect Hayward residents to the city, nation, and world.
  - Policy PFS-9.3: Co-Location - The City shall encourage compatible co-location of telecommunications facilities and shall work with service providers to site telecommunications facilities on City-owned property and public ROWs.

## City of Hayward Recycled Water Ordinance

In December 2015, the City of Hayward adopted a Recycled Water Ordinance, which requires the use of recycled water for appropriate irrigation and industrial uses. The City reviews new developments for the potential to use recycled water and may require the use of recycled water as a condition of approval.

## City of Hayward Municipal Code Section 11-2.47 Prohibition of Wasteful Water Practices

The City of Hayward Municipal Code Section 11-2.47 prohibits the use of potable water for non-essential purposes, including flooding or runoff into gutters and streets, excessive irrigation, washing of buildings, sidewalks, driveways, or vehicles without a positive shut-off nozzle on the hose.

## City of Union City General Plan

The City of Union City's General Plan (2002a and 2002b) includes the following goals and policies related to provision of public facilities.

- **Goal PF-A.1:** To ensure the timely development of public facilities and the maintenance of adequate service levels for these facilities to meet the needs of existing and future city residents.

- Policy PF-A.1.1: The City shall ensure through the development review process that adequate public facilities and services are available to serve new development when required. The City shall not approve new development where existing facilities are inadequate to support the project unless the applicant can demonstrate that all necessary public facilities will be installed or adequately financed and maintained (through fees, special taxes, assessments, or other mean).
- Policy PF-A.1.2: The City shall require all new development and major modifications to existing development to construct necessary on-site infrastructure to serve the project in accordance with City standards.
- Policy PF-A.1.4: The City shall ensure that the provision of streets, sewer, water, drainage and other needed infrastructure is coordinated in a logical manner between adjacent developments so as to reduce design, construction and maintenance costs.
- Policy PF-A.1.5: The City shall ensure through the development review process that public facilities and infrastructure are designed and constructed to meet ultimate capacity needs, pursuant to a master plan, to avoid the need for costly retrofitting. This does not apply to any infrastructure requirements of the ACWD and the Union Sanitary District (USD).

- **Goal PF-B.1:** To ensure that adequate facility and service standards are achieved and maintained through the use of equitable funding methods.
  - Policy PF-B.1.3: The City shall require, to the extent legally possible, that new development pays the cost of providing new public facilities and services and/or the cost for upgrading all existing facilities that are used. Exceptions may be made when new development generates significant public benefits (e.g., low-income housing, significant primary wage earner employment) and/or when alternative sources of funding can be identified to offset foregone revenues.
  - Policy PF-B.1.5: The City shall require all new development or major modifications to existing development, to construct or provide a fair share contribution toward the construction of any off-site improvements necessary to off-set project impacts and/or support the project.
- **Goal PF-C.1:** To ensure that there will be a safe and reliable water supply sufficient to meet the future needs of the City.
  - Policy PF-C.1.1: The City shall coordinate its review of development proposals with the ACWD to ensure that new development can be adequately served by the District's water supply system.
  - Policy PF-C.1.3: The City shall only approve new development where an adequate public water supply and conveyance system exists or will be provided by the ACWD.
  - Policy PF-C.1.4: The City shall promote efficient water use and reduced water demand by:
    a. Requiring water-conserving design and equipment in new construction;

b. Encouraging water-conserving landscaping and other conservation measures;

c. Encouraging the retrofitting of existing development with water-conserving devices;

d. Providing public education programs;

e. Distributing outdoor lawn watering guidelines; and

f. Working with ACWD, promote water audit and leak detection programs.

- **Goal PF-D.1:** To ensure adequate wastewater collection, treatment, and disposal.
    - Policy PF-D.1.1 The City will coordinate its review of development proposals with the USD to ensure that new development can be adequately served by the sewage collection and treatment system.
    - Policy PF-D.1.2 The City shall only approve new development where it will be served by a public sewer system.
- **Goal PF-E.1:** To collect and dispose of stormwater in a manner that minimizes inconvenience to the public, minimizes potential water-related damage, and enhances the environment.
    - Policy PF-E.1.5 New development shall have surface drainage disposal accommodated in one of the following ways:
        a. Positive drainage to a City-approved storm drain, stream, creek, or other natural water course.
        b. On-site drainage that is retained within the development.
- **Goal PF-F.1:** To ensure the safe and efficient disposal or recycling of solid waste generated in Union City in an effort to protect the public health and safety and reduce impacts on landfills.
    - Policy PF-F.1.2 The City shall promote maximum use of solid waste reduction, recycling, composting, and environmentally-safe transformation of wastes and strive for an annual reduction in commercial and industrial waste disposal.
    - Policy PF-F.1.6 The City shall strive to maintain the diversion of 50 percent of all waste generated citywide for recycling and strive to increase the diversion of waste for recycling to 75 percent by 2010.
    - Policy PF-F.1.8 The City shall encourage the recycling of construction debris.

## Union City Climate Action Plan

The Union City Climate Action Plan was adopted in 2010 and identifies emission reduction strategies in the waste and water sectors. Strategies include supporting reducing water

consumption and increasing waste diversion. The plan includes a series of waste reduction policies designed to increase waste diversion, strengthen C&D recycling standards, expand outreach programs, and increase waste reduction in municipal facilities.

## Union City Green Building and Landscaping Practices, Municipal Code Chapter 15.76

The City of Union City adopted the Green Building and Landscaping Practices ordinance as part of the City's municipal code in March 2006. The ordinance provides requirements for green building and landscaping practices to be used in City-sponsored and public partnership projects through all aspects of a project, including design, construction, demolition, renovation, operation, and maintenance of buildings and landscaping in the city. The requirements are designed to reduce landfill waste, conserve natural resources, increase energy efficiency, lower costs associated with operation and maintenance, improve indoor air quality, and minimize impacts on the natural environment.

## City of Fremont General Plan

The City of Fremont's General Plan (2011) includes requirements for water efficiency and waste reduction. General Plan policies related to waste reduction and recycling include public facilities policies regarding increasing waste diversion and recycling and moving towards zero waste. This plan commits to meeting the 75 percent diversion/recycling commitment from Alameda County Measure D.

Goals and policies relevant to public utilities, waste reduction, and water efficiency are provided below.

- **Goal 7-4: Water Conservation** – A water conservation program with measurable results consistent with ACWD's UWMP and with the City's GHG reduction goals
    - Policy 7-4.1: Water Conservation - Maximize community water conservation.
    - Policy 7-4.2: Reclaimed Water - Encourage the use of reclaimed water for irrigation, industrial purposes and in City operations.
    - Policy 7-4.3: Water Conservation in City Operations - Maximize water conservation in City operations.
- **Goal 9-3: Water, Sewer and Flood Control** – Water, sewer and flood control systems that meet community needs and are efficient and environmentally friendly.
    - Policy 9-3.1: Long Range Planning - Work with the ACWD, USD, and ACFCD to encourage their long-range plans are consistent with the Fremont General Plan.
- **Goal 9-4: Gas and Electricity** – Natural gas and electric infrastructure that meet the needs of new development.
    - Policy 9-4.1: Planning Consistency - Work with PG&E to ensure that their long range plans are consistent with the Fremont General Plan and that infrastructure is sufficient to support new development.
    - Policy 9-4.2: Encourage PG&E to Upgrade Infrastructure

- **Goal 9-5: Communications Infrastructure** – High quality, inexpensive communications networks available to the community.
    - Policy 9-5-1: Free Wireless Internet (Wi-Fi) - Encourage provision of free wireless internet services.
    - Policy 9-5-2: Enhanced Fiber Optic Network - Encourage upgrades to local fiber optic networks.
    - Policy 9-5-3: Pre-Wiring for Communications- Encourage developers to pre-wire new and remodeled residential and non-residential structures to accommodate emerging technologies (fiber optic, wireless, Ethernet, digital subscriber line, voice over internet protocol, and many others) to allow seamless communications citywide.
- **Goal 9-6: Solid Waste Diversion** – Waste diversion maximized with the long-term objective of eliminating landfill waste.
    - Policy 9-6.1: Increase Waste Diversion - Divert more of the City's solid waste stream to beneficial reuse, with a long-term objective of eliminating landfill waste.
    - Policy 9-6.2: Protect Public Health and Safety - Implement waste diversion programs that protect public health and safety and the environment.
    - Policy 9-6.3: Prioritize Waste Diversion Strategies - Implement waste diversion strategies in the following order, to promote the highest and best use of all materials: source reduction including redesign, reuse, recycling, organics processing, energy recovery and disposal in the landfill as the last option.
- **Goal 9-7: Waste-Handling Infrastructure** – Infrastructure that manages the City's waste in a cost-effective manner.
    - Policy 9-7.2: Require Development Projects to Provide for Waste Handling - Ensure all development projects provide adequate space, design and labeling for indoor and outdoor waste management supplies and equipment, such as trash enclosures.

## City of Fremont Climate Action Plan

The City of Fremont Climate Action Plan (2012) includes the following goals and policies related to solid waste and water efficiency.

- **Solid Waste Goal:** Reductions in GHG emissions achieved by decreasing the amount of solid waste sent to landfills through increased voluntary and mandatory recycling, composting, and other materials management strategies, and from methane gas capture and recovery.
    - Policy SW-A5: Increase the amount of C&D debris recycled from private-sector projects.
    - Policy SW-R1: Implement mandatory commercial recycling effective July 1, 2012, as required by the State of California and Alameda County Policy SW-A8: Increase recovery of organic materials from the commercial and residential sectors to 75 percent.

  - SW-A9: Increase recovery of recyclable materials from the commercial and residential sectors to 75 percent.
  - SW-A10: Increase recovery of organic materials from the commercial and residential sectors to 90 percent.
  - SW-A11: Increase recovery of recyclable materials from the commercial and residential sectors to 90 percent.

- **Municipal Services and Operations Goal:** Increased diversion of solid waste from landfills and increased use of recycled-content products.
  - Policy M11: Increase C&D debris recycled from public-sector projects.
  - M18: Continue implementing the BFL requirements for civic improvement projects which include landscaped areas larger than 10,000 square feet.
- **Water Goal:** Reduce GHG emissions through water conservation and efficient use of water resources, collaborative efforts with other public agencies, outreach, and educational efforts to promote behavior change, and creating the conditions that support people's ability to make choices which support this goal.
  - Policy W-C1: Continue to 9implement the WELO for private development.
  - W-P1: Encourage use of on-site recycled water systems, (also known as 'greywater systems' or "laundry to landscape') consistent with all environmental and health and safety regulations and ACWD policies and requirements.
  - W-C4: Collaborate with ACWD and USD to support the use of recycled water.

## City of Newark General Plan

The City of Newark's General Plan (2013) includes provisions for water conservation, waste management, and infrastructure. The following goals and policies are specified in the plan.

- **Water Resources Goal CS-3:** Conserve and enhance Newark's water resources.
  - Policy CS-3.1: Protection of Water Resources. Ensure that land use decisions consider the availability of water for domestic and non-domestic uses, potential impacts on groundwater quality and groundwater recharge capacity, and potential off-site impacts on water quality.
  - Policy CS-3.2: Water Conservation Standards. Promote water conservation through development standards, building requirements, irrigation requirements, landscape design guidelines, and other applicable City policies and programs
  - Policy CS-3.9: Reclaimed or Non-Potable Water. Plan for the expanded use of non-potable groundwater and the eventual use of reclaimed water to supplement the local water supply and reduce the necessity of using potable water for landscaping, irrigation, and non-domestic purposes.
- **Solid Waste Management Goal CS-8:** Reduce landfilled waste through recycling, composting, and source reduction.

  - Policy CS- 8.1: Recycling Program. Actively promote recycling, composting, and waste reduction in order to minimize the amount of waste requiring disposal in landfills.
  - Policy CS- 8.3: Maximizing Reuse. Manage solid waste in a way that maximizes the reclamation and reuse of resources. The City encourages the use of salvaged and recycled materials, rather than the disposal of such materials in landfills.
  - Policy CS- 8.4: Increasing Commercial, Industrial, and Multi-Family Recycling. Increase recycling rates by the commercial, industrial, and multi-family residential sectors, including apartment buildings, offices, restaurants, hotels, retail stores, and other businesses. Retail centers and multifamily residential development should be required to provide onsite shared collection bins for recyclable waste.

- **Infrastructure Goal CSF-5:** Provide safe, reliable, and efficiently operated infrastructure which meets Newark's long-term water, sewer, and stormwater management needs.
  - Policy CSF-5.1: Water Supply. Work with the ACWD to ensure a stable supply of clean, safe drinking water for existing and future development in Newark. The City of Newark will support the ACWD in its efforts to develop water management plans, acquire water for future development, ensure that the potable water supply meets all state and federal quality standards, and develop water infrastructure to serve new development areas.
  - Policy CSF-5.3: Reclaimed and/or Non-Potable Water. Continue to work with the ACWD and the USD in the development of a reclaimed water program. The use of reclaimed or non-potable water sources should be encouraged in order to reduce the use of domestic water for landscaping and other non-potable uses.
  - Policy CSF-5.4: Flood Control. Coordinate with Alameda County Flood Control and Water Conservation District (ACFCWCD) and Alameda County Public Works to ensure that stormwater runoff is managed in a way that reduces flood hazards.
  - Policy CSF-5.5: Drainage within New Development. Ensure that new development provides drainage and flood protection improvements which reduce on-site and downstream hazards such as ponding, flooding, and erosion. New development areas should be designed to minimize impervious surfaces in order to reduce associated site runoff and maximize groundwater recharge.
    - Green Infrastructure. Encourage sustainable, environmentally friendly practices by water, sewer, drainage, and energy utility service providers. The City supports “greener” approaches to infrastructure design. Storm drain catch basins should be designed to capture sediment and debris and should reduce the transport of pollutants to the Bay. Stormwater management strategies should direct water away from buildings and foundations and maintain natural hydrological functions to the greatest extent possible.
  - Policy CSF-5.6: Involving Utility Agencies in Development Review. Engage local water, sewer, and stormwater service providers in the review of new development projects to ensure that infrastructure, including water supply and wastewater

treatment capacity, is available or will be made available to meet development-related needs.

- Policy CSF-5.7: Infrastructure Cost. Ensure that the cost of infrastructure improvements required for new development is the financial responsibility of that development and is allocated based on each project's expected impacts.
- Policy CSF-5.8: Visual Impact of Utilities. Minimize the visual impact of public utilities such as transmission lines and wireless communication facilities. Utility lines along new and redeveloped rights-of-way should be placed underground wherever feasible.
- Policy CSF-5.9: Design of Utility Facilities. Coordinate with utilities in the design of utility facilities such as traffic control cabinets, utility boxes, substations, pump facilities, and switching buildings.

## City of Newark Climate Action Plan Initial Framework

The City of Newark's Climate Action Plan Initial Framework (2010) includes the following actions for the business community:

- **Business Community Action Item 5.2: Increase Commercial and Business Recycling, Composting and Waste Reduction**. Action Item 5.2.1 is to share City's goal of 75 percent waste reduction by 2015 with business community; request their support.
- **Business Community Action Item 5.7: Water conservation**. Action Item 5.7.2 is to Introduce Bay Friendly Landscaping and other successful programs to businesses.

## Water Efficient Landscaping

The cities of Oakland (Ordinance 1295), Hayward (Municipal Code Article 12), Union City (Municipal Code Chapter 18.112), and Fremont (City Council Resolution 2012-34) have enacted measures to require use of water efficient and Bay Friendly Landscaping. These measures would apply to landscaping within the City ROW, including at at-grade crossings. These measures are similar to California's MWELO and include the following general practices:

- Use of low-water, native plants;
- Restrictions on the use of turf and invasive species;
- Adopting the Bay-Friendly Landscape Guidelines, Bay-Friendly Landscape Scorecards and Bay-Friendly Gardening Guide as guidelines;
- Water conservation; and
- Utilizing the whole systems/watershed approach to design and maintenance of landscaping to support the integrity of the San Francisco Bay watershed through best practices.

## Construction and Demolition Recycling Ordinances

The cities of Oakland, San Leandro, Hayward, Union City, Fremont, as well as the State of California have enacted measures to require recycling of C&D debris, which would apply to the proposed Project. These cities generally require recycling 100 percent of all asphalt and concrete materials,

100 percent of landscaping debris, and 50–65 percent of all other materials. A waste reduction and recycling plan that shows how the project would salvage and/or recycle materials is generally required (City of Oakland 2021b; City of San Leandro 2021b; City of Hayward 2021b; City of Union City 2021a; City of Fremont 2018c, 2018d).

### 3.20.2.5 Consistency with Plans, Policies, and Regulations

CEQA requires a discussion of inconsistencies or conflicts between a proposed undertaking and federal, state, regional, or local plans and laws. Accordingly, this section describes the consistency of the proposed Project with federal, state, regional, and local plans, policies, and regulations to provide planning context. Consistency with solid waste laws is addressed in Section 3.20.6.5.

#### Federal Plans, Policies, and Regulations

The proposed Project would be consistent with federal plans, policies, and regulations. Pipelines crossed by the Project would be treated in a manner consistent with the Norman Y. Mineta Act. This Project would notify an operator of proposed demolition, excavation, tunneling, or construction near or affecting a pipeline (**BMP Utility UT-1: Utility Verification and Coordination with Utility Providers and CPUC**). This includes identifying pipelines that may be affected by such activities and identifying any hazards that may affect a pipeline. The Project would comply with all FERC regulations.

#### State Plans, Policies, and Regulations

The proposed Project would be consistent with state plans, policies, and regulations with respect to utilities. In compliance with the Protection of Underground Infrastructure code, CCJPA or the construction contractor would notify the regional notification center, and pothole for utilities prior to excavation (BMP UT-1). The proposed Project may involve the relocation and protection of existing electrical and underground utilities. Overhead line construction would comply with CPUC General Order 95. The proposed Project does not involve modifying or altering existing (or installing new) major power or transmission lines (as defined above); they are to be protected in place. CCJPA would coordinate relocations and reinstallation of utilities in cooperation with utilities, so as to minimize utility service impacts to customers, and comply with General Order 131-D as needed during final design (BMP UT-1). The modification, alteration, or addition of distribution lines (i.e., electrical lines less than 60 kV) is not anticipated to require a certificate of public convenience and necessity or permit to construct.

The proposed Project would be consistent with state plans, policies, and regulations with respect to water efficiency and service systems. ACWD has met its 2015 and 2020 SB X7-7 targets. With operational water use limited to Ardenwood Station and implementation of **BMP UT-2: Minimize Potable Water Use** during construction, the proposed Project would maintain ACWD consistency with SB X7-7. Operation of the proposed Project, with the closure of Hayward Station and opening of Ardenwood Station, would not affect per capita water usage and would therefore comply with the water use standards required by AB 1668 and SB 606. Implementation of **BMP UT-3: Water Efficient Landscaping** would ensure Project consistency with the California MWELO. Project use of recycled water, acquired from local water districts, would comply with the California Water Recycling Criteria. The proposed Project is not expected to affect per capita water use, and therefore is consistent with the 20x2020 Water Conservation Plan.

### Local Plans, Policies, and Regulations

The proposed Project would comply with local plans, policies, and regulations with respect to water conservation, use of recycled water, and water efficient and Bay Friendly Landscaping with implementation of BMP UT-3 as part of Project operation and BMP UT-2 during construction. The only operational requirements for water use would be within the City of Fremont for the proposed Ardenwood Station. Although currently recycled water is only available from East Bay Municipal Utilities District (EBMUD, not from the Hayward Water System [HWS] or ACWD), the Project would coordinate with ACWD and HWS if recycled water becomes available for construction in the future.

The proposed Project design includes new utilities required to support the proposed Project, including stormwater treatment, water, sewer, electrical, and flood control. No sewer or wastewater treatment is required by the proposed Project as Ardenwood Station does not include restroom facilities. BMP UT-1 would ensure that existing utilities are protected or relocated in kind. Undergrounding of new or existing overhead utilities would be considered and coordinated with the utility providers, and within public roadway ROW, with municipalities. **BMP UT-4: Public Notification** would notify the public of any service disruptions and would avoid service disruptions to critical facilities. The proposed Project would include storm drainage improvements such that stormwater runoff is managed both on-site and off-site. The proposed Project would not conflict with telecommunications or purple pipe (for recycle water distribution) policies. No natural gas infrastructure is needed for the proposed Project.

CCJPA, as the lead agency sponsoring the rail improvements, must comply with federal, state, and local laws and regulations, and secure applicable federal and state permits prior to initiating construction on the proposed Project. Therefore, there would be no inconsistencies between the proposed Project and these federal, state, and local laws and regulations.

## 3.20.3 Methods for Evaluating Environmental Impacts

This section defines the RSA for utilities and service systems and describes the methods used to analyze the impacts on utilities and service systems within the RSA.

### 3.20.3.1 Resource Study Area

As defined in Section 3.1, Introduction, RSAs are the geographic boundaries within which the environmental investigations specific to each resource topic were conducted.

For utilities and service systems, the RSA is the areal extent where the proposed Project could directly or indirectly impact utilities and service systems. To account for differences in the geographies of different types of utilities, impacts to utilities and service systems is broken into three RSAs: utility RSA, solid waste RSA, and hazardous waste RSA. **Table 3.20-1** describes the RSA boundaries. Utility and solid waste RSAs are shown in Figure 3.20-1. The hazardous waste RSA is shown in Figure 3.20-2.

The utility RSA includes the area where the proposed Project could directly impact all non-waste related utilities, i.e., the Project Footprint. The RSA also includes areas where the proposed Project could indirectly impact utility infrastructure (beyond the Project Footprint), including areas where utility relocations, use of utility facilities necessary for proposed Project construction and operation, and construction of electrical interconnections with local utilities would occur. To capture the

indirect impacts of the proposed Project, the utility RSA includes the cities and flood control district zones crossed by the proposed Project as well as water district service areas.

The solid waste RSA is the extent of Alameda County. Solid waste is disposed of at the county facilities and therefore indirect impacts should be considered at a county-level. There are no licensed hazardous waste disposal facilities in Alameda County. There are two licensed hazardous waste disposal facilities in California, Buttonwillow in Kern County and Kettleman Hills in Kings County. Therefore, the RSA for hazardous waste extends to Kern and Kings Counties, where the proposed Project would dispose of hazardous waste.

**Table 3.20-1. Definition of Public Utilities RSA**

| RSA Name | Type | RSA Definition |
|---|---|---|
| Utility RSA | Utility-owned properties and facilities including major public utility infrastructure and facilities required for connecting to the proposed Project. Facilities could include substations; easements; overhead utility lines (e.g., telephone, cable television); and buried utility lines (e.g., electricity, water, wastewater, stormwater, petroleum product lines). | Cities of Oakland, San Leandro, Hayward, Fremont, Newark, and Union City, unincorporated San Lorenzo, as well as the service area for utility providers. |
| Solid Waste RSA | Solid waste management facilities | Alameda County |
| Hazardous Waste RSA | Hazardous waste management facilities | Alameda, Kings, and Kern counties |

**Source: CCJPA 2022**

**Figure 3.20-1: Utility and Solid Waste RSA**

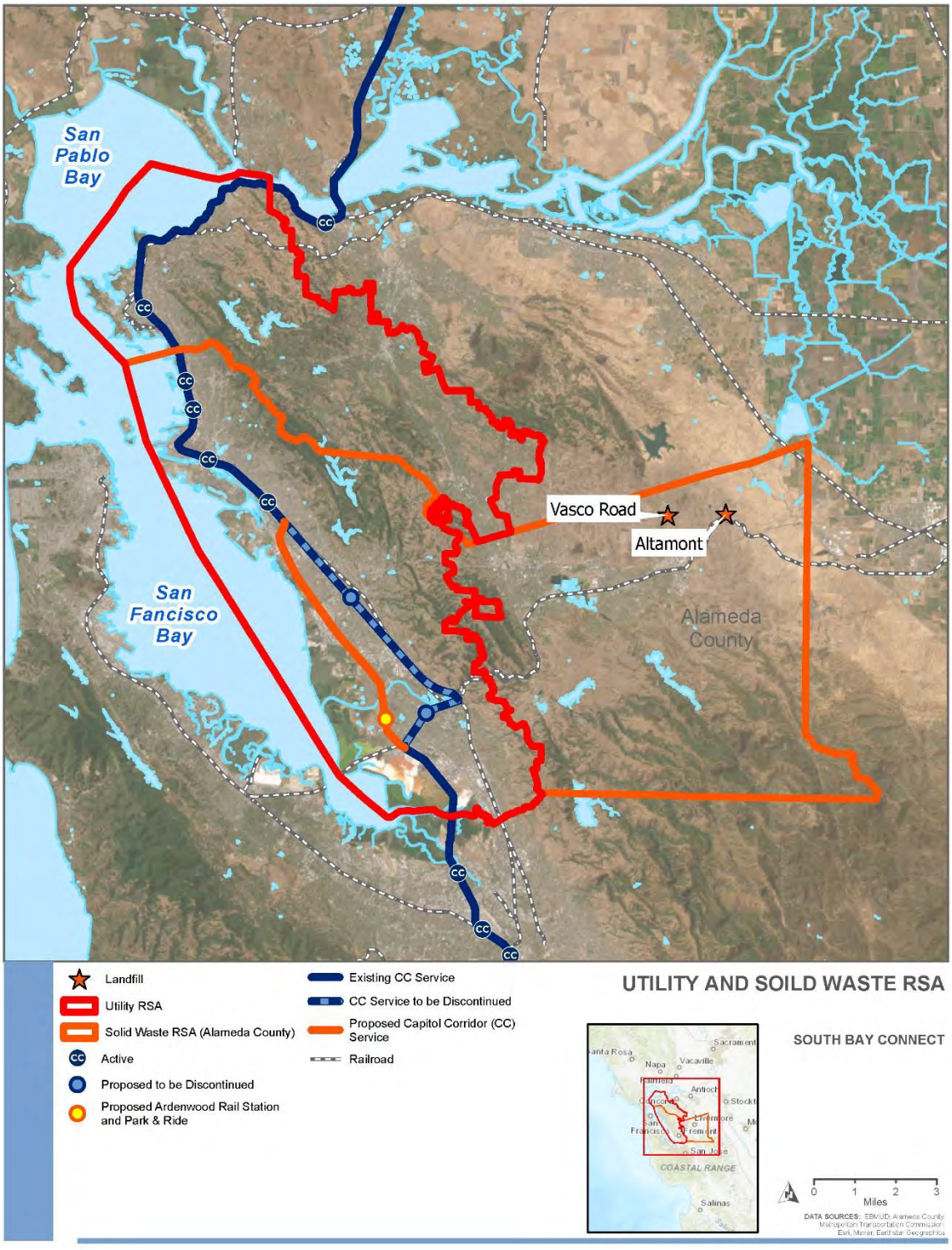
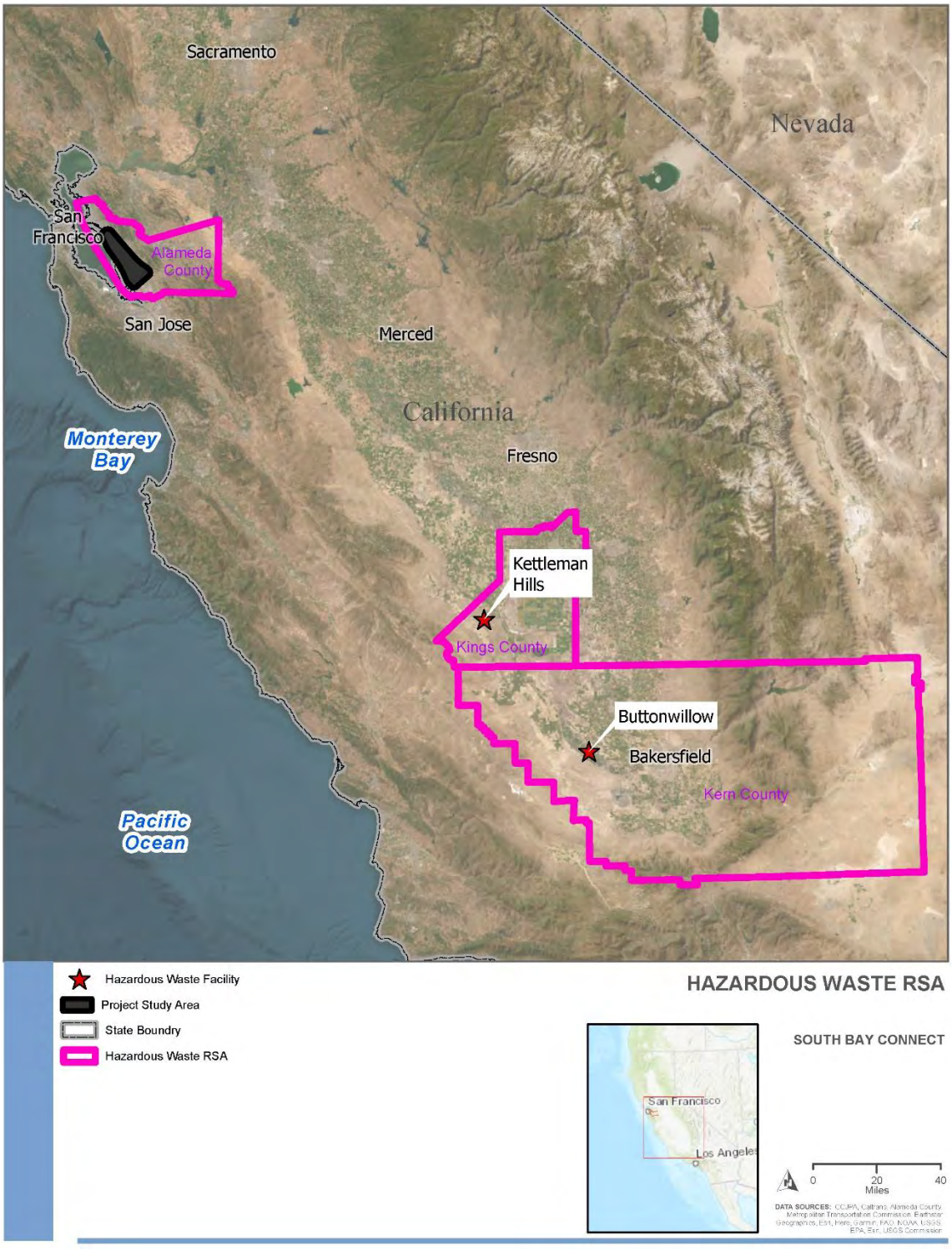


**Figure 3.20-2: Hazardous Waste RSA**



## 3.20.3.2 Data Sources

### Construction

Construction water use was estimated based off the types of equipment that would be needed. Project engineers provided the number of days that water trucks and street sweepers are estimated to be used for proposed Project construction, by phase of construction. Construction is currently expected to occur over three years. Water trucks would provide all of the on-site water use during construction, except for street sweepers. Water trucks would be used for stormwater BMPs (such as erosion and dust control), compaction during grading and earthwork, as well as supplying water for other construction uses. Major concrete production would be produced off site at existing, permitted, batch plants and is not included in water use estimates. Water trucks were assumed to have 4,000-gallon tanks, which may be refilled up to four times per day. Street sweepers were assumed to have 500-gallon tanks, which would be refilled twice per day.

For solid waste production, Project engineers provided estimates for soil export and demolition quantities based on the type of work and volume of excavated material. The design of the proposed Project was also reviewed to qualitatively assesses what construction activities could produce hazardous waste and the types of hazardous waste that could be produced.

Project engineers analyzed the potential for the proposed Project to conflict with major existing utilities based on information provided by utility companies regarding the types and locations of the existing utilities. For the purposes of this analysis, minor utility impacts were not included as impacts to those facilities would be minimal and would not cause significant environmental effects. In addition, it is assumed that major utility lines crossing railroad tracks perpendicularly were designed to meet the railroad loads and would not require any additional protection measures. No field surveys were conducted to verify the locations of existing utilities. Utilities would be either protected in place (PIP) or relocated, based on geometric, structural, operational, and other considerations. Relocation would be performed on specific utilities if they cannot be sufficiently protected during construction and/or operation.

### Operations

Types and amounts of utility usage at the proposed Ardenwood Station was estimated based on other comparable facilities. Average electrical utility usage was based on estimates from CCJPA's Hayward Station. The proposed Ardenwood Station would have surface parking (200 spaces), two pedestrian overcrossings, bike storage and ticket vending machines, passenger display information system, and would also be unstaffed. Electrical usage at the proposed Ardenwood Station is anticipated to be comparable to that of Hayward Station for the purposes of this analysis. . Water usage was based off facilities proposed at Ardenwood Station. Gas and wastewater treatment would not be required at the proposed Ardenwood Station.

## 3.20.3.3 Related Resources

## 3.20.3.4 CEQA Thresholds

To satisfy CEQA requirements, utilities and service systems impacts were analyzed in accordance with Appendix G of the CEQA Guidelines. According to the CEQA Guidelines, CCR, Title 14, Section 15002(g), "a significant effect on the environment is defined as a substantial adverse change in the

physical conditions which exist in the area affected by the proposed project." As stated in CEQA Guidelines Section 15064(b)(1), the significance of an activity may vary with the setting. The impact analysis identifies and analyzes construction (short-term) and operation (long-term) impacts, as well as direct and indirect impacts (see PRC Section 21065). The proposed Project would have significant utilities and service systems impacts under CEQA if it would:

a. Require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects;

b. Have sufficient water supplies available to serve the 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; or

e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste.

# 3.20.4 Affected Environment

## 3.20.4.1 Environmental Setting

### Regional and Local Setting

The following section describes existing utility and service systems and their providers within the utility, solid waste, and hazardous waste RSAs.

### Electrical, Natural Gas, Petroleum, and Fuel

Multiple utilities provide electric, gas, petroleum, oil, and fuel service within the RSA (**Table 3.20-2**). The Pacific Gas and Electric Company (PG&E) provides electrical and natural gas service to the utility RSA (PG&E 2023). PG&E provides electricity to much of Northern California, from approximately Bakersfield to the California-Oregon border. The company generates electricity in facilities within several hundred miles of the points of use, and their generation portfolio includes hydroelectric facilities, a nuclear power plant, and a natural gas-fired power plant (California Energy Commission 2015). PG&E operates and maintains their own distribution system, including three major transmission lines running west to east across Alameda County to substations in Hayward and Fremont (City of Hayward 2014).

Multiple Kinder Morgan oil and natural gas pipelines cross the Coast Subdivision. Kinder Morgan is a large energy infrastructure company that owns or operates approximately 83,000 miles of pipelines and 147 terminals (Kinder Morgan 2023). Bay Area lines within the northern region of Kinder Morgan operations originate at the Richmond, Concord, and Amorco stations, with destinations in Bradshaw, Brisbane, Chico, Fresno, Richmond, Sacramento, San Jose, Stockton, the Oakland Airport, and the San Francisco Airport (Kinder Morgan 2019).

Ava Community Energy (formerly East Bay Community Energy) is a not-for-profit public agency started in 2018 that governs this Community Choice Energy service within Alameda County. Ava purchases wind, solar, and hydropower, which is distributed to customers by PG&E. Ava currently serves the following cities of within the RSA: Fremont, Hayward, Newark, Oakland, San Leandro, Union City, as well as unincorporated areas of Alameda County (Ava 2021).

**Table 3.20-2. Summary of Electrical and Natural Gas Providers in the Utility RSA**

| County/City Location | Provider |
|---|---|
| **Electrical and Natural Gas** | |
| **Cities of Fremont, Hayward, Oakland, Newark, San Leandro, and Union City.** | PG&E, Kinder Morgan, Ava |
| **San Lorenzo (Unincorporated Alameda County)** | PG&E, Kinder Morgan, Ava |
| **Petroleum and Fuel Pipelines** | |
| **Cities of Oakland and Fremont** | Kinder Morgan |

**Source: Ava (2021), Kinder Morgan (2019), and PG&E (2022).**

## Water (Potable and Recycled)

Multiple utilities provide potable and recycled water within the RSA (**Table 3.20-3**). Potable water is water that is safe to drink or for use in food preparation. Non-potable recycled water is produced from treated wastewater and can be used for landscape irrigation and industrial uses. Advanced water treatment facilities can recycle water that is clean enough to be used for potable purposes (potable reuse, ACWD 2021). The use of recycled water, rather than potable water, is important for reducing the need for potable water supplies. A summary of the recycled water infrastructure is included in the following sections.

**Table 3.20-3. Summary of Water Providers in the Utility RSA**

| County/City Location | Provider |
|---|---|
| **Water Supply (Potable and Recycled)** | |
| **Oakland** | EBMUD |
| **San Leandro** | EBMUD |
| **San Lorenzo (Unincorporated Alameda County)** | EBMUD |
| **Hayward** | HWS, EBMUD, ACWD |

**Table 3.20-3. Summary of Water Providers in the Utility RSA**

| County/City Location | Provider |
|---|---|
| **Union City** | ACWD |
| **Fremont** | ACWD |
| **Newark** | ACWD |

**Source: ACWD (2021), City of Hayward (2020a), EBMUD (2023a).**
**Notes: EBMUD = East Bay Municipal Utility District, HWS = Haward Water system, ACWD = Alameda County Water District.**

### East Bay Municipal Utility District

EBMUD's service area covers some 332 square miles in Alameda and Contra Costa counties (EBMUD 2023c). EBMUD provides drinking water to the northern cities in the utility RSA, Oakland, San Leandro, the unincorporated community of San Lorenzo, and part of Hayward. The primary water sources for EBMUD are the Mokelumne River and local runoff. Water is imported primarily from the EBMUD's Pardee Reservoir on the Mokelumne River in the Sierra Nevada mountain range, 90 miles east of the Bay Area. EBMUD has water rights for up to 325 million gallons daily (MGD) from the Mokelumne River watershed. Pardee Reservoir has a capacity of 64,502 million gallons (MG), which is equivalent to a 10-month supply for EBMUD's 1.4 million water customers. Ten miles downstream from Pardee Reservoir, Camanche Reservoir stores water to meet the needs of fisheries, riparian habitat, and downstream water-rights holders. Local runoff is stored in several East Bay reservoirs to assure emergency supplies are available locally. In a year of normal precipitation, EBMUD uses an average of 21 MGD of water from local watershed runoff. EBMUD can store up to 49,421 MG of water in the East Bay reservoirs. In dry years (where water availability is comparable to the most severe single-year drought), enough water can be lost through evaporation to completely offset any water gained from local runoff. Typically, EBMUD stores a six-month emergency supply in local reservoirs.

EBMUD now also has a contract with the U.S. Bureau of Reclamation for a dry year water transfers from the Sacramento River. When needed in dry years, up to 100 MGD can be conveyed through the Freeport Regional Water Facility jointly owned by EBMUD and Sacramento County (EBMUD 2023c). In 2014 and 2015, EBMUD purchased short-term water transfers to meet customer demand (EBMUD 2023a).

EBMUD infrastructure has the capability to provide over nine MGD of recycled water (EBMUD 2019a). To help save drinking water, EBMUD provides recycled water at no charge for construction and other non-potable purposes. Recycled water for trucks is available at EBMUD's main wastewater treatment plant in west Oakland (2020 Wake Avenue) and may only be used within EBMUD's service area. The Recycled Water Truck Program supplies clean, safe, disinfected recycled water for allowed uses such as dust control, soil compaction, power washing, decorative fountains, landscape irrigation, street washing and sewer flushing (EBMUD 2023b). EBMUD has a goal of increasing recycled water production to 20 MGD by 2040 (EBMUD 2019a). EBMUDs UWMP identified 8.3 MGD of recycled water demand. EBMUDs Recycled Water Truck Program requires that the recycled water must be used immediately and hand-applied (not stored in a tank, or distributed

via pipes or irrigation lines, EBMUD 2023b). A Recycled Water Use Permit is also required (EBMUD 2019a).

EBMUD conducts a water service reliability assessment as part of its UWMP. This assessment looks at three types of water supply years:

- A normal hydrologic year represents the water supplies available under normal conditions,
- A single-dry year represents the lowest available water supply (the most severe single-year drought), and
- A five-consecutive year drought represents the driest five-year period in the historical record.

EBMUD's reliability assessments for potable water supply and demand in the years of proposed Project construction and operation are included in **Table 3.20-4**.

**Table 3.20-4. EBMUD Projected Water Supply and Demand Comparison**

| Supply/ Demand | Normal 2025 (MG) | Single Dry Year 2025 (MG) | Second Dry Year 2025 (MG) | Third Dry Year 2025 (MG) | Normal 2030 (MG) | Single Dry Year 2030 (MG) | Second Dry Year 2030 (MG) | Second Dry Year 2030 (MG) |
|---|---|---|---|---|---|---|---|---|
| **Supply** | >186 | 186 | 161 | 158 | >190 | 189 | 164 | 158 |
| **Demand** | 186 | 186 | 186 | 186 | 190 | 190 | 190 | 190 |
| **Difference** | 0 | 0 | -25 | -28 | 0 | -1 | -26 | -32 |
| **% of Demand** | 100 | 100 | -13 | -15 | 100 | -1 | -13 | -15 |
| **Mandatory Rationing % of Demand** | 0 | 0 | 13 | 15 | 0 | 1 | 13 | 15 |

**Source: EBMUD (2020).**
**Notes: MG = million gallons**

In their UWMP, EBMUD projects that they would have sufficient water supplies in normal years given normal demand for water (EBMUD 2020). In dry years, EBMUD would acquire additional water supplies from the U.S. Bureau of Reclamation to supplement its regular supply from the Mokelumne River watershed. Additionally, EBMUD would institute mandatory water rationing, which would reduce demand to match supply levels.

The UWMP identifies temporary dry year supplemental water supply options, including trucking recycled water for approved uses; drawing from reserve supplies (terminal reservoir standby storage); and pursuing emergency transfers or exchanges.

### Hayward Water System

HWS serves approximately 95 percent of the City of Hayward, including nearly all commercial and institutional development. All of HWS's water supplies come from the San Francisco Public Utilities Commission (SFPUC) Regional Water System. The water is delivered through the Hetch Hetchy aqueducts, but also includes treated water produced by the SFPUC from its local watershed and facilities in Alameda County. The City receives water through two aqueducts along Mission Boulevard and Hesperian Boulevard. In addition, five water wells, for short duration emergency use only, are located within the city limits.

City of Hayward has recently constructed Phase 1 of a recycled water system that includes a one-million-gallon storage tank and pump station at the City's Water Pollution Control Facility and approximately eight miles of distribution pipelines and customer connections. Starting in 2021, the recycled water system would deliver an estimated 260,000 gallons per day of recycled water to 31 customers for irrigation and industrial uses at parks, schools, businesses, and industrial parks within a three-mile radius of the Water Pollution Control Facility (City of Hayward 2021c). The City's Water Pollution Control Facility is located on Enterprise Avenue, approximately 0.5 mile from the Project Footprint (City of Hayward 2019). The Phase 1 recycled water system pipelines cross the proposed Project alignment on the Coast subdivision at Depot Road.

The City of Hayward would be evaluating the feasibility of expanding the use of recycled water to serve additional users in the within the next few years. While this potential use has not yet been quantified, Hayward is estimating that the next phase may add 100,000 gallons per day of recycled water use. Although HWS currently does not offer recycled water for use by construction, the City is planning on developing a Recycled Water Master Plan, which would evaluate the possibility of supplying recycled water to construction (City of Hayward 2021d). Potential constraints on expansion include distribution and storage, water quality, and cost (City of Hayward 2020). It is therefore unknown whether recycled water would be available from HWS during proposed Project construction (between 2027 and 2029).

Based on information provided by SFPUC and Bay Area Water Supply and Conservation Agency, the adoption of the 2018 Bay-Delta Plan Amendment is anticipated to impact the future reliability of water supplies from the SFPUC Regional Water System to the City of Hayward. In December 2018, the State Water Resources Control Board (SWRCB) adopted amendments to the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Bay-Delta Plan Amendment) to establish water quality objectives to maintain the health of the Bay-Delta ecosystem. The Amendment was subsequently approved by the Office of Administrative Law in 2019. The SWRCB has stated that it intends to implement the Bay-Delta Plan Amendment on the Tuolumne River by the year 2022, assuming all required approvals are obtained by that time. However, implementation of the Bay-Delta Plan Amendment is not self-implementing, and it is pending lawsuits, additional regulatory approvals, permits, and processes, as well as negotiations for a voluntary agreement with the SWRCB.

The adoption of the Bay-Delta Plan Amendment may significantly impact the water supply available to the City of Hayward, however, SFPUC does not know at this time when the Bay-Delta Plan Amendment is likely to go into effect. Without a Bay-Delta Plan Amendment, the SFPUC would be able to meet 100 percent of supply through 2040. If the Bay-Delta Plan Amendment is implemented, the SFPUC would be able to meet the projected water demands presented in normal years but would experience supply shortages in single or multiple dry years. Implementation of the Bay-Delta Plan Amendment would require rationing in all single and multiple dry years. The SFPUC is currently

pursuing a voluntary agreement as well as addressing lawsuit which would limit implementation of the Plan. The SFPUC has initiated an Alternative Water Supply Planning Program to ensure that it can meet the water needs of its customers, address projected dry years shortages, and limit rationing to a maximum 20 percent system-wide in accordance with adopted SFPUC policies. This program is in early planning stages and is intended to meet future water supply challenges through 2045.

To plan conservatively, Hayward's 2020 UWMP water service reliability assessment assumes full implementation of the Bay Delta Plan Amendment in 2023. Water supply estimates in **Table 3.20-5** assume the worst-case scenario – with implementation of the Bay-Delta Plan Amendment in 2023 but without SFPUC and the SWRCB reaching a voluntary agreement, and it does not account for implementation of SFPUC's Alternative Water Supply Planning Program. Under this supply scenario, SFPUC would not be able to meet its contractual obligations and Hayward's forecasted demands during drought years (City of Hayward 2020).

**Table 3.20-5. City of Hayward Projected Water Supply and Demand Comparison**

| Supply/ Demand | Normal 2025 (MG) | Single Dry Year 2025 (MG) | Second Dry Year 2025 (MG) | Third Dry Year 2025 (MG) | Normal 2030 (MG) | Single Dry Year 2030 (MG) | Second Dry Year 2030 (MG) | Second Dry Year 2030 (MG) | Third Dry Year (MG) |
|---|---|---|---|---|---|---|---|---|---|
| **Supply** | 6,563 | 4,220 | 3,629 | 3,629 | 6,862 | 4,397 | 3,782 | 3,782 | 6,563 |
| **Demand** | 6,563 | 6,563 | 6,563 | 6,563 | 6,862 | 6,862 | 6,862 | 6,862 | 6,563 |
| **Difference** | 0 | -2,342 | -2,934 | -2,934 | 0 | -2,465 | -3,080 | -3,080 | 0 |
| **% of Demand** | 0 | -35 | -44 | -44 | 0 | -36 | -45 | -45 | 0 |

**Source: City of Hayward 2020.**
**Notes: MG = million gallons**

As shown in **Table 3.20-5**, substantial water supply shortfalls are projected for future single- and multiple-dry year scenarios due to implementation of the Bay-Delta Plan Amendment. Based on Hayward's WSCP, a single dry year 2025 and 2030 would represent a Level 4 water supply shortage. With a Level 4 shortage, the City of Hayward would declare a Water Supply Shortage Emergency pursuant to California Water Code section 350. A Level 4 shortage would trigger a requirement for a 40 percent reduction in consumer water demand to ensure sufficient supplies for human consumption, sanitation, and fire protection. A second or third dry year in 2025 and 2030 would represent a Level 5 water supply shortage. A Water Supply Shortage Emergency would also be declared and require a 50 percent consumer demand reduction. Under a Level 5 shortage, the City of Hayward would look to augment supply with other water purchases, such as from EBMUD and ACWD. Hayward also has five emergency groundwater supply wells with 14 MGD, however wells are only permitted for short-term emergency (five day) use (City of Hayward 2020). Groundwater was previously used as the public water supply in Hayward until 1963.

### Alameda County Water District

ACWD supplies and distributes water to the cities of Fremont, Newark, Union City, and a very small part of southern Hayward. ACWD is supplied by the State Water Project (SWP, via the South Bay Aqueduct), the SFPUC's Regional Water System (via the Hetch Hetchy Aqueduct), as well as local sources such as the Niles Cone Groundwater Basin, desalinated brackish groundwater, and surface water from Del Valle Reservoir. Approximately 60 percent of the ACWD's water supplies that are used for distribution are imported from the SWP and SFPUC. ACWD operates two surface water treatment plants that treat SWP and local surface water from Del Valle Reservoir. The Newark Desalination Facility treats brackish groundwater to remove salts and other impurities.

ACWD has installed 4.29 miles of "purple pipe" (for recycled water distribution) over the past 20 years, however there is no use of recycled water in ACWD's service area. The use of recycled water to offset the demand for potable water is included as part of the District's long-term water supply strategy. However, the focus has shifted to potable reuse by supplemental recharge of potable groundwater supplies (ACWD 2021).

As with HWS, both sources of the ACWD imported supplies (SWP and SFPUC Regional Water System) are potentially subject to the Bay-Delta Plan Amendment. For SWP supplies, ACWD has assumed more conservative water supply projections (which includes climate change effects) in the 2020 UWMP (2020-2045) as it better reflects the potential full stress on the SWP. Currently, SWP water that is not used by ACWD for treatment and delivery to customers is 'banked' in groundwater storage, either locally in the Niles Cone Groundwater Basin or off-site at the Semitropic Groundwater Bank for later use in dry years. ACWD has secured 48,878 MG of groundwater storage capacity at Semitropic under this program. As of February 2021, ACWD has approximately 43,990 MG of water stored in the Semitropic Groundwater Banking Program (ACWD 2021).

**Table 3.20-6** provides ACWD's assessment of water supply and demand under normal, single dry year, and multiple dry year scenarios. Under normal year water supply conditions, the ACWD would have sufficient supplies to meet projected future water demands and to bank water into groundwater storage. Under single dry year scenario, the ACWD's SWP supplies would be cut back by approximately 90 percent, and ACWD would need to rely on local and off-site groundwater storage to help make up for this shortfall in supply. If there is insufficient local groundwater storage or if ACWD is unable to recover its full contractual amount from the Semitropic Groundwater Banking Program, ACWD would look to secure additional supplies through a California Department of Water Resources drought water bank or similar water purchase/transfer program. ACWD is projected to be able to withstand the most severe 5-year dry period, using local and off-site groundwater storage to offset shortfalls.

**Table 3.20-6. ACWD Projected Water Supply and Demand Comparisons (2020 through 2030)**

| Supply/ Demand | Normal 2025 (MG) | Single Dry Year 2025 (MG) | Second Dry Year 2025 (MG) | Third Dry Year 2025 (MG) | Normal 2030 (MG) | Single Dry Year 2030 (MG) | Second Dry Year 2030 (MG) | Second Dry Year 2030 (MG) | Third Dry Year (MG) |
|---|---|---|---|---|---|---|---|---|---|
| **Imported supplies** | 11,828 | 11,828 | 3,193 | 4,464 | 4,041 | 4,855 | 2,888 | 11,828 | 3,225 |
| **Local supplies** | 10,362 | 10,395 | 9,547 | 9,091 | 9,906 | 10,264 | 1,880 | 10,395 | 9,547 |
| **Banking/ Transfers** | - | - | 4,399 | 4,725 | 4,529 | 4,399 | 2,293 | - | 4,399 |
| **Total Supply** | 22,190 | 22,223 | 17,140 | 18,280 | 18,476 | 18,541 | 21,669 | 22,223 | 17,172 |
| **Total Demand** | 19,094 | 19,844 | 18,965 | 18,248 | 18,280 | 19,160 | 19,323 | 19,681 | 18,802 |
| **Difference** | 3,0956 | 2,379 | -1,825 | 32 | 196 | -619 | 2,346 | 2,542 | -1,630 |
| **% of supply** | 14 | 11 | -11 | 0 | 1 | -2 | 11 | 11 | -9% |
| **% of demand** | 16 | 12 | -10 | 0 | 1 | -2 | 12 | 13 | -9% |

**Source: ACWD 2021.**

In dry years, ACWD would implement its WSCP. An 11 percent shortage in water supply represents a Stage 2 water shortage (ACWD 2021). Under a Stage 2 water shortage, ACWD would adopt a Water Shortage Emergency Ordinance banning wasteful uses of water and limiting other uses, which would include the following restrictions:

- Prohibiting excessive run-off from irrigation and other activities,
- Prohibiting the use of a hose without a shut-off nozzle,
- Requiring that leaks be fixed as soon as practicable, and
- Additional prohibitions and restrictions such as prohibiting hosing down paved surfaces.

## Stormwater

Stormwater facilities, including storm drains and flood control channels, are owned and managed by the cities within the RSA as well as Alameda County Flood Control and Water Conservation District (ACFCWCD), which are listed in **Table 3.20-7**.

**Table 3.20-7. Summary of Stormwater Management Providers in the Utility RSA**

| County/City Location | Provider |
|---|---|
| **Oakland** | ACFCWCD |
| **San Leandro** | ACFCWCD, City of San Leandro |
| **San Lorenzo (Unincorporated Alameda County)** | ACFCWCD |
| **Hayward** | ACFCWCD, City of Hayward |
| **Union City** | ACFCWCD, Union City |
| **Fremont** | ACFCWCD, City of Fremont |
| **Newark** | ACFCWCD, City of Newark |

**Source: Alameda County Planning Department (2004), ACFCWCD 2022, City of Fremont (2011), City of Hayward (2014), City of Newark (2013), City of San Leandro (2016), and City of Union City (2002a).**
**Notes: ACFCWD = Alameda County Flood Control and Water Conservation District**

### Alameda County Flood Control and Water Conservation District

Much of western Alameda County lies in a floodplain protected by the ACFCWCD (ACFCWCD 2022). ACFCWCD was formed in 1949 to respond to the rapid development taking place in potentially flood-prone areas. The ACFCWCD's primary focus is to plan, design and inspect construction of flood control projects. Additionally, the ACFCWCD maintains flood control infrastructure and preserves the natural environment through pollution control regulations (City of Fremont 2011). Section 3.11,

Hydrology and Water Quality provides additional information and detail regarding major flood control infrastructure near the proposed Project.

### City of Oakland

The storm drainage system in the city of Oakland consists of more than 300 miles of storm drainpipes, over 100 miles of open creeks, and 15,000 structures (mostly inlets, manholes, and catch basins). These facilities are both publicly and privately owned. City-owned storm drainage facilities are typically located within easements and ROWs. The ACFCWCD owns and maintains most of the major and primary facilities (waterways with tributary areas of at least 50 acres), including creeks such as San Leandro. The City owns and maintains the secondary facilities (waterways or drainage facilities with tributary areas equal or less than 50 acres). This includes most of the City's drainage facilities, including pipes, conduits, and drainage structures (City of Oakland 2014a).

### City of San Leandro

The City of San Leandro Department of Public Works owns and maintains 175 miles of storm drainage conduits. The City's storm drain system feeds into a larger system owned and operated by the ACFCWCD (City of San Leandro 2016).

### City of Hayward

Major storm drainage facilities within the city of Hayward are owned and maintained by the ACFCWCD and include gravity pipelines predominantly made of reinforced concrete, which discharge to underground storm drain lines or manmade open channels. Storm drainpipes smaller than 30 inches are generally owned by the City of Hayward. The City has five pump stations that pump stormwater into stormwater collection systems and/or dry creeks, flowing into Mt. Eden and Old Alameda creeks and ultimately to San Francisco Bay (City of Hayward 2014).

### Union City

The City of Union City provides stormwater service in Union City. In general, streets in Union City include storm drainage facilities, with the exception of a few steeply sloped streets in the hills east of Mission Boulevard (Union City 2002b).

### City of Fremont

The City of Fremont is responsible for maintaining the majority of the storm drainage system within the City and ensuring that adequate storm drainage facilities are built to support new development. ACFCWCD also reviews development proposals and advises the City of Fremont on appropriate measures. Drainage improvements are constructed as new development occurs. The City maintains local storm drains, replacing pipes and other facilities as needed (City of Fremont 2011).

### City of Newark

Storm drainage in the city of Newark is jointly managed by the Newark Public Works Department and the ACFCWCD. ACFCWCD is responsible for planning, constructing, and maintaining flood control channels and culverts, while the Newark Public Works Department is responsible for monitoring and maintaining street gutters and storm drain inlets. Stormwater is carried through City pipes to five ACFCWCD flood control channels. The Public Works Department is responsible for carrying out the City's stormwater quality initiatives. This includes stormwater control

requirements for businesses and new development, enforcement of illicit discharge regulations, street sweeping, cleanouts of storm drain inlets, and a variety of public education and outreach events. The City manages and maintains the storm drainage system to avoid flooding and reduce the negative effects of stormwater runoff. The City works with ACFCWCD to make improvements to storm drains and flood control channels. ACFCWCD maintains flood control systems, with channels following historic sloughs and former agricultural drainage channels. Major drainage courses in the City include Plummer Creek, Newark Slough, and Mowry Slough. Stormwater flows to these drainage courses through gutters, drains, channels, and culverts (City of Newark 2013).

## Wastewater

Wastewater providers within the utility RSA are listed in **Table 3.20-8**.

**Table 3.20-8. Summary of Wastewater Management Providers in the Utility RSA**

| County/City Location | Provider |
|---|---|
| **Oakland** | EBMUD, City of Oakland |
| **San Leandro** | OLSD, City of San Leandro |
| **San Lorenzo (Unincorporated Alameda County)** | OLSD |
| **Hayward** | OLSD, City of Hayward |
| **Union City** | USD, Union City |
| **Fremont** | USD |
| **Newark** | USD |

***Source: Alameda County Planning Department (2004), City of Fremont (2011), City of Hayward (2014), City of Newark (2013), City of San Leandro (2021c), and City of Union City (2021a).***

***Notes: EBMUD = East Bay Municipal Utilities District, OLSD = Oro Loma Sanitary District, USD = Union Sanitary District.***

### East Bay Municipal Utility District and City of Oakland

The City of Oakland owns and operates a wastewater collection system that serves approximately 400,000 people and includes 101,000 service connections. The collection system encompasses approximately 933 miles of gravity sewer mains, over 1.25 miles of pressurized sewer mains, and 11 wastewater pump stations (City of Oakland 2019a). The City's collected wastewater is conveyed to EBMUD's wastewater interceptor system, which transports it to EBMUD's main wastewater treatment plan for treatment. The treated effluent is ultimately discharged to San Francisco Bay. EBMUD's wastewater collection system includes 37 miles of pipelines, 15 pump stations, and five overflow structures (EBMUD 2021d).

### Oro Loma Sanitary District

The Oro Loma Sanitary District (OLSD) provides wastewater services to unincorporated Alameda County, including San Lorenzo, as well as designated areas within the cities of Hayward and San Leandro. OLSD owns and maintains about 273 miles of wastewater lines. The OLSD treats sewage at the wastewater treatment plant that it jointly owns with Castro Valley Sanitary District (OLSD 2023).

The City of San Leandro is responsible for operating and maintaining local and regional sewer lines as well as collecting, treating, and disposing of wastewater. The City maintains about two thirds of its 130 miles of sewers, primarily in the northern portion of the City. The sewage from the City wastewater system is conveyed to and treated at the San Leandro Water Pollution Control Plant (City of San Leandro 2022).

The City of Hayward owns and operates the wastewater collection and treatment system that serves almost all of the residential, commercial, and industrial users within the incorporated City limits, and limited portions of the adjacent unincorporated areas of Alameda County. The Hayward collection system includes about 320 miles of sewer mains, nine sewage lift stations, and 4.2 miles of force mains and treatment occurs at the City's Water Pollution Control Facility (City of Hayward 2014).

### Union Sanitary District

The Union Sanitary District (USD) provides wastewater services for the cities of Newark, Fremont, and Union City. USD is responsible for the maintenance and repair of all sanitary sewer main lines in local streets. USD operates a 33-acre wastewater treatment facility in Union City and provides collection, treatment, and disposal services to a total population of over 356,000 in Fremont, Newark, and Union City. USD maintains over 830 miles of underground wastewater lines in its service area (USD 2023).

## Communications

There are numerous telecommunications providers within the utility RSA that provide phone, internet, and cable services to residents and businesses. Communications utilities crossed by the proposed Project include phone and fiber optic lines owned by Lumen, AT&T, Comcast, MCI, and Sprint.

## Waste

Solid and hazardous waste within Alameda County is disposed of at multiple locations, identified in **Table 3.20-9**. The proposed Project would use the local collection service providers listed in **Table 3.20-9**, or self-haul, to the specified disposal locations.

**Table 3.20-9. Summary of Waste Management Facilities and Service Providers**

| County/City Location | Waste Collection Service Provider | Disposal Location |
|---|---|---|
| **Solid Waste Disposal** | | |
| **Oakland** | WMAC | Altamont Landfill |
| **San Leandro** | Alameda County Industries | Vasco Road Landfill |
| **San Lorenzo (Unincorporated Alameda County)** | OLSD, WMAC | Altamont Landfill |
| **Hayward** | WMAC | Altamont Landfill |
| **Union City** | Republic Services | Altamont Landfill |
| **Fremont** | Republic Services | Altamont Landfill |
| **Newark** | Republic Services | Altamont Landfill |
| **Hazardous Waste Disposal** | | |
| **Kings County** | - | Waste Management, Kettleman Hills |
| **Kern County** | - | Clean Harbors Facility, Buttonwillow |

**Source: ACWMA 2020.**
**Notes: WMAC = Waste Management of Alameda County, OLSD = Oro Loma Sanitary District**

Alameda County has been in compliance with AB 939, with an average diversion rate of 67 percent in 2018 (Alameda County 2020), well over the goal of 50 percent waste diversion (**Table 3.20-10**).

**Table 3.20-10. 2018 AB 939 Diversion Rates**

| City/County | Diversion Rate |
|---|---|
| **City of Oakland** | 63% |
| **City of San Leandro** | 58% |
| **Unincorporated Alameda County** | 76% |
| **City Hayward** | 66% |
| **Union City** | 80% |
| **City of Fremont** | 63% |

**Table 3.20-10. 2018 AB 939 Diversion Rates**

| City/County | Diversion Rate |
|---|---|
| **City of Newark** | 67% |
| **Alameda County** | 67% |

**Source: Alameda County 2020.**

There are three categories of landfills within the solid and hazardous waste RSAs:

- Class I: A facility that can accept all types of municipal solid waste (MSW), waste that can cause foul odors when decomposing (putrescible), household waste, C&D waste, household hazardous waste, special waste, and some industrial wastes.
- Class II: An unlined landfill designed to accept putrescible and inert (stable) wastes.
- Class III: A scientifically engineered facility built into or on the ground that is designed to hold and isolate waste from the environment (Alameda County 2020).

### Solid Waste

Solid waste produced by the proposed Project would be disposed of at either the Altamont or Vasco Road Landfills.

#### *Altamont Landfill*

The Altamont Landfill is a non-hazardous Class II and Class III disposal facility (Waste Management of Alameda County [WMAC] 2023c). Altamont Landfill is located at 10840 Altamont Pass Road in unincorporated Alameda County on a 2,034-acre site, of which 480 acres are permitted for landfill (Alameda County 2020). The Altamont Landfill currently receives MSW from the cities of Alameda, Albany, Berkeley, Castro Valley, Dublin, Emeryville, Hayward, Fremont, Newark, Oakland, Union City as well as OLSD. Permitted materials for disposal at Altamont include agricultural, asbestos, ash, auto shredder, C&D waste, contaminated soil, industrial, inert waste, liquids, MSW, sewage sludge (dewatered), tires, treated wood waste, and high liquid content waste. There are no specific tonnage or origin limits on non-disposal tonnage, such as alternative daily cover, reuse, recycle, or transfer materials (WMAC 2023a). The permitted capacity at Altamont is 87 million cubic yards (MCY) (see **Table** 3.20-11). As of 2018, the estimated remaining refuse capacity for the Altamont Landfill was 65 MCY. At the average rate of fill from 2014-2018, and adjusting for projections for waste declines through 2023, the facility has more than 30 years of capacity remaining and an estimated closure date of 2049 (Alameda County 2020).

#### *Vasco Road Landfill*

Vasco Road Landfill is located on 246 acres of a 435-acre site at 4001 North Vasco Road, northeast of the city of Livermore. Vasco Road is a Class II/III designated facility. The landfill currently accepts franchised MSW from the cities of Livermore, Pleasanton, and San Leandro in Alameda County, as well as San Ramon in Contra Costa County, with a maximum capacity 2,518 tons per day (TPD).

Vasco Road accepts non-franchised C&D debris and non-hazardous waste that can pose special disposal problems (designated waste) and receives out-of-county disposal. Vasco Road is permitted to receive the following types of waste: asbestos, ash, auto shredder, C&D, contaminated soils, dead animals, industrial, inert, MSW, sewage sludge, and tires (Alameda County 2020). Vasco Road is authorized to accept TWW (SWRCB 2023). As of 2018, Vasco Road reported remaining capacity for about 6 MCY of waste (**Table** 3.20**-**11). The estimated closure year for Vasco Road is 2035 (Alameda County 2020).

In Alameda County, there is a total of 71 MCY of landfill space available as of 2018. Daily capacity at Alameda County landfills is 13,668 TPD. Alameda County has sufficient landfill capacity through the estimated permitted closure date of the Altamont Landfill in 2049.

**Table 3.20-11. Solid Waste Landfill Facility Summary**

| Landfill | Owner/ Operator | State Classification | County | Landfill Permitted Capacity (TPD) | Maximum Permitted Landfill Capacity (MCY) | Remaining Landfill Capacity (MCY) | Remaining Capacity as of Date | Estimated Permitted Closure Date |
|---|---|---|---|---|---|---|---|---|
| **Altamont** | WMAC | II/IIII | Alameda | 11,150 | 87 | 65 | 2018 | 2049 |
| **Vasco Road** | Republic Services | II/IIII | Alameda | 2,518 | 33 | 6 | 2018 | 2035 |
| | | | **Total** | **13,668** | **120** | **71** | | |

Source: Alameda County 2020, SWRCB 2021.
Notes: WMAC = Waste Management of Alameda County, TPD = tons per day, MCY = million cubic yards

### Hazardous Waste Disposal Facilities

Hazardous waste is a waste with properties that make it potentially dangerous or harmful to human health or the environment, and include liquids, solids, or contained gases. Hazardous wastes are those that appear on one of the four RCRA hazardous waste lists, or that exhibits one of the four characteristics of a hazardous waste – ignitability, corrosivity, reactivity, or toxicity. Additional materials can be hazardous wastes, such as used oil, products which contain mercury, those mixed with or derived from hazardous materials, and media that contains hazardous materials (e.g., contaminated soil) (DTSC 2021b). Hazardous materials are discussed in more detail in the Hazards and Hazardous Materials Memo. This memo focuses on the capacity of hazardous waste facilities.

There are two RCRA-permitted hazardous waste landfills in California that currently accept hazardous waste—the Kettleman Hills facility in Kings County and the Clean Harbors facility in Buttonwillow in Kern County (**Table** 3.20**-**12, DTSC 2021a). The Kettleman Hills facility is approximately 160 miles south of the Project Footprint, the Clean Harbors Buttonwood Facility is approximately 200 miles south of the Project Footprint. The Kettleman Hills facility in Kings County has a remaining disposal capacity of approximately 4.9 MCY based on DTSC approval of a permitted expansion in 2014 (DTSC 2019, WMAC 2023b). The Kettleman Hills facility is planning the development of a new hazardous waste landfill (Unit B-20) on currently undeveloped land at the Kettleman Hills site, to open after current unit (B-18) reaches capacity, and the facility is planning to operate until 2042 (Kings County Planning Agency 2008). The Clean Harbors Buttonwillow Facility has a permitted hazardous waste disposal capacity of 13.25 MCY and an estimated closure date of 2040 (CalRecycle 2021a). Clean Harbors reported a permitted disposal capacity of over 10 MCY for the Buttonwillow facility (CalRecycle 2021a).

**Table 3.20-12. Hazardous Waste Disposal Facility Summary**

| Facility | Owner/ Operator | State Classification | County | Landfill Permitted Daily Tonnage | Maximum Permitted Hazardous Capacity (MCY) | Remaining Hazardous Capacity (MCY) | Remaining Capacity as of Date | Estimated Permitted Closure Date |
|---|---|---|---|---|---|---|---|---|
| **Kettleman Hills** | Waste Management | I/II | Kings | 9,000 | 15.6 | 4.9 | 2021 | 2042 |
| **Buttonwillow** | Clean Harbors | I | Kern | 10,500 | 13.25 | 7.75 | 2021 | 2040 |
| | | | **Total** | **19,500** | **28.85** | **12.65** | | |

**Source: Alameda County 2020, SWRCB 2021.**
**Notes: MCY = million cubic yards**

## 3.20.5 Best Management Practices

As noted in Chapter 2, Project Alternatives, CCJPA would incorporate a range of BMPs to avoid and minimize adverse effects on the environment that could result from implementation of the proposed Project. BMPs are included in the proposed Project description, and the impact analyses were conducted assuming application of these practices. The BMPs relevant to utilities and service systems are summarized below. Full descriptions of the BMPs are provided in Chapter 2, Project Alternatives.

**BMP UT-1: Utility Verification and Coordination with Utility Providers and CPUC.**

**BMP UT-2: Minimize Potable Water Use.**

**BMP UT-3: Water Efficient Landscaping.**

**BMP UT-4: Public Notification.**

**BMP UT-5: Coordinate with the HWS and ACWD in Dry Construction Years.**

**BMP UT-6: Minimize C&D Debris Disposal.**

**BMP UT-7: TWW Handler Notification**.

The proposed Project would also implement all relevant BMPs and mitigation measures to protect other types of environmental resources. Measures described in Section 3.2 Aesthetics, Section 3.5 Biological Resources, Section 3.6 Cultural Resources, Section 3.7 Energy, Section 3.9 GHG emissions, Section 3.10 Hazards and Hazardous Materials, Section 3.11 Hydrology and Water Quality, Section 3.14 Noise and Vibration, Section 3.17 Recreation, Section 3.18 Transportation, and Section 3.19 Tribal Cultural Resources are expected to be applicable to utility relocations.

## 3.20.6 Environmental Impacts

This section describes the potential environmental impacts on utilities and service systems as a result of implementation of the proposed Project.

### 3.20.6.1 Require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

#### No Project Alternative

**No Impact.** Under the No Project Alternative, there would be no change to existing transportation facilities or utilities. The No Project Alternative would not require or result in the relocation or construction of new or expanded utilities and would therefore have no impact.

#### Proposed Project

*Construction and Operations.*

**Less than Significant Impact.** The proposed Project would require protection and relocation of utilities and potentially construction of new distribution connections to existing utilities. Utilities that are identified as PIP may require no further action, or they may require a variety of protection measures, including installation of a new casing around the utility, an extension of an existing casing, installation of utility protection structures, or other protection measures, such as temporary fencing during construction. Installation of protection structures or extension of casings would involve ground disturbance; however, work would generally occur within the area that was previously disturbed in the original utility installation. In some situations, utility relocation, both horizontal and vertical, may be required to accommodate an additional track. Examples of vertical relocation include putting an overhead utility underground or lowering an existing underground utility. Horizontal relocation is where a utility is shifted away from project features; for example, where a manhole is shifted away from the proposed track alignment or where a short section of new utility is constructed (often adjacent to an existing utility) as a replacement for the existing utility. Relocations are generally expected to occur within existing road or rail ROW, with the exception of a few locations where the acquisition of rail ROW is anticipated or where connections to existing utilities would be made and may involve excavation in areas not previously disturbed by prior construction.

Major utility conflicts are summarized in **Table 3.20-13**.

**Table 3.20-13. Major Utility Conflicts Resulting in Relocation or Protected In Place**

| Electric PIP/ Relocation | Gas PIP/ Relocation | Sewer PIP/ Relocation | Stormwater PIP/Relocation | Telecom PIP/Relocation | Water PIP/ Relocation | Total PIP/ Relocation |
|---|---|---|---|---|---|---|
| **3/0** | 1/2 | 1/1 | 1/0 | 0/2 | 1/0 | 7/5 |

**Source: HDR 2022, HNTB 2021a, HNTB 2023a**
**Notes: PIP = Protected in Place**

Utilities located in the Coast Subdivision that could be affected by the proposed Project include fiber optic and natural gas lines that parallel the alignment within the UPRR ROW for much of the length of the proposed Project. There are also shorter sections of other utilities that also parallel the alignment within the UPRR ROW, such as sanitary sewers, storm drains and channels, petroleum pipelines, and electric lines that may be affected. In addition, grade crossings are a common location for utilities that cross the ROW. Where existing utilities cross the ROW, it is assumed that the utilities either meet criteria for crossing a railroad or could require additional PIP. Affected utility owners include but are not limited to ACWD, AT&T, City of Fremont, City of Hayward, City of San Leandro, City of Union City, City of Newark, Centurylink/ Level 3, Comcast, EBMUD, Kinder Morgan, LAVMA, Lumen, PG&E, SFPUC, Shell, City of Union City, and USD.

For all utility conflicts, the proposed Project would coordinate with utility providers regarding the type of protection that is required for their facilities (BMP UT-1: Utility Verification and Coordination with Utility Providers and CPUC). CCJPA would coordinate with utilities and comply with General Order 131-D as needed during final design (BMP UT-1). The modification, alteration, or

addition of distribution lines (i.e., electrical lines less than 50 kV) is not anticipated to require a certificate of public convenience and necessity or permit to construct. The proposed Project would implement all relevant BMPs to protect environmental resources, including measures to address impacts to noise, transportation, hazards and hazardous materials, hydrology and water quality, and biological resources. Temporary ground disturbance may be required to protect utilities, however this would typically occur within the area previously disturbed to install the utility. Ground disturbance may also be needed for relocation of utilities. Relocated utilities would typically be moved within the existing UPRR or roadway ROW. If ground disturbance is necessary to protect or relocate utilities, at the end of construction the proposed Project would return the area to its previous condition. Protection or relocation of existing utilities is not expected to result in interruptions to utility service. Temporary service interruptions may be required to connect the new or relocated utility but would be minimized to the extent feasible. CCJPA or the construction contractor would notify the public of unavoidable service interruptions (BMP UT-4: Public Notification). Construction would be coordinated to avoid interruptions of utility service to any emergency services such as hospitals.

The proposed Project would construct new connections to existing electrical, water, stormwater, and telecommunications distribution lines to Ardenwood Station and to new signals, switches, and grade crossing improvements. These new connections would be constructed within either existing UPRR or public roadway ROW to the extent feasible. New electrical connections would be needed to power signals and switches, as well as the new Ardenwood Station (e.g., lights and signage). The new station may also need connections to water lines for fire suppression, cleaning, and maintenance. The station may also require a telecommunications connection to provide ticketing and passenger information services. Runoff from new and reworked impervious surfaces would be treated on site to the greatest extent feasible and is not expected to exceed capacity of the existing stormwater system. The new station would require more electrical power than the existing Hayward Station due to the larger parking facility and associated lighting. New connections to existing electrical distribution lines are sufficient to provide power to the station. No new electrical transmission lines, high voltage lines, or major water lines are proposed. The proposed Project would implement all mitigation measures and BMPs identified in Sections 3.1 through 3.21 to avoid, minimize, and mitigate impacts to sensitive resources associated with construction activities, including utility relocations and installation of new utilities. The proposed Project would have a less than significant impact as a result of utility relocations and installation of new utilities.

## 3.20.6.2 Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?

### No Project Alternative

**No Impact.** Under the No Project Alternative, there would be no change to existing transportation facilities or utilities. The No Project Alternative would not require water supplies and would therefore have no impact.

### Proposed Project

*Construction.* **Less than Significant**, Construction is expected to occur over three years, from 2027-2029. Total and average annual construction water use is provided below in **Table 3.20-14**. In

addition to potable water, construction can also use recycled water where available. Due to the length of the alignment, water would be sourced from the multiple water districts in which construction is occurring, EBMUD, HWS, and ACWD. The following discussion looks at estimated water use during construction for the proposed Project by provider.

**Table 3.20-14. Construction Water Use for the Proposed Project by Provider**

| Provider | Proposed Project Total (MG) | Proposed Project Average Per Year (MG) |
|---|---|---|
| **EBMUD** | 2.5 | 0.8 |
| **HWS** | 1.9 | 0.6 |
| **ACWD** | 3.0 | 1.0 |
| **Total** | 7.4 | 2.5 |

**Source: HNTB 2023b**
**Notes: MG = million gallons.**

The proposed Project would require water from EBMUD due to the track work in Oakland and San Leandro. All water obtained from EBMUD for construction would come from the recycled water program (BMP UT-2: Minimize Potable Water Use) and would therefore not affect potable water supplies. The proposed Project would also require water during construction from HWS and ACWD and would implement BMP UT-5: Coordinate with the HWS and ACWD in Dry Construction Years. With implementation of BMPs UT-2 and UT-5, the proposed Project would have sufficient water supplies for construction during normal, single, and multiple dry years. Therefore, the proposed Project would have a less than significant impact on water supplies during construction.

*Operations.*

**No Impact**. Operational changes associated with the proposed Project that could affect water use are limited to station operation. Due to the lack of any facilities that would provide water to the public (e.g., restrooms, drinking fountains), it is assumed that the proposed Ardenwood Station would use less water than the average household in Alameda County—about 99,000 gallons per year (ACWD 2014). Water use at the new Ardenwood Station would be limited to cleaning, maintenance, and irrigation, which would be obtained from ACWD. No water use would be required from EBMUD or the HWS as part of proposed Project operations. The termination of CCJPA service to the Hayward Station would not affect water use from the HWS, since the existing landscaping and any associated irrigation at the Hayward station is anticipated to remain. The Fremont Station would remain in operation for ACE service and therefore cessation of CCJPA service at that station would not affect water use at that station.

As a C.3 Regulated Project (per the Municipal Regional Permit [MRP] provision C.3.b), the proposed Project is required to include all low impact development (LID) site design measures to increase on-site infiltration of stormwater and reduce stormwater runoff, including directing runoff into vegetated areas. Directing runoff into vegetated areas (BMP HYD-6: Addressing hydromodification impacts) and use of drought tolerant species (MM AES-4: Landscape Plan at Ardenwood Station) would limit the need for irrigation at Ardenwood Station. The proposed Project would also

implement landscaping as part of grade crossing improvements at roadways throughout the proposed Project. As these roadway improvements would be within municipal ROW, CCJPA would coordinate with the respective cities on design and installation of landscaping and irrigation. For all landscaping, the proposed Project would implement BMP UT-3: Water Efficient Landscaping, which would limit water use by project landscaping. Based on projections by ACWD, there would be sufficient available water when project operation starts in 2027 in normal and multiple dry year scenarios. In dry years, CCJPA would comply with ACWD's WSCP (ACWD 2021). Project operation would therefore have no impact with respect to having sufficient water supplies available during normal, single, and multiple dry years.

### 3.20.6.3 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?

#### No Project Alternative

**No Impact.** Under the No Project Alternative, there would be no change to existing transportation facilities or utilities. The No Project Alternative would not require wastewater treatment and would therefore have no impact.

#### Proposed Project

*Construction and Operations.*

**No impact.** No wastewater treatment would be required during construction or operation of the proposed Project. Although dewatering would be required during construction, particularly for structural foundations, it is assumed that water from dewatering operations would be treated and discharged as specified in the dewatering permit, NPDES permits, and 401 Water Quality Certification. Treated water may be discharged to storm drains, sanitary sewers, or surface waters as permitted and within existing capacity. No new restrooms are proposed at the new Ardenwood Station. Therefore, the proposed Project would have no impact with respect to adequate wastewater treatment capacity.

### 3.20.6.4 Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

#### No Project Alternative

**No Impact.** Under the No Project Alternative, there would be no change to existing transportation facilities or utilities. The No Project Alternative would not result in generation of solid waste and would therefore have no impact.

## Proposed Project

*Construction.*

**Less than Significant Impact**. Construction of the proposed Project is not expected to result in the generation of solid waste in excess of State or local standards or in excess of the capacity of local infrastructure. During construction, solid waste would be produced as part of site work (such as grading, earthwork, utility relocation/protection, and demolition), railroad preparation and follow-up work (such as track replacement), and excavation of structural foundations. For example, solid waste includes excess fill, construction debris, railroad ties, and any solid materials produced as part of construction that would need to be reused, recycled, or disposed of. Concrete demolition would be required for road and water crossings as well as at the proposed Ardenwood Station site. Construction of the proposed Project is estimated to produce about 210,000 cubic yards of solid waste (HNTB 2023b). Solid waste estimates have incorporated reuse of excavated material for Project fill to minimize export of materials. The proposed Project would implement BMP UT-6: Minimize C&D Debris Disposal, which would minimize C&D debris by prioritizing reuse and recycling of C&D materials. Based upon current and projected disposal rates, estimated volume of solid waste disposal by construction of the proposed Project, as well as the remaining capacity reported by Vasco Road and Altamont landfills, it is projected that Alameda County has sufficient landfill capacity (Alameda County 2020).

A portion of the solid waste produced during Project construction is assumed to be hazardous, as described in Section 3.10, Hazards and Hazardous Materials. The volume of hazardous waste produced by the proposed Project cannot be determined prior to Phase 1 and 2 Environmental Site Assessments are conducted, which would occur as part of BMP HAZ-2 Property Acquisition Phase 1 and Phase 2 Environmental Site Assessments prior to ROW acquisition. However, a portion of the soil removed as part of site work is assumed to be Class II hazardous waste and would require disposal at Kettleman Hills or Buttonwillow landfills. Based on the types of hazardous waste expected to be encountered (as documented in Section 3.10, Hazards and Hazardous Materials), as well as the capacity of existing hazardous waste facilities shown in **Table** 3.20-12, the proposed Project is not expected to exceed the capacity of existing infrastructure.

Therefore, construction of the proposed Project would have a less than significant impact with respect to generation of solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or attainment of solid waste reduction goals.

*Operations.*

**Less than Significant Impact**. The proposed Project is not expected to result in new solid waste production during operation from track and systems. Regular track maintenance, including vegetation clearing for the tracks is assumed to be the same under the proposed Project and No Project conditions. Operation of the proposed Ardenwood Station would result in solid waste production, which would be limited to personal passenger trash and from regular station maintenance and cleaning. However, removal of CCJPA service from the Hayward and Fremont stations (the latter of which would still serve the Altamont Corridor Express) would reduce trash production at those stations. A net increase in solid waste production may occur as a result of the proposed Project associated with additional passengers using improved CCJPA service.

Based upon current and projected disposal rates, estimated volume of solid waste disposal by operation of the proposed Project, as well as the remaining capacity reported by Vasco Road and

Altamont landfills, it is projected that Alameda County has sufficient landfill capacity (Alameda County 2020). Therefore, operation of the proposed Project would have a less than significant impact with respect to generation of solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or attainment of solid waste reduction goals.

### 3.20.6.5 Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

#### No Project Alternative

**No Impact.** Under the No Project Alternative, there would be no change to existing transportation facilities or utilities. The No Project Alternative would comply with federal, state, and local management and reduction statutes and regulations related to solid waste and would therefore have no impact.

#### Proposed Project

*Construction.*

**No Impact**. Construction of the proposed Project would comply with federal, state, and local management and reduction statutes and regulations related to solid waste. Compliance with statutes and regulations related to hazardous waste handling is discussed in Section 3.10 Hazards and Hazardous Materials; this section addresses compliance with statutes and regulations related to waste reduction. As described above, Alameda County solid waste disposal facilities have sufficient capacity for solid waste produced by the proposed Project. The proposed Project would comply with Objective 1 of the (CoIWMP) – to have a minimum of 15 years of disposal capacity available.

The proposed Project would implement BMP UT-6: Minimize Construction and Demolition Debris Disposal, which requires reuse or recycling according to state, county, and local plans and policies. These generally require recycling of all asphalt, concrete and dirt, composting of all plant debris, and 50-65 percent reuse or recycling of all other materials. BMP UT-6 would support progress towards achieving the statewide goals of 75 percent waste diversion from landfills compared to 1990 and a 75 percent reduction in organics from landfills compared to 2014. BMP UT-6 would ensure the proposed Project is in compliance with the specific requirements of the California State Building Code, the Plant Debris Landfill Ban (ACWMA Ordinance 2008-01), municipal C&D Ordinances (cities of Oakland, San Leandro, Hayward, Union City, Fremont), and City of Fremont Waste Handling Guidelines (2018c). BMP UT-6 would also support the general waste reduction goals specified in municipal climate action plans (cities of Oakland, San Leandro, Fremont, and Newark) and general plans (cities of San Leandro, Hayward, Union City, and Newark). With implementation of BMP UT-6, the proposed Project would not affect Alameda County's compliance with AB 939, as the average diversion rate for the county in 2018 was 67 percent (Alameda County 2020), well over the goal of 50 percent waste diversion. The proposed Project would also maintain municipal compliance with 50 percent waste diversion for all cities within the utility RSA (**Table 3.20-10**). The proposed Project would comply with the Alameda County Waste Reduction and Recycling Act.

The proposed Project would produce substantial TWW as part of railroad tie renewal. The preservatives in TWW often include one or more of the following constituents: arsenic, chromium, copper, pentachlorophenol, and creosote. Over 1,000 pounds of TWW may be produced by the proposed Project within 30 days and therefore may be subject to AB 332. The proposed Project

would comply with the handling and disposal requirements of AB 332. The proposed Project would dispose of the TWW at Vasco Landfill or another nearby landfill, which is authorized by the Regional Water Quality Control Board to accept TWW. The proposed Project would notify DTSC within 30 days if generating more than 10,000 pounds of TWW per calendar year (BMP UT-7: TWW Handler Notification). TWW handling and disposal is required to comply with specific Alternative Management Standards and may be disposed of at specific non-hazardous waste landfills.

Therefore, construction of the proposed Project would have no impact with respect to compliance with federal, state, and local management and reduction statutes and regulations related to solid waste.

*Operations.*

**No Impact**. Operations would not result in a substantial increase in waste production beyond existing conditions. The generation, collection, storage, and transportation of solid waste associated with CCJPA operations, including but not limited to passenger, cleaning, and maintenance waste, would shift from the Hayward and Fremont stations to the proposed Ardenwood Station. Any increase in waste production as part of operations would be limited to an increase in passenger trash proportional to an increase in number of passengers associated with the improved CCJPA service with the proposed Project. Waste collection at Ardenwood Station would comply with federal, state, City of Fremont, and Alameda County management and reduction statutes and regulations related to solid waste.

Therefore, operation of the proposed Project would have no impact with respect to compliance with federal, state, and local management and reduction statutes and regulations related to solid waste.

# 3.20.7 Mitigation Measures

No mitigation measures for utilities and service systems are required for the proposed Project. The proposed Project would implement mitigation measures for other resources, as described in Sections 3.11 through 3.21. These measures would be implemented as applicable where utility installation, protection and relocations occur near sensitive resources.

# 3.20.8 Cumulative Impact Analysis

## 3.20.8.1 Cumulative RSA

The cumulative RSA is limited to areas where the proposed Project has the potential for an impact, including impacts that are less than significant. As described in Section 3.20.6 Environmental Impacts, there are three CEQA criteria where the proposed Project has the potential for a less than significant impact: relocation or construction of new or expanded utilities, sufficient available water supplies, and generation of solid waste (Sections 3.20.6.1, 3.20.6.2, and 3.20.6.4). The proposed Project would have no direct, indirect, or cumulative impact on Sections 3.20.6.3 or 3.20.6.5.

The cumulative RSA varies by CEQA criteria. The cumulative RSA for Section 3.20.6.1 (cumulative utility RSA) is the cities of Oakland, San Leandro, Hayward, Newark, Union City, and Fremont. The proposed Project would relocate utilities in all of these cities. Construction water use impacts (Section 3.20.6.2) and therefore the cumulative water use RSA is limited to within the City of Hayward (HWS) and the service area for ACWD (cities of Newark, Fremont, and Union City). Due to the availability of recycled water from EBMUD, there are no impacts to water availability within

EBMUD's service area. For Section 3.20.6.4, disposal of construction waste would occur at Alameda County landfills and therefore requires a larger study area covering Alameda County (cumulative waste RSA).

Contributions of related projects (current, past, and reasonably foreseeable) were considered for inclusion in the cumulative impact analysis (see Table 3-1 in Section 3.1, Introduction). Projects that are within the cumulative utility, water use, or waste RSAs and were expected to have some impact on utilities, water use, or waste were identified for further analysis. Where available, impacts to these same resources are described and impact determinations from their environmental documents have been included. Where no environmental document is available, or the environmental document does not analyze the same types of impacts (e.g., for older CEQA documents that use a different Appendix G checklist), general assumptions about the level of impacts that could occur from the type of project have been included.

## 3.20.8.2 Cumulative Condition and Contribution of the Proposed Project

New and relocated utilities, water use, and construction waste, are analyzed separately for the proposed Project's potential to contribute considerably to a cumulative impact.

### Water Use

Construction water use within the City of Hayward and ACWD would be limited to the construction years of 2027-2029. Other projects that would require water use (either as part of construction or operation) are identified in Appendix J. As described in Section 3.20.6.2, the proposed Project would minimize the use of potable water (BMP UT-2: Minimize Potable Water Use) and would coordinate with HWS and ACWD during dry construction years (BMP UT-5: Coordinate with the HWS and ACWD). Coordination with HWS and ACWD would ensure that the proposed Project, in combination with other related projects identified in Section 3.1, Introduction, would not result in a significant cumulative impact with respect to water use.

### Construction Waste

Other projects that would result in an impact with respect to solid waste capacity are identified in Appendix J. As described in Section 3.20.4, Affected Environment, Alameda County has landfill waste capacity through 2049. Compliance with municipal, County, and state waste diversion policies (as described in BMP UT-6: Minimize C&D Disposal) would reduce waste that needs to go to the landfill. Other projects described in Appendix J, would also be similarly required to comply with waste diversion policies. Given the available capacity of existing landfills and mandatory waste diversion policies, the proposed Project in combination with other related projects identified in Appendix J, would not result in a significant cumulative impact with respect to waste.

### New and Relocated Utilities

The majority of new and relocated utilities are within the cities of Hayward, Union City, Fremont and Newark, with a few relocations needed in Oakland and San Leandro. New utilities connections would include water, electrical, telecommunications, and potentially stormwater. There are no project features that require substantial volumes of water, electricity, telecommunications, nor would substantial volumes of untreated stormwater runoff be produced. It is assumed that new distribution connections to the existing water, electrical, telecommunications, and stormwater systems would be sufficient to supply grade crossings, track improvements, and Ardenwood Station.

Related projects with the potential to also result in impacts from new or relocated utilities are identified in Appendix J. Those projects within the cumulative utility RSA that have identified utility impacts are described further below.

The following projects are located within Hayward:

- **I-5: 4150 Point Eden Way Industrial Development Project.** This project would involve the construction of a new industrial building and creation of an open space/wetland preserve. The proposed industrial building would require utility and drainage improvements including new sewer, stormwater, and water lines within Point Eden Way (City of Hayward 2021a). Bioretention areas would be constructed on-site to collect and treat stormwater runoff prior to discharge into the City's stormwater system.
- **P-19: Bidwell Park Master Plan.** The existing facilities in the Master Plan area would be repurposed to create a community center, play and picnic areas, multi-use courts, pedestrian paths, and dog parks (HARD 2020). This project would maintain existing water conveyance facilities, with no expansion required. This project would add approximately 75,200 square feet of impervious surface on site, update the stormwater drainage system, extend stormwater pipes and add 11,000 square feet of bioretention areas. No improvements would be required off-site to accommodate additional stormwater. This project would result in a limited new demand for electricity, natural gas, and telecommunications facilities during construction and operations.
- **T-7: I-880 Interchange Improvements Project (Whipple Road/Industrial Parkway Southwest and Industrial Parkway West).** The project proposes to provide interchange and local roadway improvements along Interstate 880 (I-880) from 0.6 mile south of the I-880/Whipple Road-Industrial Parkway Southwest Interchange to 0.3 mile north of the I-880/Industrial Parkway West Interchange. It would include interchange ramp reconfigurations, modifications and/or replacement of bridge structures, local roadway realignments and restriping, and bicycle and pedestrian improvements in the cities of Hayward and Union City. Construction would occur for 32 months from Spring 2023. This project would include relocation of existing utilities along local roadways which would be coordinated with affected utility owners (California Department of Transportation [Caltrans] 2021). Construction would require temporary shutoffs of existing utilities to allow for local roadway improvements. This project requires detailed utility coordination and verification during the design phase. This project would not require the addition or expanded utility service, nor would it add demand to local utility providers.

  This project would also include a realignment of an approximately 1,000-foot reach of Ward Creek (ACFCWCD Line B) to accommodate a new northbound I-880 offramp at Industrial Parkway West. The existing Ward Creek cross-section and flood conveyance would be maintained or slightly expanded. This realignment would therefore not affect the rate or amount of surface runoff in a manner which would result in flooding.

The following projects are located within Union City:

- **I-4: Station East Residential/Mixed Use Project.** The project proposes the demolition of the buildings and surface parking lots and development of up to 1.8 million square feet, including 974 new residential units and approximately 30,800 square feet of commercial space. Construction of this project would begin in mid-2021 with anticipated completion in late 2025.

This project is located on the east side of the Niles Subdivision, south of Decoto Road (Union City 2020, 2021b). As part of this project, approximately 6,500 linear feet of new water mains would be installed, the amount of impervious area would increase, and approximately 13,000 square feet of bio-treatment areas would be installed. Two basins, totaling approximately 1.42 acres would be provided to treat runoff from roofs and impervious areas before ultimately discharging from the site. The project would also require new connections to existing sewer mains on L Street, Bradford Way, and Zwissig Way, and new electricity, natural gas, and telecommunications lines would be required.

- **T-4: Quarry Lakes Parkway Project (East-West Connector).** In five phases, this project would provide an improved link between I-880 and Mission Boulevard (SR-238) by widening portions of Decoto Road and Paseo Padre Parkway, constructing a new roadway from Paseo Padre Parkway to Mission Boulevard and improving Mission Boulevard where it intersects with the new roadway. Potential utility relocations would include relocation of joint utility poles and overhead utilities on Decoto Road (Alameda County Transportation Authority 2009). Existing streetlights, traffic signal poles, storm drains, and storm drainage inlets would also be relocated to conform to the widened roadway, as would any water meters, fire hydrants, vaults and boxes, air valves, and other water-related facilities. Where possible, existing utilities and pipelines that run along the various railroad lines would be supported in place during construction and placed on the new grade-separated structures upon completion.

  This project would improve stormwater drainage in the area. A separate roadway drainage system would be constructed on the north side of the new roadway between Chesapeake Drive and Alvarado-Niles Road. Stormwater runoff from the new roadway would be collected and conveyed through underground conduits into infiltration basins, which would provide treatment before it infiltrates into the ground or enters Old Alameda Creek. The outfall structures and infiltration basins would be located on existing nonnative grassland areas adjacent to the new roadway between the Old Alameda Creek Flood Control Channel and Alvarado-Niles Road. This project includes the infrastructure to ensure that drainage and stormwater infrastructure is built to handle flooding and stormwater runoff adequately.

  The project includes modifying ACFCWCD's Line M Channel to accommodate project features and provide the additional capacity needed for flood control.

The following projects are located within Fremont:

- **I-6: Niles Gateway Mixed Use.** This project proposes a new residential development in the Niles Historical Overlay District that would include 75 attached residential units on approximately 6.08 acres (City of Fremont 2018b). The proposal would redevelop a vacant, remnant industrially zoned property. New sewer, stormwater, water, and fire service water lines would be installed to accommodate the project's additional demand. The project would not exceed the capacity of the existing sanitary sewer system. Other than extending the existing infrastructure to individual units on the project site, no additional wastewater treatment facilities would be needed.

  This project would create approximately 5.23 acres of impervious surface area. Stormwater runoff from these areas would be treated before it is discharged into the City's storm drainage system, in accordance with the C.3 LID requirements of the MRP and the Alameda Countywide Clean Water Program. The Project would install an onsite stormwater drainage system consisting of a network of 12 bioretention areas, inlets, and underground piping. The Project

would include connections to the existing storm drain and sewer on Niles Boulevard, and the existing water main at the north end of the site. Implementing the required drainage and treatment controls and would avoid or minimize potential impacts on municipal drainage facilities.

This project would increase water demand from ACWD by approximately 23.5 acre-feet per year. ACWD has estimated future water demands in its service area through 2030 based on planned future land uses in the service area. As identified in the City's General Plan EIR, to minimize additional demands on potable water supplies, new development is required to install water efficient plumbing fixtures, irrigation systems and landscaping according to the California Green Building Code and WELO. Since the projected water demand of this project has already been accounted for in the General Plan, the project's impact on water supply availability and potential need or construction of new water treatment facilities would be less than significant.

- **T-1: Irvington BART Station.** The future Irvington BART Station would be located in the Irvington District at the intersection of Washington Boulevard and Osgood Road. The Warm Springs Extension (WSX) EIRs and Environmental Impact Statement (EIS) analyzed potential impacts of the WSX project on public services and utility systems and found that all impacts, could be mitigated to a less than significant level and that no significant cumulative impacts would occur (BART 1991, 2006, 2019). The impacts that are applicable to the Irvington Station include potential disruptions of utilities related to the operation of the Station and construction-related service interruptions to telecommunications, sewer lines, and petroleum pipelines.

  The 1991 EIR identified conflicts with Hetch Hetchy water pipelines, electrical transmission lines, natural gas lines, sewer lines, petroleum pipelines, telecommunications, and ACWD water lines due to construction and operation of the WSX project. There are utility conflicts in or near Irvington Station, including a sewer line and Kinder Morgan petroleum pipeline. The project would comply with California Government Code 4216-4216.9, coordinate with utility and service providers, and maintain appropriate clearances between BART facilities and utility equipment. Additionally, BART would also protect metal utility pipes from stray electrical currents related to BART operation.

  The increased demand to the electrical transmission grid could have an adverse impact, as described in the 2006 EIS (BART 2006). Because no mitigation is available to reduce this impact to less than significant, it is considered adverse. However, the EIS describes electricity demand of WSX as being the same with or without Irvington Station. It is therefore assumed that Irvington Station alone is not responsible for the adverse impact. With completion of the WSX extension without Irvington Station, it is assumed that most of these impacts have already been realized and addressed.

  Water use required at the BART station would include landscaping, bathroom facilities and drinking water. Water consumption is expected to be low with a negligible impact on local water supply (BART 2006).

The following projects are located within Newark:

- **O-1: Draft Environmental Assessment (EA) for Cargill, Incorporated Solar Sea Salt System Maintenance and Operations Activities.** The purposed of the Cargill project is to continue maintenance of and operational activities at Cargill's solar salt systems in Newark/Fremont and

Redwood City for the next 10 years (San Francisco Bay Conservation and Development Commission [BCDC] 2021). There is no potable water or wastewater service within the project area, and maintenance activities in the project area would not affect any water or wastewater pipelines. Stormwater is contained within the project area; during extreme storm events, some rainwater may be discharged via low salinity ponds. Electrical power in the project area is supplied by PG&E. No CEQA document was available.

- **T-5: Bayside Newark.** The Bayside Newark project proposes a new neighborhood that would provide a broad range of new housing, retail, and business opportunities in western Newark (City of Newark 2011). This project could result in potential impacts to wastewater service and facilities. The existing sewer pipelines may not be sized to accommodate buildout of the Dumbarton Transit-oriented Development Specific Plan area. In addition, sewer lines would likely require structural upgrades or relocation as a result of future development proposed by the Specific Plan.

The following project is regional in nature.

- **D-1: Plan Bay Area 2050.** Plan Bay Area 2050 includes SBC under plan strategy T11 – Expand and Modernize the Regional Rail Network (Association of Bay Area Governments (ABAG) and Metropolitan Transportation Commission [MTC] 2021). Plan Bay Area 2050 indicates that there would be a significant and unavoidable impact with respect to construction of new or expanded utilities. The Plan Bay Area 2050 EIR recommends that implementing agencies and/or project sponsors implement the following measures, where feasible and necessary:

  Mitigation Measure PUF-1(a): For projects that could increase demand on water and wastewater treatment facilities, coordinate with the relevant service provider to ensure that the existing public services and utilities could accommodate the increase in demand. If the current infrastructure servicing the project site is found to be inadequate, infrastructure improvements for the appropriate public service or utility shall be identified in each project's CEQA documentation.

  Mitigation Measure PUF-1(b):

  - During the design and CEQA review of individual future projects, determine whether sufficient stormwater drainage facilities exist for a project. These CEQA determinations must ensure that the proposed development can be served by its existing or planned drainage capacity. If adequate stormwater drainage facilities do not exist, project sponsors shall coordinate with the appropriate utility and service provider to ensure that adequate facilities could accommodate the increased demand, and if not, infrastructure and facility improvements shall be identified in each project's CEQA determination.
  - For projects of greater than 1 acre in size, reduce stormwater runoff caused by construction by implementing stormwater control best practices, based on those required for a SWPPP.
  - Model and implement a stormwater management plan or site design that prevents the post-development peak discharge rate and quantity from exceeding pre-development rates.

Mitigation Measure PUF-1(c): For transportation projects, incorporate stormwater control, retention, and infiltration features, such as detention basins, bioswales, vegetated median strips, and permeable paving, early into the design process to ensure that adequate acreage and elevation contours are planned.

**Contribution of the Proposed Project to Cumulative Utility Impacts**

The proposed Project has limited potential to contribute to a cumulative impact. Some of the same types of utilities, owned by the same utility companies, would be relocated by the proposed Project as well as by related projects. However, all projects would need to coordinate with the utility companies to relocate their facilities. Potential conflicts or impacts due to utility relocations could only occur during construction of the proposed Project and would be identified and avoided as a result of coordination with the utility companies as part of BMP UT-1: Utility Verification and Coordination with Utility Providers and CPUC. Furthermore, the proposed Project would avoid any potential safety or community impacts by notifying the public of any service interruptions (BMP UT-4: Coordinate with the HWS and ACWD in Dry Construction Years) because of new or relocated utilities.

The proposed Project would PIP Line M and therefore would not affect the improvements to Line M proposed by the Quarry Lakes Parkway Project. The Quarry Lakes Parkway Project proposes a grade separation at the proposed Project as part of Phases 3 and 4, which are expected to be constructed in the next 10 years (Union City 2022). The Quarry Lakes Parkway Project would be required to coordinate with UPRR and CCJPA in order to work within the UPRR railroad ROW. Coordination with the railroad, as well as with utility providers would ensure that there are no conflicts or cumulative impacts between the two projects with respect to Line M.

The proposed Project would result in new or reworked impervious surfaces within the city of Fremont, as part of the new Ardenwood Station, grade crossing improvements, and grade separations. The proposed Project and related projects would meet the requirements of the MRP and Alameda Countywide Clean Water Program, as well as other local, state, and federal requirements for stormwater quantity and quality. The proposed Project may require localized modifications to drainage channels near areas where the tracks cross drainage channels but does not require expansion of receiving stormwater channels. and prioritizes treatment of stormwater with onsite LID measures where feasible.

The proposed Project would require water connections for operation of the Project. Operational water uses would be limited to irrigation, cleaning, and fire suppression lines at Ardenwood Station, and any irrigation needs for improvements within the city ROW. There are no restrooms, fountains, or other features at the Station that would require substantial amounts of water. Connections to existing water lines would be sufficient to supply both Ardenwood Station and any irrigation needed to maintain plantings associated with existing grade crossings or proposed grade crossing improvements. The proposed Project's operational water use in comparison to residential and commercial development projects would be insignificant. Further, development projects are generally planned as part of general and/or specific plans and have been incorporated into ACWD projections for water use. Therefore, the proposed Project in combination with other related Projects, would not result in a cumulative impact due to new or relocated water lines.

With respect to expansion of utilities, no additional sewer lines or expansion of the capacity of existing lines would be required for the proposed Project. Similarly, the proposed Project would not require the modification, alteration, or addition of any electrical transmission lines. New

distribution connections are expected to be sufficient to power track, systems and Ardenwood Station. Relocation and protection of power lines would be required. Therefore, the proposed Project could not contribute to a cumulative impact with respect to expansion of electrical or sewer capacity.

Given the significant and unavoidable impact identified in Plan Bay Area 2050, there would be a cumulative impact in combination with the proposed Project and other related projects. The proposed Project, however, would not make a considerable contribution to this cumulative impact as the Project does not require additional wastewater lines or capacity; has low operational water, electrical, and telecommunications needs; and would use of LID measures to minimize stormwater runoff. As described in Section 3.20.5, Best Management Practices, the proposed Project would also implement all relevant BMPs to protect environmental resources. All relevant mitigation measures from other resource sections (3.1 through 3.21) would be applied to utility relocations where they occur near sensitive resources. All related projects would also implement similar measures to comply with CEQA, NEPA, and federal, state, and local laws, plans, and policies to protect environmental resources.

### 3.20.8.3 Conclusion

In conclusion, with implementation of BMPs, the proposed Project's incremental effects would not result in a cumulatively considerable impact when combined with other past, present, and reasonably foreseeable future projects. Therefore, the proposed Project does not have a significant cumulative impact with respect to utilities and service systems.

## 3.20.9 CEQA Significance Findings Summary Table

Table 3.20-15 summarizes the utility and service system impacts of the proposed Project.

**Table 3.20-15. Utilities and Service Systems Resources Impacts Summary**

| Impact | Level of Significance Before Mitigation | Incremental Project Contribution to Cumulative Impacts | Mitigation | Level of Significance with Mitigation Incorporated | Incremental Project Cumulative Impact after Mitigation |
|---|---|---|---|---|---|
| **a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?** | LTS | NCC | N/A | LTS | NCC |
| **b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?** | LTS | NCC | N/A | LTS | NCC |
| **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?** | NI | NCC | N/A | NI | NCC |
| **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?** | LTS | NCC | N/A | LTS | NCC |
| **e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?** | NI | NCC | N/A | NI | NCC |

Notes: LTS = Less than Significant Impact, NI = No Impact, N/A = Not Applicable, NCC = Not Cumulatively Considerable.

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# 3.21 Wildfire

## 3.21.1 Introduction

This section describes the regulatory setting and affected environment for wildfire, addresses wildfire hazards within the wildfire RSA and describes the potential impacts related to wildfire during construction and operation of the proposed Project. This section also identifies the cumulative impacts of the proposed Project on wildfire when considered in combination with other relevant projects.

## 3.21.2 Regulatory Setting

This section identifies the federal, state, regional, and local laws, regulations, and orders that are relevant to the analysis of wildfire. This section also addresses the proposed Project's consistency with the regulations described herein.

### 3.21.2.1 Federal

#### National Fire Protection Association Codes and Standards

The NFPA develops, publishes, and disseminates more than 300 codes and standards intended to minimize the possibility and effects of fire and other risks. NFPA 130, Standard for Fixed Guideway and Passenger Rail Systems (NFPA 2020), provides guidance on incorporating passenger safety in system design; egress routes in the event of an emergency; emergency response planning, training, and operations; and fire and smoke prevention and suppression. Additionally, NFPA 1710, Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments (NFPA 2020), includes measures to protect citizens and the occupational safety and health of fire department employees. NFPA 502 addresses bridge and tunnel exposure to fires, however this only applies to bridges over 1,000 feet in length (Quiel 2018).

### 3.21.2.2 State

#### California PRC Titles 14 Natural Resources and 19 Public Safety

CALFIRE implements fire safety regulations in the state. The California PRC (Title 14 and Title 19) includes fire safety regulations that restrict the use of equipment that may produce a spark, flame, or fire; require the use of spark arrestors on construction equipment with an internal combustion engine; specify requirements for the safe use of gasoline-powered tools in fire hazard areas; and specify the fire suppression equipment that must be provided on site for various types of work in fire-prone areas.

CALFIRE has rated areas within California for their potential fire hazards. To quantify this potential risk, CALFIRE has developed a fire hazard severity scale to predict the damage a fire is likely to cause. CALFIRE's fire hazard model has two key elements: probability of an area burning and expected fire behavior (CALFIRE 2023b). The hazard score is based on the factors that influence fire likelihood and fire behavior such as fire history, existing and potential fuel (natural vegetation),

predicted flame length, blowing embers, terrain, and typical fire weather for the area (CALFIRE 2023b). These methods allow designation of Fire Hazard Severity Zones (FHSZs), which are geographical areas classified by state or local agencies by their likelihood of burning and how damaging a fire would be as moderate, high, or very high. In this analysis, FHSZs are considered based on their proximity to the Project as defined by the wildfire RSA (defined in Section 3.21.3.1).

CALFIRE has the primary financial responsibility of preventing and suppressing fires in State Responsibility Areas (SRAs). These areas include "lands covered wholly or in part by timber, brush, undergrowth, or grass, whether of commercial value or not; lands that protect the soil from erosion and retard run off or percolation; lands used principally for range or forage purposes; lands not owned by the federal government; and lands that are not incorporated" (Section 4126). Under CALFIRE's fire hazard model, all SRAs are rated moderate, high, or very high (CALFIRE 2022b). CALFIRE adopted FHSZ maps for SRAs in November 2007 (CALFIRE 2022b). Areas that are not within an SRA are considered to be within a Local Responsibility Area (LRA). LRA maps were recommended by CALFIRE for Alameda County in September 2008 (CALFIRE 2022ba.

## Community Wildfire Prevention and Mitigation Report

CALFIRE prepared the *Community Wildfire Prevention & Mitigation Report* in response to Executive Order N-05-19, which directed CALFIRE, in consultation with other state agencies and departments, to recommend immediate, medium-term, and long-term actions to help prevent destructive wildfires, with a specific focus on vulnerable communities and populations in the state (CALFIRE 2019). Based on local fire plans developed by CALFIRE units, CALFIRE identified 35 priority projects for immediate implementation to help reduce public safety risks for more than 200 communities. Projects include removal of hazardous dead trees, vegetation clearing, creation of fuel breaks and community defensible spaces, and creation of ingress and egress corridors. The *Community Wildfire Prevention & Mitigation Report* also identifies near-term administrative, regulatory, and policy actions to address community vulnerability and wildfire fuel buildup through rapid deployment of resources.

CALFIRE's identified medium-term and long-term actions encourage coordination and cooperation among the various levels of regional and local fire protection agencies.

## California Fire Code

The California Fire Code (CCR Title 24, Part 9) establishes minimum requirements to safeguard the public health, safety, and general welfare from the hazards of fire, explosion, or dangerous conditions in new and existing buildings. Chapter 33 of the Code contains requirements for fire preserving safety during construction, such as to develop a pre-fire plan in coordination with the fire chief, maintain vehicle access for firefighting at construction sites, and meet requirements for safe operation of construction equipment powered by internal combustion engines.

## California Government Code Section 65302

California Government Code Section 65302 requires cities and counties to include in their general plan a statement of development policies setting forth objectives, principles, standards, and plan proposals for seven policy areas, including safety. The safety element provides for the protection of the community from any unreasonable risks associated with wildland and urban fires. The safety element must also address evacuation routes, peak load water supply requirements, and minimum road widths and clearances around structures, because those items relate to identified fire hazards.

## California Government Code Title 5, Chapter 6.8 - VHFHSZ (Sections 51175-51189)

Sections 51175-51189 classify lands in the state in accordance with whether a very high fire hazard is present so that public officials can identify measures that will retard the rate of spread and reduce the potential intensity of uncontrolled fires that threaten to destroy resources, life, or property, and to require that those measures be taken.

Section 51177 defines wildfire as an "unplanned, unwanted wildland fire, including unauthorized human-caused fires, escaped wildland fire use events, escaped prescribed fire projects, and all other wildland fires where the objective is to extinguish the fire."

Section 51182 (a) requires that an occupied structure on or adjoining a mountainous area, forest-covered land, brush-covered land, grass-covered land, or land that is covered with flammable material, and is within a VHFHSZ designated by the local agency shall maintain defensible space, an area clear of flammable vegetation around a structure.

Section 51183 allows a local agency to exempt structures with exteriors constructed entirely of nonflammable materials (or conditioned upon the contents and composition of the structure) and may vary the requirements for management of fuels surrounding the structures in those cases.

## California Fire Code - California Code of Regulations (CCR), Title 24, Chapter 49 - Requirements for Wildland-Urban Interface Areas (24 CCR Chapter 49)

Chapter 49 defines wildland-urban interface (WUI) fire areas as areas identified by the state as an FHSZ or other areas designated by the enforcing agency to be at a significant risk from wildfires (California Fire Code 2019). Section 4907 Defensible Space requires that buildings and structures within the VHFHZ of a LRA maintain defensible space as outlined in Government Code 51175 — 51189, and any local ordinance of the authority having jurisdiction. LRAs are lands designated by the state to be under local responsibility (county or municipality) for fire suppression.

## CCR Power Line Safety and Fire Prevention (14 CCR 1250)

14 CCR 1250 "Fire Prevention Standards for Electric Utilities," specifies utility-related measures for fire prevention within SRAs. SRAs are lands that are classified by the Board of Forestry where the financial responsibility of preventing and suppressing forest fires is primarily the responsibility of the state (California Fire Code). SRAs are lands exclusive of cities and federal lands (but regardless of ownership) and are covered wholly or in part by timber, brush, undergrowth, or grass, whether of commercial value or not, which protect the soil from erosion, retard runoff of water or accelerated percolation, and lands used principally for range or forage purpose (CALFIRE 2023). 14 CCR 1250 also provides specific exemptions from electric pole and tower firebreak clearance standards, as well as electric conductor clearance standards, and specifies when and where the standards apply.

## California PRC Division 4, Chapter 3 Mountainous, Forest-, Brush- and Grass Covered Lands

Section 4292 requires anyone that controls, operates, or maintains electrical lines on any brush- or grass covered land to clear at least 10 feet around any pole or tower which supports a switch, fuse, transformer, lightning arrester, line junction, or dead end or corner pole (except for telephone, telegraph, telephone or telegraph messenger call, fire or alarm line, or other line which is classed as a communication circuit).

Section 4293 requires anyone that controls, operates, or maintains electrical lines to provide the following clearance between all vegetation (dead or alive) and all conductors which are carrying electric current:

- For any line which is operating at 2,400 or more volts, but less than 72,000 volts, 4 feet.
- For any line which is operating at 72,000 or more volts, but less than 110,000 volts, 6 feet.
- For any line which is operating at 110,000 or more volts, 10 feet.

Dead or dying trees, or their parts that are leaning toward the line which may contact or may fall on the line, are required to be removed. Lines of less than 750 volts are exempt from sections 4292 and 4293.

### State Board of Forestry and Fire Protection; CALFIRE - 2018 Strategic Fire Plan for California

The Strategic Fire Plan for California (CALFIRE 2018) provides the state's road map for reducing the risk of wildfire by providing broad, strategic direction to CALFIRE. The 2018 Plan includes eight goals and supporting objectives to enhance the protection of lives, property, and natural resources from wildland fire, as well as improve environmental resilience to wildland fire.

## 3.21.2.3 Regional

### CALFIRE Santa Clara Unit 2020 Strategic Fire Plan

CALFIRE is organized into 21 Operational Units to address fire suppression, which geographically follow county lines. Alameda County is included in the Santa Clara Unit. The Strategic Fire Plan for the Santa Clara Unit designates Communities at Risk (CALFIRE 2023a). The Plan also describes defensible space fuel treatment tactics to help homeowners comply with PRC Section 4291 (within SRAs). There are two zones of defensible space, from the structure outward to 30 feet and from 30 to 100 feet from structures (the reduced fuel zone).

### Alameda County Community Wildfire Protection Plan 2015 Update

The goal of the Community Wildfire Protection Plan (CWPP) is to reduce fire hazard through increased information and education about wildfires, hazardous fuels reduction, actions to reduce structure ignitability, and other recommendations to assist emergency preparedness and fire suppression efforts. The CWPP's recommendations are organized into four broad categories:

- Information, education, and collaborative planning priorities;
- Enhanced suppression capability and emergency preparedness priorities;
- Fuel reduction treatments around homes and on public lands and related priorities; and
- Improving survivability of structures priorities.

The plan makes 10 general recommendations for strategies to reduce fire risk within the WUI. Strategy 8 includes the recommendation to integrate wildfire safety into vegetation planting requirements (Diablo Fire Safe Council 2015).

### Alameda County General Plan Safety Element

The Alameda County General Plan identifies CALFIRE's recommended FHSZs (SRA and LRA) within unincorporated communities (Alameda County Community Development Agency 2014, 2016). Goal 2 of the Safety Element is "to reduce the risk of urban and wildland fire hazards." This goal is supported by 13 policies and 22 actions to reduce the risk of both urban and wildland fire hazards. Out of the 13 policies, one is applicable to the proposed Project:

- **Policy 10:** The County shall require the use of fire-resistant building materials, fire resistant landscaping, and adequate clearance around structures in "high" and "very high" fire hazard areas.

### Alameda County Emergency Operations Plan

The purpose of the EOP is to establish the foundational policies and procedures that define how Alameda County will effectively prepare for, respond to, recover from, and mitigate against natural or human-caused disasters. It describes the emergency management organization and how it is activated. The EOP (Alameda County Sheriff's Office of Homeland Security and Emergency Services, 2012) provides an overview of the County's approach to emergency operations. It identifies emergency response policies, describes the response and recovery organization, and assigns specific roles and responsibilities to County departments, agencies, and community partners.

## 3.21.2.4 Local

### City of Oakland General Plan Safety Element

Safety Element Policy FI-3 of the City of Oakland's General Plan (City of Oakland 2012) is to "prioritize the reduction of the wildfire hazard, with an emphasis on prevention." The four actions within this policy are applicable to the Berkeley Hills in east Oakland.

### City of Oakland Code of Ordinances Chapter 15.12 Oakland Fire Code

Within the Oakland Fire Code, Chapter 49 (Wildland-Urban Interface Areas) Section 4904.3 defines the Oakland VHFHSZ as the area north and east of the boundaries identified in the ordinance, which are limited to the hillside areas in eastern Oakland, outside of the RSA.

### City of Oakland 2021–2026 Hazard Mitigation Plan

The Hazard Mitigation Plan (City of Oakland 2021) identifies mitigation alternatives to reduce risk associated with wildfire in Oakland, in terms of personal, corporate, and governmental responsibility. Measures that are relevant to the proposed Project are:

- Locate [project or features] outside of hazard area.
- Create and maintain defensible space around structures and infrastructure.
- Use fire-resistant building materials.
- Use fire-resistant plantings in buffer areas of high wildfire threat.

## City of San Leandro 2035 General Plan Chapter 7 Environmental Hazards

The City of San Leandro General Plan (City of San Leandro 2016) references the CALFIRE designated VHFHSZs within the LRA and does not designate additional areas. Goal EH-2 is to "Minimize urban wildfire hazards, both within the city and throughout the East Bay Hills," which include policies and actions applicable within VHFHSZs. The Alameda County Fire Department is responsible for wildfire prevention activities in the City of San Leandro and works with property owners to maintain defensible space around homes and requires the removal of flammable vegetation and combustible litter. The California Fire Code specifies additional requirements that are enforced by the City's Building Department. The City also requires fire-resistant roofing materials in new construction and major remodeling projects.

## City of Hayward Municipal Code Chapter 3 Article 14 Chapter 49 Wildland-Urban Interface Fire Area

In the City of Hayward's Municipal Code, WUI fire areas are designated lands which are covered with grass, grain, brush or forest, whether privately or publicly owned, within which a fire would present an abnormally difficult job of suppression or would result in great and unusual damage through fire or resulting erosion. The WUI fire area in Hayward has been defined as: "the areas east of Mission Boulevard from the south side of D Street to the city limits south to Union City."

## City of Hayward General Plan

Goal 5 Urban Wildlife Hazards of the City of Hayward's General Plan (City of Hayward 2014) is to protect life and minimize potential property damage from urban wildfire hazards in hillside areas. This goal and its supporting policies are designed to minimize urban wildfire risks through the implementation of wildland/urban interface guidelines, fire prevention codes, and open space management practices that reduce the potential for wildfires.

## Union City General Plan Health and Safety Element

Union City's General Plan (Union City 2002) does not specify VHFHSZs as the state had not yet identified VHFHSZs in Alameda County when the Plan was approved. The Plan identifies a greater potential for wildland fires in open hillside areas in the eastern part of the city. Policies HS-E1.3 through 6 apply to fires in wildlands and the WUI.

## City of Fremont Municipal Code Title 15 Chapter 15.35 Fremont Fire Code

The Fremont Fire Code incorporates by reference the California Fire Code (24 CCR) with additional requirements for the city.

Section 15.35.220 requires a fire protection plan be prepared when required by the fire chief. The plan shall be based upon a site-specific wildfire risk assessment that includes considerations of location, topography, aspect, flammable vegetation, climatic conditions, and fire history. The plan shall address water supply, access, building ignition and fire-resistance factors, fire protection systems and equipment, defensible space, and vegetation management.

Section 15.35.240 requires that persons owning, leasing, controlling, operating, or maintaining buildings or structures in, upon, or adjoining WUI Fire Areas (including state and local VHFHSZs) and persons owning, leasing, or controlling land adjacent to such buildings or structures, shall

maintain additional effective defensible space by removing brush, flammable vegetation and combustible growth located 30 feet to 100 feet from the buildings or structures when required by the Fire Chief (due to steepness of terrain or other conditions that would cause a defensible space of only 30 feet to be insufficient). An exception to this is for grass and other vegetation located more than 30 feet from buildings or structures and less than 18 inches in height above the ground need not be removed where necessary to stabilize the soil and prevent erosion.

## City of Fremont Wildland-Urban Interface Ordinance 33-2007

Ordinance 33-2007 (the Wildland-Urban Interface Ordinance) designates areas within the City of Fremont that are VHFHZs. These areas were not designated as such on state maps. These areas define the WUI fire area for purposes of applying the building standards for heightened fire protection, vegetation management, and other regulations contained in the California Building Standards Code as adopted and amended by the City of Fremont.

## City of Fremont General Plan Chapter 10 Safety Element

The City of Fremont's General Plan (City of Fremont 2011) defines wildland fires as "a fire occurring in a suburban or rural area which contains uncultivated lands, timber, range, watershed, brush or grasslands. This includes areas where there is mixed developed and undeveloped lands." The Plan designated much of the hills in eastern Fremont as a Hazardous Fire Area and requiring special development controls. These controls include the use of non-combustible roofing, one-hour rated exterior walls, wetbands, firebreaks, sufficient clearance between structures, drought-tolerant landscaping, and maintaining defensible space. The provision of adequate water supply is also critical.

On larger developments, Fremont typically requires two ingress-egress roads to ensure sufficient access in the event of an emergency. The City has established minimum pavement widths and overhead clearance for all emergency access roads. Overhead clearance, turning radii, and turnaround areas are also regulated to ensure emergency vehicle access. Fire lanes, emergency access roads, dead end streets and alleys must also end in a cul-de-sac or other approved turning area ensuring adequate width and clearance for emergency vehicles. The City of Fremont also requires water lines supplying developments to have minimum flow rates and water pressure.

The following policies and implementation actions are relevant to fire protection:

- **Policy 10-4.2: Development Standards:** Maintain development standards that limit potential health and safety risks, and the risks of structure damage and severe economic loss due to fire hazards.
    - **Implementation 10-4.2.A: Fire Code Compliance:** Require all new development and renovations to comply with the California Building Code, Fire Code, and all local ordinances for construction and adequacy of water flow and pressure, ingress/egress and other measures for fire protection.
- **Policy 10-4.3: Access and Clearance:** Require adequate access and clearance for fire equipment, fire suppression personnel, and evacuation for new development.
    - **Implementation 10-4.3.A: Development Review:** Review new projects for necessary fire access, street widths and clearances.

- **Implementation 10-4.3.B: Development Criteria:** Require all development to provide adequate access and clearance and other fire safety measures as appropriate, and require additional vehicular access or clearance areas as determined by the Fire Department and local amendments to the Fire Code.
- **Implementation 10-4.3.C: Fire Resistant Construction:** Enforce regulations related to fire resistant construction, sprinkler systems and early warning fire detection system installation. Maintain accurate information on construction methods of structures and location and number of structures on a site.
- **Implementation 10-4.3.D: Balance Amenities with Fire Safety:** Use creative design solutions to create human-scale pedestrian environments while also ensuring fire safety in new developments.

### City of Fremont Draft Emergency Operations Plan, Basic Plan (2020)

The City of Fremont has recently adopted an EOP (City of Fremont 2020a) that outlines the framework used by the City should a natural disaster, including a wildfire, occur. The EOP identifies the city's Emergency Operations Center (EOC) facility is located at 42551 Osgood Road. Alternate EOCs are the Fremont Police Department Operations Center at 2000 Stevenson and the Fremont Fire Department Operations Center at 43600 Grimmer Boulevard.

### City of Fremont Local Hazard Mitigation Plan

The City of Fremont's Local Hazard Mitigation Plan (City of Fremont 2017) includes a medium priority strategy to utilize vegetation management to reduce risks in existing development (Strategy #18). This strategy includes the action to encourage the use of least flammable mulches, such as coarse compost.

### City of Newark General Plan

As described in the City of Newark's General Plan (City of Newark 2013), CALFIRE has determined that Newark does not have any SRAs or LRAs. No additional FHSZs were identified by the City.

## 3.21.2.5 Consistency with Plans, Policies, and Regulations

### Federal

#### NFPA Codes and Standards

The proposed Project would implement NFPA codes and standards into guideway, station, and structure design. UPRR *General Conditions and Specifications* (UPRR 2022a) and *Electrical Design Manual* (UPRR 2012) follow NFPA codes and standards. The Ardenwood Station design would comply with NFPA codes and standards. NFPA 502 is not applicable to the proposed Project as there are no bridges longer than 1,000 feet.

## State

### California Government Code Section 65302

The proposed Project would comply with Section 65302. The proposed Project would not affect cities' development of General Plan safety elements.

### California Government Code Title 5 Chapter 6.8 VHFHSZ (Sections 51175-51189); California Fire Code 24 CCR Chapter 49 Requirements for Wildland-Urban Interface Areas

There are no Project features proposed within SRAs; therefore, the Project is consistent with all plans, policies, and regulations applicable to SRAs. There are no occupied structures proposed by the Project within or adjacent to VHFHSZs. The only occupied structure proposed by the Project would be the Ardenwood Station. The Ardenwood Station parking structure would be approximately 0.1 mile from a local VHFHSZ at the Ardenwood Historic Farm (Ardenwood VHFHSZ). Therefore, defensible space requirements are not applicable to the Ardenwood Station.

### Power Line Safety and Fire Prevention (14 CCR 1250); California PRC Division 4, Chapter 3 Mountainous, Forest-, Brush- and Grass Covered Lands

There are no mountainous or forested areas within the proposed Project footprint. Grassy, brushy areas may be present along roadsides, embankments, and adjacent to waterways. The Project would comply with required vegetation clearances around power lines supplying the Project. The Project would ensure sufficient vegetation clearances during any required relocation of electrical lines; however, ongoing vegetation clearance would be the responsibility of the utility company that owns the line. There are no utility installations or relocations within the Ardenwood VHFHSZ and therefore 14 CCR Section 1250 is not applicable. Lines of less than 750 volts are exempt from sections 4292 and 4293.

### California PRC (Title 14 Natural Resources and Title 19 Public Safety)

The California PRC includes fire safety regulations that apply to SRAs and therefore are not applicable to the proposed Project because there are no SRAs within the RSA.

### State Board of Forestry and Fire Protection; CALFIRE – 2018 Strategic Fire Plan for California

The proposed Project is consistent with the Strategic Fire Plan for California's (CALFIRE 2018). As described in Section 3.21.6, the proposed Project is expected to have no impact on wildfire hazards and therefore supports the plan's goals and objectives to enhance the protection of lives, property and natural resources from wildland fire, as well as improve environmental resilience to wildland fire.

## County and Regional

### CALFIRE Santa Clara Unit 2020 Strategic Fire Plan

Defensible space fuel treatment tactics included in this Plan apply to SRAs. The Project does not propose any features within or near SRAs. The Project is therefore consistent with the Strategic Fire Plan.

### Alameda County Community Wildfire Protection Plan 2015 Update

BMP WF-2 (described in Section 3.21.5), included as part of the proposed Project, is consistent with CWPP recommendations to factor wildfire safety when developing and implementing landscape planting for crossing and roadway improvements, outside of the UPRR ROW.

### Alameda County General Plan Safety Element

The Alameda County General Plan (Alameda County Community Development Agency 2014) does not identify any VHFHSZs near the Project in unincorporated areas, such as San Lorenzo. With the implementation of Project BMPs, the proposed Project is consistent with all 13 policies and 22 actions to reduce the risk of both urban and wildland fire hazards.

### Alameda County EOP

The proposed Project is consistent with the Alameda County EOP. Specific evacuation routes or locations of operations were not identified in the EOP, and the Project would not inhibit implementation of any protocol or procedures described in the EOP.

## Municipal

### General Plans (Cities of Oakland, Hayward, San Leandro, Union City, Newark), Oakland Fire Code

Within the cities of Oakland, Hayward, San Leandro, Union City, and Newark, the proposed Project is outside of VHFHSZs, WUI areas, and eastern hillside areas. The Project does not propose new, occupied structures within these cities and there are no VHFHSZs within 500 feet of the proposed Project. The proposed Project is therefore consistent with these municipal General Plans and codes relating to wildfire.

### City of Fremont Municipal Code Title 15 Chapter 15.35 Fremont Fire Code

Defensible space requirements apply only to structures within state and local VHFHSZs. There are no structures proposed by the Project within local VHFHSZs. The Project would prepare a fire protection plan if required by the City of Fremont Fire Chief.

### City of Fremont Wildland-Urban Interface Ordinance 33-2007

Ardenwood Historic Farm, adjacent to the Project is designated as a VHFHSZs (City of Fremont 2021 and 2007). Project features within or adjacent to the Ardenwood VHFHSZ would comply with vegetation management and other regulations in the California Building Standards Code as adopted and amended by the City of Fremont.

### City of Fremont General Plan Chapter 10 Safety Element

As applicable to a rail project with roadway modifications, the Project would comply with development controls, including the use of drought-tolerant landscaping. The proposed Project would maintain two ingress-egress roads during construction and operation. New roadways and grade separations would meet minimum pavement widths, turn arounds and turning radii, and overhead clearance so that sufficient vertical and horizontal clearance is provided for emergency vehicles. The Project would maintain any existing water lines and flows necessary for fire suppression. Additional water lines and water line improvements to meet flow requirements would be provided where required to meet codes and standards.

#### City of Fremont EOP

The City of Fremont EOC and alternate EOCs are not within or near the Project footprint. The proposed Project would not affect operations at the EOCs and therefore would be consistent with the EOP.

#### City of Fremont Local Hazard Mitigation Plan (LHMP)

With implementation of BMP WF-2, the proposed Project would reduce the flammability of Project landscaping, consistent with the LHMP Strategy 18 regarding vegetation management. The other strategies included in the LHMP focus on residential buildings, City-owned facilities, and improving municipal government processes, which would not be affected by the proposed Project.

## 3.21.3 Methods for Evaluating Environmental Impacts

This section defines the wildfire RSA and describes the methods used to analyze the impacts on wildfire hazards within the RSA.

### 3.21.3.1 Resource Study Area

As defined in Section 3.1, Introduction, RSAs are the geographic boundaries within which the environmental investigations specific to each resource topic were conducted.

A 500-foot buffer from the proposed Project footprint was used to establish the wildfire RSA. See Figure 3.21-1 through Figure 3.21-4. The purpose of this buffer was to identify any lands classified by the state or local governments as VHFHSZs in or near the Project. A 500-foot RSA was selected due to the primarily urban land uses with major roads, highways, development, and grade separations that would inhibit the rapid spread of wildfire that would otherwise occur in grassy, forested, or brushy open spaces.

### 3.21.3.2 Data Sources

The evaluation of the potential impacts that the proposed Project could have on wildfire hazards looked at whether the Project would exacerbate existing hazards or result in a new wildfire-related hazard. CCJPA assessed wildfire hazard impacts by reviewing existing conditions compared to the design and operational features of the proposed Project. CCJPA analysts collected maps and GIS datasets from local and regional government sources to determine potential fire hazards and to evaluate how construction and operation of the proposed Project may cause new or exacerbate existing wildfire hazards. Data sources included CALFIRE's FHSZ maps and GIS layers (CALFIRE 2007, 2008b, 2008c, 2022a, 2022b) as well as local mapping of VHFHSZ (City of Fremont 2021, 2007, 2020b).

**Figure 3.21-1. Wildfire RSA Extent 1**

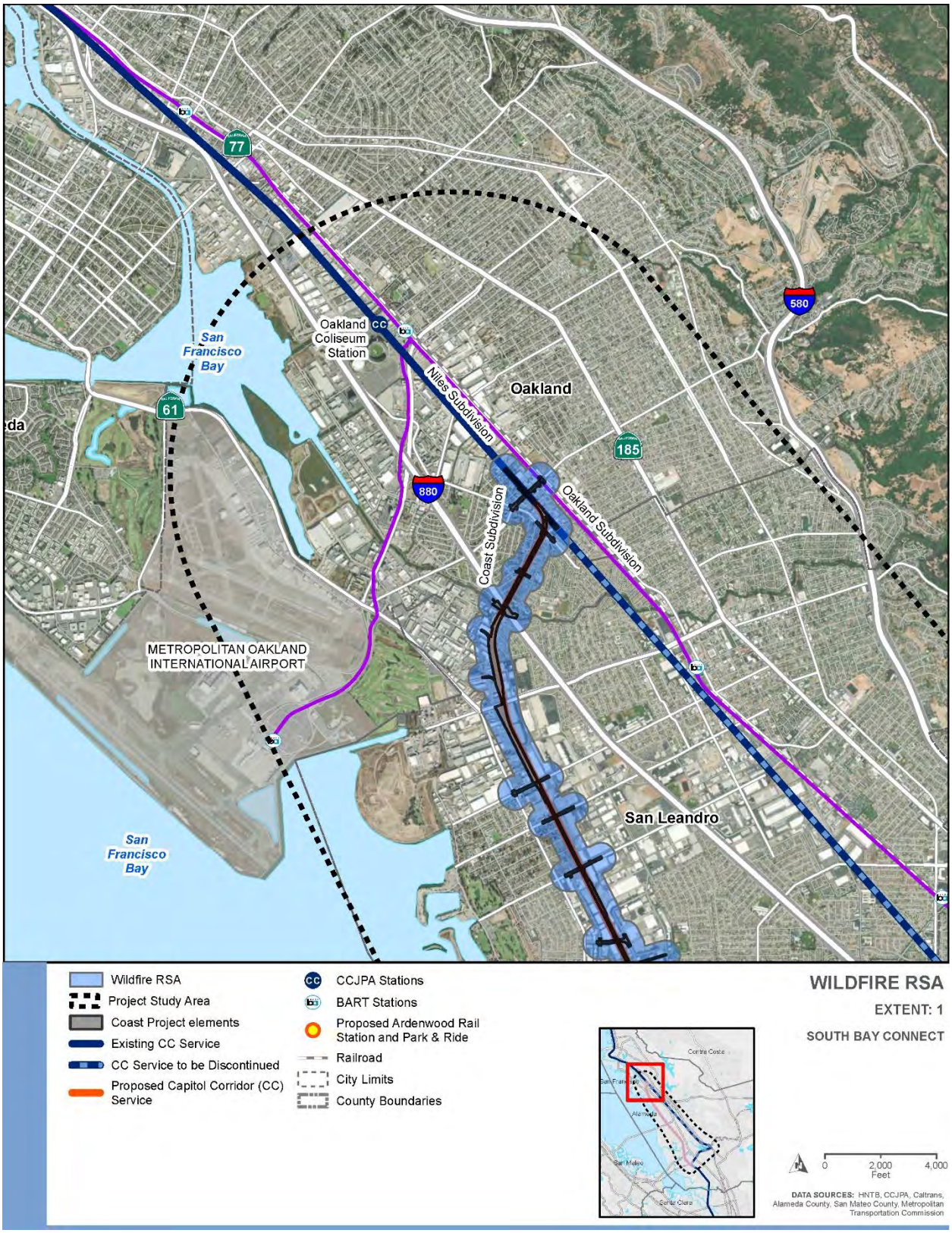


**Figure 3.21-2. Wildfire RSA Extent 2**

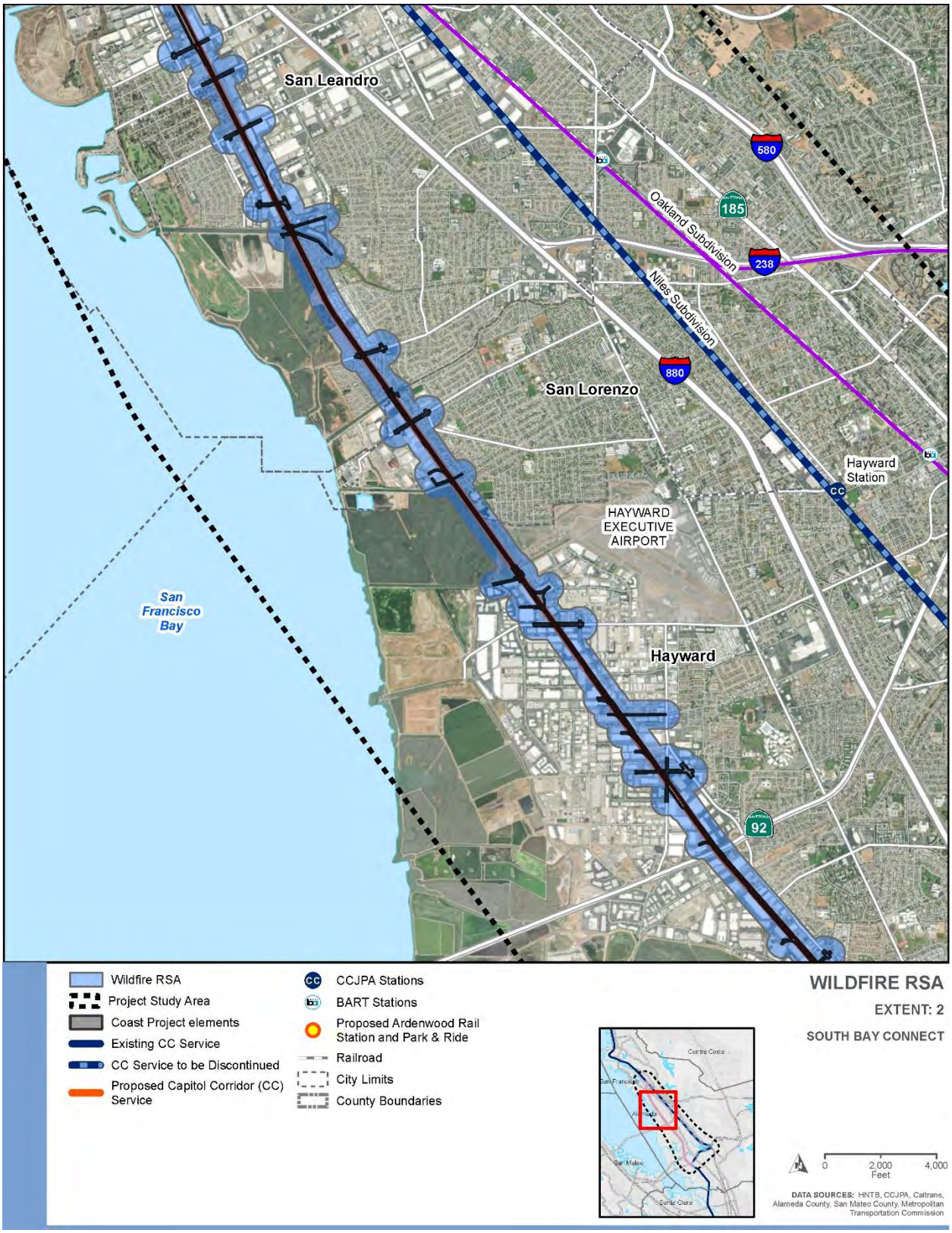


**Figure 3.21-3. Wildfire RSA Extent 3**

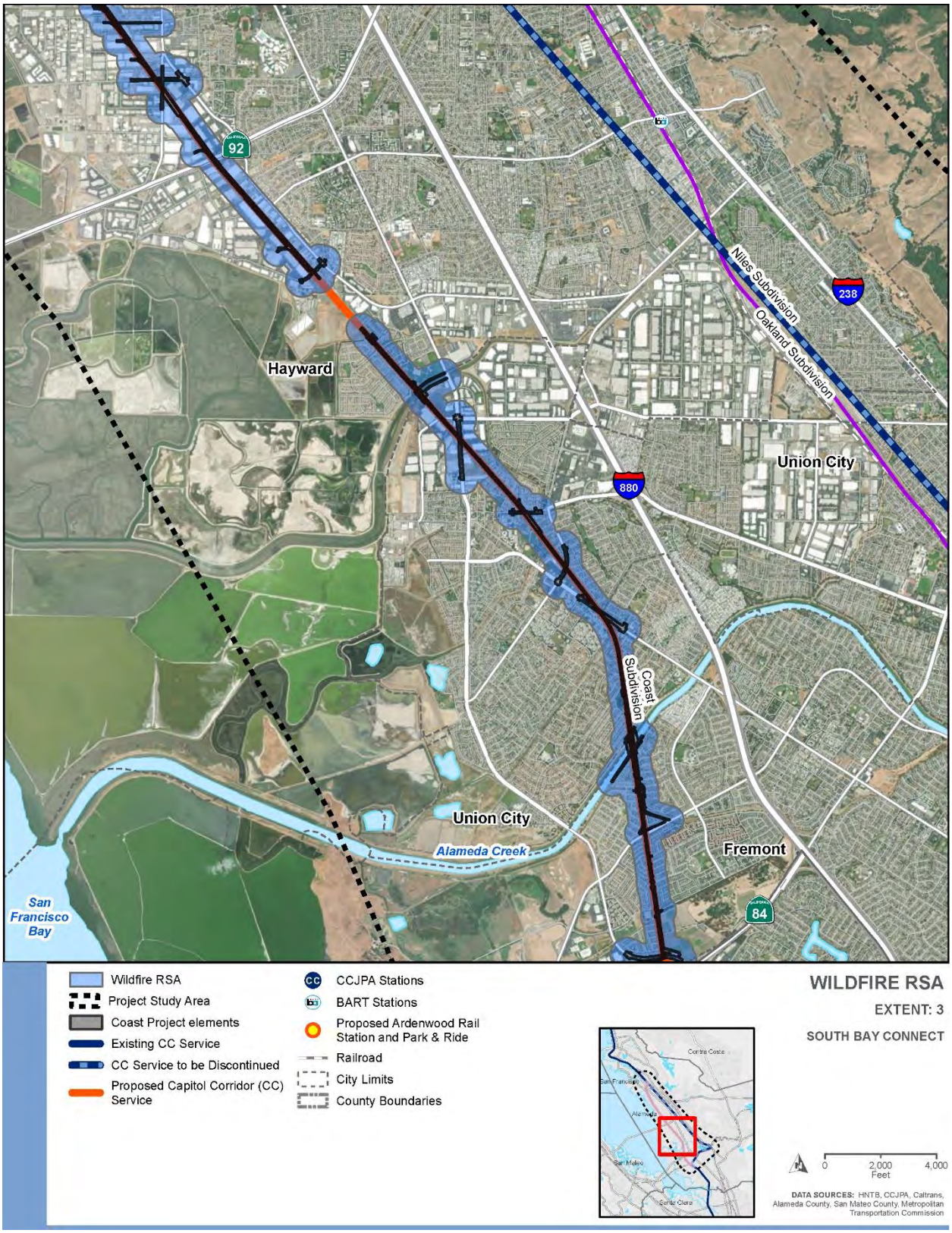
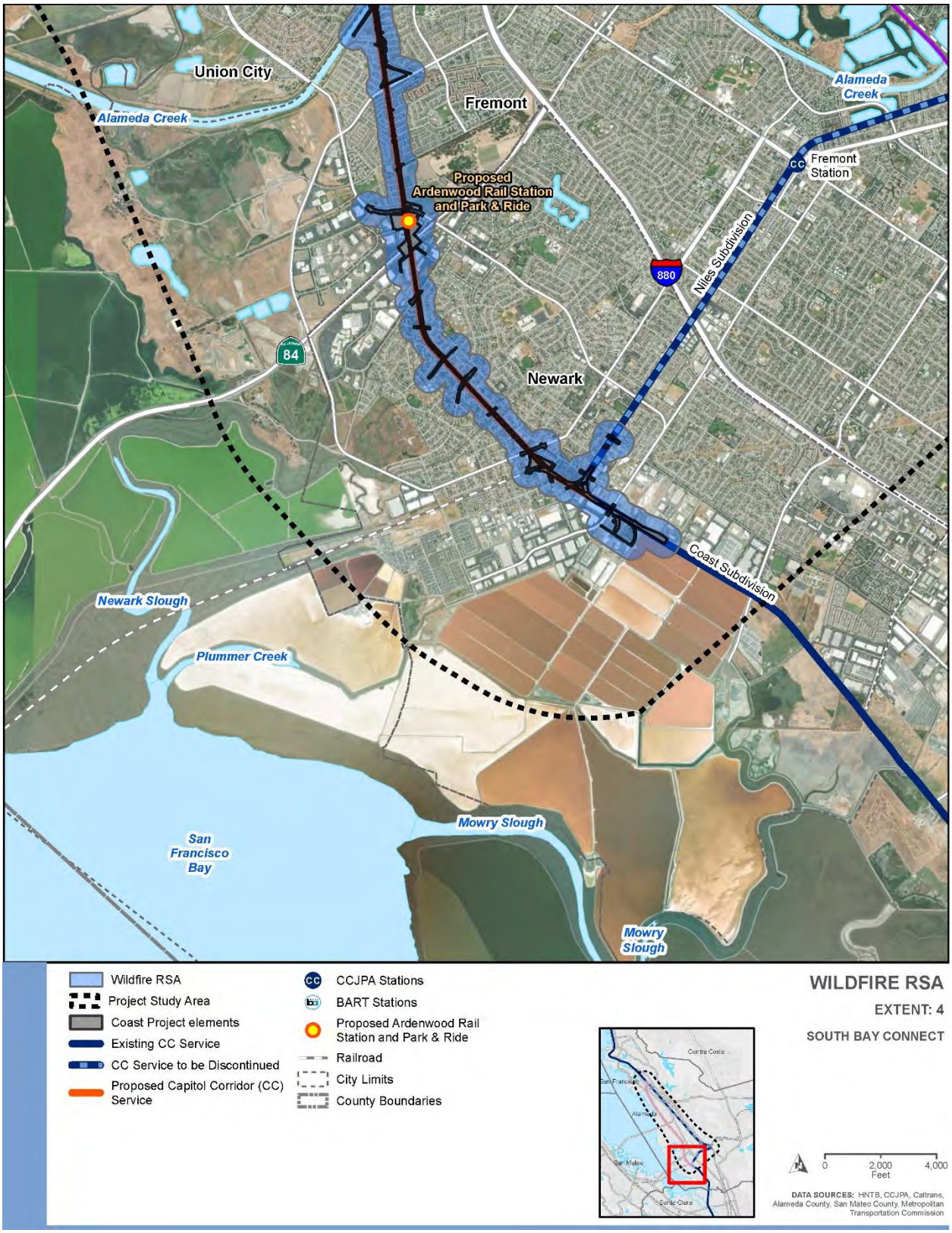


**Figure 3.21-4. Wildfire RSA Extent 4**



### 3.21.3.3 CEQA Thresholds

To satisfy CEQA requirements, wildfire impacts were analyzed in accordance with Appendix G of the CEQA Guidelines. According to the CEQA Guidelines, CCR, Title 14, Section 15002(g), "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in CEQA Guidelines Section 15064(b)(1), the significance of an activity may vary with the setting. The impact analysis identifies and analyzes construction (short-term) and operation (long-term) impacts, as well as direct and indirect impacts (see PRC Section 21065). The proposed Project would have significant Wildfire impacts under CEQA if it would:

a. Substantially impair an adopted emergency response plan or emergency evacuation plan;

b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire;

c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment; or

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.

## 3.21.4 Affected Environment

Wildfire is any uncontrolled fire spreading through vegetative fuels that threatens to destroy life, property, or resources (California Fire Code). The fire environment is defined as the surrounding conditions, influences, and modifying forces that determine fire behavior. There are four major factors that determine wildfire behavior (and risk): topography, fuel, weather, and human behavior (CALFIRE 2023a).

Topographic characteristics of slope and aspect affect fire behavior. Steeper slopes can contribute to fire hazard by preheating fuels, intensifying the effects of wind, and making fire suppression difficult by reducing accessibility. The rate of spread of fire increases with slope (Castro Rego et al. 2021). The effect of slope on fire behavior depends on how densely the fuel is packed together, but in general, a fire burning upslope aided by wind shows the highest rates of spread, greatest potential for damage, and greatest difficulty to control (Weise and Biging 1997). Westward facing slopes tend to be more arid due to long exposure to the afternoon sun, and therefore are more combustible (Diablo Fire Safe Council 2015). However, ridgetops can inhibit fire propagation, as fire spreads more slowly downhill or may even be unable to spread (Alameda County Sheriff's Office of Homeland Security and Emergency Services 2012).

The type and condition of vegetation plays a significant role in the occurrence and spread of wildfires. Certain types of plants are more susceptible to burning or burn with greater intensity; and non-native plants can be more susceptible to burning than native species. Dense or overgrown vegetation increases the fuel load (the amount of combustible material available to fuel the fire). The ratio of living to dead plant matter as well as fuel moisture content is also important. The risk of fire increases significantly during periods of prolonged drought, as the moisture content of both living and dead plant matter decreases; it also increases when a disease or infestation has caused

widespread damage to plant communities. The fuel's continuity, both horizontally (e.g., large areas of forests where trees have been killed by disease) and vertically (e.g., areas with grasses, shrubs, and trees), is also an important factor, as wildfires in areas with continuous fuel sources are more likely to spread farther (Alameda County Sheriff's Office of Homeland Security and Emergency Services 2012).

Temperature, humidity, wind, and lightning can affect chances of ignition and the rate at which fire spreads. Extreme weather, such as high temperatures and low humidity, can lead to extreme wildfire activity. By contrast, cooling and higher humidity correlate to reduced wildfire occurrence and easier containment. Lightning strikes are major initiators of wildfires in northern California. For example, 12,000 lightning strikes in August of 2020 resulted in 585 fires (Boxall 2020). Of California's top 20 largest fires, nine were caused by lightning strikes (CALFIRE 2020c).

Human behavior is another major contributor to wildfire risk. Fires can be started intentionally by arson or unintentionally such as from campfires, debris burning, smoking, electrical failures, or driving on tall dry grass. Of the top 20 largest California wildfires, seven were caused by human activity in addition to the three wildfires that were caused by powerline issues (CALFIRE 2022c).

## 3.21.4.1 Environmental Setting

### Regional Setting

Located within Alameda County, the Project is within CALFIRE's Santa Clara Administrative Unit, which consists of the Counties of Contra Costa, Alameda, Santa Clara, and western portions of Stanislaus and San Joaquin. This unit is characterized by large urban population centers adjacent to wildland areas resulting in some of the largest WUI areas in California (CALFIRE 2023a). WUI areas are defined by the California Fire Code (Section 4902) as "a geographical area identified by the state as a 'Fire Hazard Severity Zone' or other areas designated by the enforcing agency to be at a significant risk from wildfires." The Federal Emergency Management Administration (FEMA) defines WUI as "the zone of transition between unoccupied land and human development. It is the line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels (CALFIRE 2022). Major fires over the last 35 years within the Santa Clara Administrative Unit are listed in Table 3.21-1.

Vegetation types in the unit are predominantly annual grasses, chaparral, and oak dominated woodland (CALFIRE 2023a). Topography ranges from rolling hills near the San Francisco Bay to mountainous elevations up to 4,000 feet with steep canyon drainages. Alameda County's steep topography, with canyons and swales, influences fire behavior and in many instances intensifies fire effects.

The climate is considered Mediterranean, characterized by warm, dry summers and falls with wetter winters and springs. Weather during fire season (summer and fall) is more temperate closer to the San Francisco Bay and hotter and drier farther inland, east of the Berkeley Hills. Wind patterns are predominantly west to east during fire season due to the cooler marine air flowing from the San Francisco Bay into the Livermore and San Joaquin valleys. Wind speeds vary but on most summer days the winds near the Bay are 10 to 20 miles per hour (CALFIRE 2023a). Even though relative humidity is tempered by the marine influence, higher wind speeds adversely affect fire behavior. Uncontrollable fire storms are more likely to occur under the extreme, but periodic conditions of Red Flag weather days. Red Flag warnings are issued by the National Weather Service when weather elements such as low relative humidity and strong winds, which could lead to rapid spread of

wildfires. In Alameda County, Red Flag weather can mean the occurrence of strong, hot, dry offshore winds. These winds are known locally as Diablo Winds since they come from the north, northeast in the direction of Mount Diablo. These can occur at any time of year but are especially dangerous in the driest months of summer and fall (Diablo Fire Safe Council 2015).

**Table 3.21-1. Santa Clara Administrative Fire Unit History**

| Fire | County | Year | Acres Burned | Structures Lost | Deaths |
|---|---|---|---|---|---|
| Lexington | Santa Clara | 1985 | 13,128 | 0 | 0 |
| Tunnel | Alameda | 1991 | 1,624 | 3,500 | 25 |
| Croy | Santa Clara | 2002 | 3,007 | 300 | 0 |
| Santa Clara Complex | Santa Clara | 2003 | 4,270 | 0 | 0 |
| Lick | Santa Clara | 2007 | 47,183 | 0 | 0 |
| Summit | Santa Clara | 2008 | 4,270 | 0 | 0 |
| Corral | Alameda | 2009 | 12,500 | 0 | 0 |
| Morgan | Contra Costa | 2013 | 3,111 | 0 | 0 |
| Tesla | Alameda | 2015 | 2,850 | 0 | 0 |
| Loma | Santa Clara | 2016 | 4,476 | 0 | 0 |
| SCU Lightning Complex | Santa Clara, Alameda, Contra Costa, San Joaquin, Stanislaus | 2020 | 396,624 | 222 | 0 |

*Source: CALFIRE (2020, 2021e).*

## Local Setting

Within the RSA, topography is generally flat as the Project is located on the west side of the Berkeley Hills. The predominant topographical features within the RSA are grade separations. Weather within the RSA is generally as described in Section 3.21.2.3.

The potential for wildland fires represents a hazard where development is adjacent to open space, near wildland fuels, and/or designated fire severity zones. CALFIRE's Strategic Fire Plan for the Santa Clara Unit (2020) identifies Fremont, Hayward, Oakland, San Leandro, and Union City as

California-designated Communities at Risk. These areas are at high risk of damage from wildfire based on fuel hazards, probability of fire, and housing density.

CALFIRE has designated VHFHSZs in SRAs and LRAs in Alameda County (Figure 3.21-5); however, none of these is within the RSA. VHFHSZs can also be designated by a local agency (California Fire Code 2019). The following cities and unincorporated areas do not have local VHFHSZs within the RSA: Oakland, Hayward, San Leandro, Newark, and Union City. Alameda County has not identified any VHFHSZs within San Lorenzo (Alameda County Community Development Agency 2014).

The City of Fremont has designated VHFHSZs within the city (City of Fremont 2021, 2007, 2020b) and one is within the RSA: Ardenwood Historic Farm (Figure 3.21-4). The Ardenwood Historic Farm is located east of the Coast Subdivision, north of Ardenwood Boulevard.

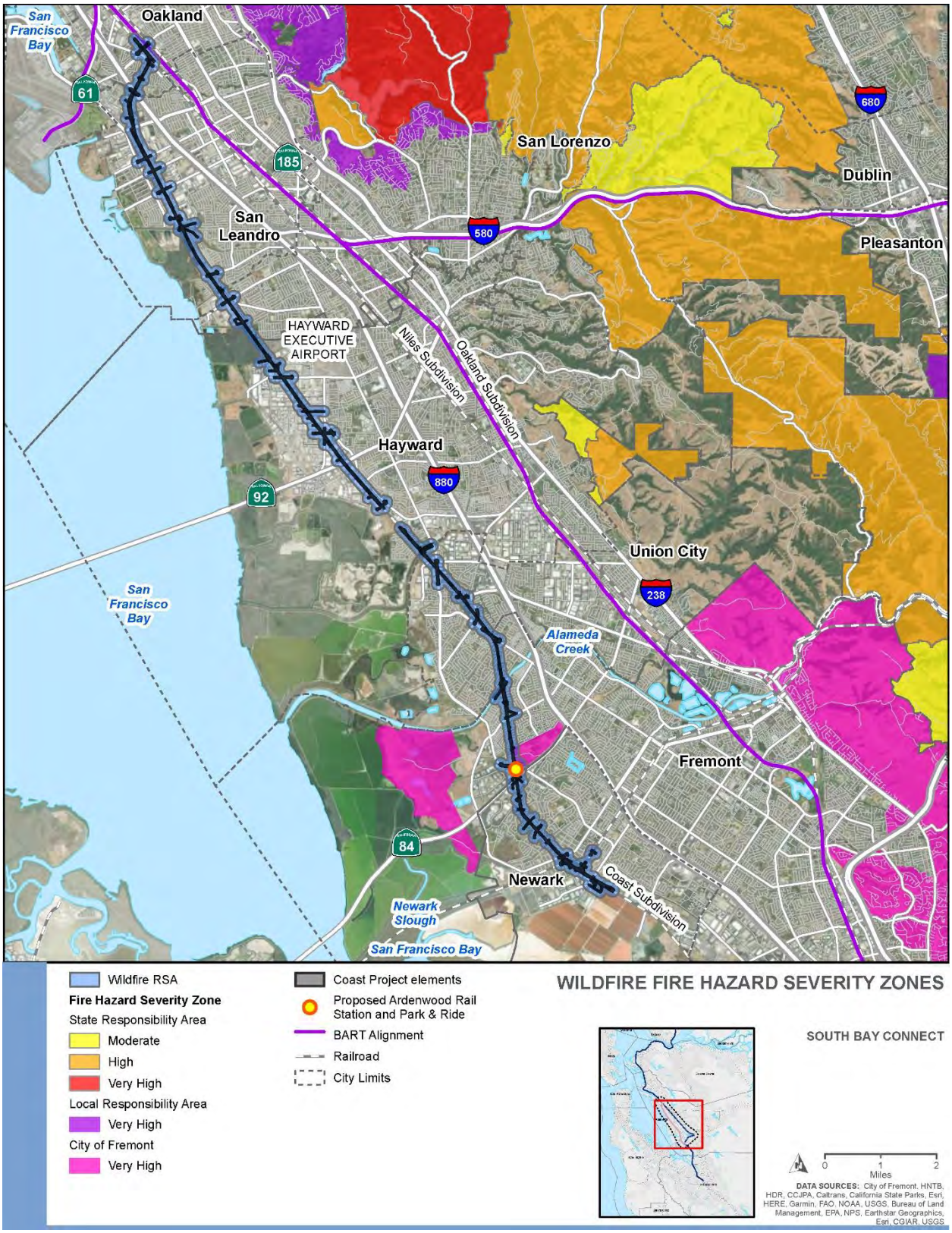
There are six different entities that have direct fire protection responsibility within the RSA (Table 3.21-2). Ardenwood Historic Farm, as part of the East Bay Regional Parks District (EBRPD), could be served by either the EBRPD Fire Department or by the City of Fremont Fire Department. The Ardenwood Historic Farm is located within the City of Fremont's Fire District 10 and is served by Fire Station 10 at 5001 Deep Creek Road, approximately 0.5 mile from the farm. The farm would be accessible to the fire station via Paseo Padre Parkway and Ardenwood Boulevard, with an estimated drive time of five minutes (Google Maps 2021).

The only significant wildfire that has occurred in the City of Fremont was in July 1958 on the Mission Hills mountain range between Mission Peak and I-680 at Mission Pass, more than 6 miles from the RSA (City of Fremont 2017).

**Table 3.21-2. Alameda County Fire Protection Agencies within the RSA**

| Agency | Service Area |
|---|---|
| Alameda County Fire Department | San Leandro, San Lorenzo, Hayward, Union City, Newark |
| CALFIRE (Battalion 4) | Partners with local agencies outside of SRAs |
| East Bay Regional Parks District Fire Department | Ardenwood Historic Farm |
| Fremont Fire Department | City of Fremont |
| Hayward Fire Department | City of Hayward |
| Oakland Fire Department | City of Oakland |

**Figure 3.21-5. Fire Hazard Severity Zones**



## 3.21.5 Best Management Practices

As noted in Chapter 2, Project Alternatives, CCJPA would incorporate a range of BMPs to avoid and minimize adverse effects on the environment that could result from implementation of the proposed Project. BMPs are included in the proposed Project description, and the impact analyses were conducted assuming application of these practices. The BMPs relevant to wildfire are listed below. Full descriptions of the BMPs are provided in Chapter 2, Project Alternatives.

**BMP WF-1 Prepare Fire Prevention Plan near VHFHSZ**

**BMP WF-2 Use Drought-Tolerant and Fire-Resistant Native Plants**

**BMP TR-1 Transportation Management Plan (TMP)**

**BMP HYD-1 Construction Stormwater Management**

## 3.21.6 Environmental Impacts

This section describes the potential environmental impacts on wildfire hazards as a result of implementation of the proposed Project. Lettering shown within title for each environmental factor below correlates with CEQA Statute and Guidelines, Appendix G table lettering and numbering.

### 3.21.6.1 (a) Substantially impair an adopted emergency response plan or emergency evacuation plan?

#### No Project Alternative

**No Impact.** Under the No Project Alternative, there would be no change to existing transportation facilities or emergency access. The No Project Alternative would have no impact on the ability to implement or comply with adopted emergency response or evacuation plans.

#### Proposed Project

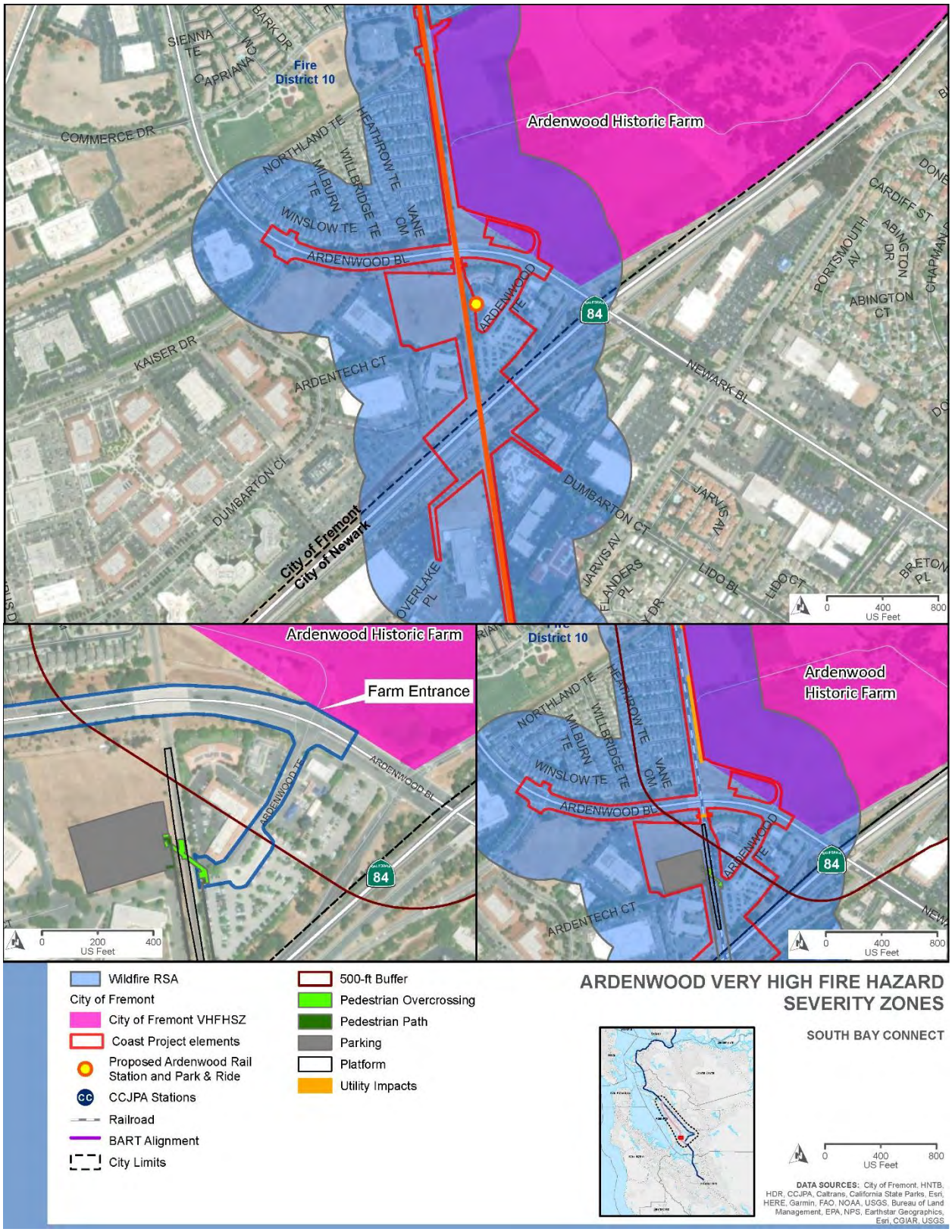
**No Impact.** The City of Fremont has adopted an EOP (City of Fremont 2020a) and a Local Hazard Mitigation Plan (2017). The Local Hazard Mitigation Plan identifies a key wildfire safety strategy of maintaining fire access road ingress/egress in risk areas to aid in emergency response and site evacuation. The City's EOC is located at the Public Works Maintenance Facility at 42551 Osgood Road (City of Fremont 2017). Alternate EOCs are the Fremont Police Department Operations Center (DOC) at 2000 Stevenson and the Fremont Fire DOC at 43600 Grimmer Boulevard, which are also located outside of the RSA. The proposed Project would not affect use of the EOC, or the implementation of the EOP or Local Hazard Mitigation Plan.

The South Section of the Coast Subdivision parallels Ardenwood Historic Farm, which the City of Fremont has identified as a VHFHSZ. Project features adjacent to the farm would include intersection improvements to facilitate multi-modal access to the new Ardenwood Station, which would be constructed on the opposite side of Ardenwood Boulevard from the farm entrance (Figure 3.21-6). The proposed Project would install a new track adjacent to the farm as part of the continuous double track from Elmhurst to Newark junctions. Within 500 feet of Ardenwood Historic Farm, the proposed Project would install retaining walls on both sides of the track within existing

ROW, relocate utilities, stage construction, install pier protection for the Ardenwood Boulevard bridge, roadway improvements, and platform construction (Figure 3.21-6).

Construction and operation of the proposed Project, including Ardenwood Station, would not affect emergency response to or evacuation from the Ardenwood Historic Farm (Figure 3.21-6). Access to the farm would be maintained from Ardenwood Boulevard throughout construction and operation. At the Ardenwood Station, existing roadway widths and turnaround areas would be maintained at Ardentech Court and Ardenwood Terrace. The new Ardenwood Station would provide an additional benefit with respect to evacuation routes. With new passenger service at the Station, there would be a new evacuation route via passenger train in the event of an emergency. Additionally, construction of new pedestrian access features (walkway and south pedestrian crossing) could be used as routes in the event of an emergency by pedestrians to cross the railroad tracks or pass under SR 84. Therefore, construction and operation of the proposed Project near the Ardenwood Historic Farm would not substantially impair any adopted emergency response plan or emergency evacuation plan, or otherwise impact emergency access. As a result, no impacts would occur.

**Figure 3.21-6. Ardenwood Station/Ardenwood Historic Farm Very High Fire Hazard Severity Zones**



### 3.21.6.2 (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?

#### No Project Alternative

**No Impact.** Under the No Project Alternative, there would be no construction activities and therefore no change to existing slopes, wind patterns, pollutant concentrations, wildfire risk, pollutant concentrations, or wildfire spread. Therefore, the No Project Alternative would have no impact on wildfire risks due to slope, prevailing winds, or other factors, and thereby would have no impact with respect to exposing project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire.

#### Proposed Project

**No Impact.** Construction and operation of the proposed Project would not exacerbate wildfire risks due to slope, prevailing winds, and other factors, and therefore would not expose Project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire. Construction would comply with UPRR standards as well as all state and local fire safety codes and regulations applicable within the VHFHSZs, such as restrictions on the use of equipment that may produce a spark, flame, or fire; require the use of spark arrestors on construction equipment with an internal combustion engine; safe use of gasoline-powered tools in fire hazard areas; and required fire suppression equipment that must be provided on site for various types of work in fire-prone areas. With implementation of BMP WF-1, these restrictions would also be applicable near (within 500 feet of) a VHFHSZ. The proposed Project would also comply with Occupational Safety and Health Administration safety requirements and implementation of BMP HYD-1 would ensure the safe storage of ignitable materials.

The proposed Project operation would not exacerbate wildfire risks as the proposed Project would comply with UPRR design standards and maintenance practices. Design of the rail system would comply with NFPA fire protection requirements. Ongoing vegetation removal is required by UPRR as part of regular maintenance within its ROW. UPRR requires 12 feet on either side of track centers be cleared of vegetation for main lines, sidings, and industrial lead tracks (Table 3.21-3) (UPRR 2022b). Additional vegetation clearance is required at bridges, public crossings, around buildings, stations and platforms, and around signs and signals. Further, implementation of BMP WF-2 factors in wildfire safety when developing and implementing landscape planting for crossing and roadway improvements by requiring the use of drought-tolerant plants and low-flammability materials. UPRR would continue vegetation clearance along all subdivisions as part of Project operation. Due to UPRR's ongoing vegetation clearing, rail operation would not cause vegetation fires as a result of sparks or contact with the underside of the passenger and freight rail cars.

**Table 3.21-3. UPRR Vegetation Clearance Guidelines**

| Feature | Vegetation Removal |
|---|---|
| Main Line and Industrial Leads | 12 feet both sides from center of track |
| Sidings | 12 feet both sides from center of track |
| Bridges | 50 feet |
| Industry Tracks | 12 feet center |
| Off Track | Varies |

*Source: UPRR 2022b.*

The proposed Project would shift passenger rail facilities from the Niles to Coast Subdivisions, which shifts passenger rail service outside of VHFHSZs. Although Ardenwood Historic Farm is a VHFHSZ, it is isolated from other VHFHSZs. The Fremont-designated VHFHSZs at Niles Junction are part of a contiguous SRA and LRA FHSZs that cover the hills in eastern Fremont. Moving passenger rail service out of a large VHSHZ to outside an isolated VHFHSZ reduces overall risk to train passengers.

Within the RSA near Ardenwood Historic Farm, the dominant topographical features are embankments supporting existing roadway overcrossings. Within 500 feet of the farm, the proposed Project would not include creation of new slopes, nor would they increase the slopes of existing embankments. Grading would be limited to minor adjustments of the rail bed to accommodate the proposed station construction. The existing farm and adjacent track are flat with minimal slope; therefore, the proposed Project would not affect spread of wildfire or exacerbate wildfire risks at Ardenwood Farm due to slope modifications. As a result, no impacts would occur.

### 3.21.6.3 (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?

#### No Project Alternative

**No Impact.** Under the No Project Alternative, there would be no installation of infrastructure and no change to maintenance of existing infrastructure. Therefore, the No Project Alternative would have no impact with respect to 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.

### Proposed Project

**No Impact.** Construction of major new utilities such as high-voltage power lines (over 50 kilovolts) and water lines over 20 inches in diameter are not proposed as part of the Project. New, low-voltage power lines would be installed to supply power for rail signals, train control equipment, grade crossings, as well as the new Ardenwood Station. There are no high-voltage power line relocations proposed by the Project. Existing utilities would need to be relocated or protected in place as part of the proposed Project. Relocations of existing utilities would generally take place within or adjacent to rail or roadway ROW. UPRR requires overhead wires to have a minimum clearance of 27.5 feet above the top of rail for electrical lines of less than 750 volts and 29.5 feet for lines over 751 volts (UPRR 2012). Relocated utilities would meet all state and local standards with respect to safety and fire prevention, including California PRC Division 4, Chapter 3. New utility installation and relocation would comply with the CCR with regard to Power Line Safety and Fire Prevention, as well as California PRC. Within grassy, brushy areas (such as may be found on roadsides, embankments, and adjacent to waterways), the Project would comply with vegetation clearances around the power lines supplying the Project required by California PRC. The Project would ensure sufficient vegetation clearances during the relocation of electrical lines; however, ongoing vegetation clearance of relocated lines would be the responsibility of the utility company that owns the network.

UPRR-required vegetation clearance along the rail lines (UPRR 2022b) entail that the UPRR alignments function as fuel breaks. Additional vegetation clearance associated with new and shifted tracks would likely increase the effectiveness of the rail ROW impeding the spread of any wildfire. Within 500 feet of Fremont's VHFHSZ's, the Project would not include installation or maintenance of any infrastructure that may exacerbate fire risk. Therefore, no impacts would occur.

## 3.21.6.4 (d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

### No Project Alternative

**No Impact.** There would be no construction under the No Project Alternative. The No Project Alternative would not change existing population patterns, would not construct or demolish any structures, and would not change existing flooding, landslide, runoff, or drainage patterns. Therefore, the No Project Alternative would have no impact with respect to exposing 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.

### Proposed Project

**No Impact.** After fires have impacted a watershed, substantial sediment and debris flows can result from surface erosion due to rainfall runoff, or land sliding due to rainfall infiltration into the soil. Fire generally reduces the infiltration and storage capacity of soils, which increases runoff and erosion (Caltrans 2020). All slopes proposed by the proposed Project would meet UPRR standards and be engineered based on the results of site-specific geotechnical investigations (UPRR 2020). This would prevent the proposed Project from resulting in post-fire slope instability that could result in downslope landslides.

The Project design is not expected to expose people or structures to downstream flooding as a result of runoff or drainage changes after wildfire. As required by UPRR standards, the rail alignments are cleared of vegetation as part of standard maintenance practices. Track ballast and sub-ballast is pervious to stormwater and would continue to allow for stormwater infiltration after a fire. Embankment slopes (supporting grade separations and water crossings) would be subject to soil stabilization during and post-construction and would generally remain pervious to stormwater in non-fire conditions. Since the grade separations would retain some permeability even after a fire due to the rail ballast, excessive runoff is not expected. Therefore, there is not a risk of downslope or downstream flooding.

The South Section of the Coast Subdivision passes next to Ardenwood Historic Farm, which the City of Fremont identified as an VHFHSZ. Within 500 feet of Ardenwood Historic Farm, downstream flooding is also not expected as the Farm and adjacent track are generally flat and are outside of the 0.2 percent chance annual flood zone, as shown in the Flood Insurance Rate Map (FEMA 2009). The Project would not result in major changes to the existing drainage in this area. Due to the flat existing terrain, excessive runoff post-fire is not expected and therefore would not cause downstream flooding. Within 500 feet of Ardenwood Historic Farm, no slopes are proposed and no modifications to the existing Ardenwood Boulevard grade separation slopes are proposed. Therefore, the proposed Project would not expose people or structures to new or additional risks related to runoff, post-fire slope stability, or drainage changes, resulting in no impact.

## 3.21.7 Mitigation Measures

No mitigation measures for wildfire are required for the proposed Project.

## 3.21.8 Cumulative Impact Analysis

The Proposed Project would not impact wildfire risk. Because no impacts are anticipated, a cumulative impact analysis is not warranted for wildfire.

## 3.21.9 CEQA Significance Findings Summary Table

Table 3.21-4 summarizes the wildfire impacts of the proposed Project.

**Table 3.21-4. Wildfire Impacts Summary**

| Impact | Level of Significance Before Mitigation | Incremental Project Contribution to Cumulative Impacts | Mitigation | Level of Significance with Mitigation Incorporated | Incremental Project Cumulative Impact after Mitigation |
|---|---|---|---|---|---|
| **(a) Substantially impair an adopted emergency response plan or emergency evacuation plan** | NI | NCC | N/A | NI | NCC |
| **(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** | NI | NCC | N/A | NI | NCC |
| **(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** | NI | NCC | N/A | NI | NCC |
| **(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** | NI | NCC | N/A | NI | NCC |

*Notes: LTS = Less than Significant Impact, NI = No Impact, N/A = Not Applicable, SI = Significant Impact, S/M = Significant Impact but Mitigable to a Less than Significant Level, CC = Cumulatively Considerable, NCC = Not Cumulatively Considerable.*

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# Chapter 4. **Sea Level Rise**

The Federal Coastal Zone Management Act is administered by the California Coastal Commission in most areas within California; in the Bay Area, the CZMA is administered by BCDC, as established by the McAteer-Petris Act (Section 4.1 includes more detail). As such, BCDC regulates nearly all work within 100 feet from the shoreline of the San Francisco Bay; its jurisdiction also extends to the mean high tide line in areas that do not contain tidal marsh and up to 5 feet above mean sea level in areas of tidal marsh.

The proposed Project footprint was provided to BCDC for evaluation to determine which proposed Project improvements would be under BCDC's jurisdiction. The information contained in this chapter is summarized from the South Bay Connect Project Sea Level Rise Technical Memorandum, Appendix J.

## 4.1. Regulatory Setting

This section describes the regulatory setting for SLR according to federal, state, and local guidelines.

### 4.1.1. Federal Plans, Policies, and Regulations

#### 4.1.1.1. Coastal Zone Management Act (16 U.S.C. §§ 1451 et seq.)

The objective of the Coastal Zone Management Act of 1972 is to "preserve, protect, develop, and where possible, to restore or enhance the resources of the nation's coastal zone." Coastal zone means "the coastal waters (including the lands therein and thereunder) and the adjacent shorelands (including the lands therein and thereunder including the waters therein and thereunder), strongly influenced by each other and close to the shorelines of the several coastal states, and includes islands, transitional and intertidal areas, salt marshes, wetlands and beaches." This act also requires projects to be planned, located, designed, and engineered for the changing water levels and associated impacts that might occur over the duration of the development. The Coastal Zone Management Act is administered by the California Coastal Commission in most areas within California; in the Bay Area, the Coastal Zone Management Act is administered by BCDC, as established by the McAteer-Petris Act. This act is described in the Local Plans, Policies, and Regulations Section (4.1.3), along with more details on BCDC climate change policies.

### 4.1.2. State Plans, Policies, and Regulations

#### 4.1.2.1. Executive Order S-13-08: Climate Change Adaptation

On November 14, 2008, then California Governor Arnold Schwarzenegger signed EO S-13-08. This EO directs all state agencies planning to construct projects in areas vulnerable to future SLR to consider a range of sea level projections for the years 2050 and 2100, assess project vulnerability, and, to the extent feasible, reduce expected risks and increase resiliency to SLR.

#### 4.1.2.2. State of California Sea-Level Rise Guidance 2018 Update

The State of California SLR Guidance 2018 Update (California Natural Resources Agency and Ocean Protection Council [CNRA & OPC], 2018) provides the best available science to support planning, scenario-based SLR projections at local active tidal gauge locations, how to select SLR projections, and recommendations for SLR planning/adaptation. The 2018 update provides SLR projections in 10-year increments between the years 2030 and 2150. These scenario-based projections do not forecast future changes but describe plausible conditions that support decision-making under uncertainty. This has been adopted by state and local agencies as the guidance to comply with EO S-13-08. The guidance document is updated every 5 years with the next update scheduled for late 2023 or early 2024.

## 4.1.3. Local Plans, Policies, and Regulations

### 4.1.3.1. McAteer-Petris Act (Gov. Code § 66600 et seq.)

The McAteer-Petris Act was enacted September 17, 1965, and created the San Francisco BCDC as a temporary state agency charged with preparing a plan for the long-term use of the Bay. The act was amended in 1969 and established BCDC as a permanent agency. BCDC in 1972 incorporated sections of the McAteer-Petris Act to administer the policies of the CZMA by regulating the use of land and water in the coastal zone of San Francisco Bay, as stated above. The act is a state law, but it is administered locally through BCDC. BCDC regulates nearly all work, including grading, on land within 100 feet of San Francisco Bay shoreline (what BCDC calls the shoreline band), all areas subject to tidal action, such as sloughs and marshes, and certain designated waterways. BCDC carries out its "federal consistency" responsibilities by reviewing projects much as it reviews permit applications. BCDC issues four types of permits: major permits, administrative permits, emergency permits, and region-wide permits.

Since the passage of AB 2094 in 2008, BCDC has been the state agency responsible for leading the Bay Area's preparedness for, and resilience to, rising sea level, tides, and storm surge due to climate change. As required by AB 2094, the Bay Area Regional Collaborative (BARC) was formed as an association of the BCDC, MTC, ABAG, and BAAQMD. The bill also authorized BCDC, in coordination with local governments, regional councils of government, and other agencies and interested parties, to develop regional strategies, as needed, for addressing the impacts of, and adapting to, the effects of sea level rise and other impacts of global climate change on the San Francisco Bay and affected shoreline areas (AB 2094 Assembly Bill - AMENDED).

In 2011, BCDC adopted policies to require projects to be resilient to rising sea level through at least mid-century and beyond, given the project's expected life. Just as important, the amendments directed that a regional adaptation strategy be developed by the Bay Area's regional agencies.

Section 66632 of the Act requires that projects obtain permits from BCDC to fill, to extract materials, and to make substantial changes in use of land, water, or existing structures in the shoreline band. In determining whether to issue permits, BCDC looks to policies set forth in the act and in the San Francisco Bay Plan. In general, these policies authorize fill or excavation of wetlands only for water-dependent projects where no feasible upland alternatives exist, and only if wetlands impacts are mitigated.

### 4.1.3.2. San Francisco Bay Plan Climate Change Policy Guidance

BCDC requires those portions of a project in San Francisco Bay and the shoreline band to plan for and adapt to SLR caused by global climate change. BCDC updated its San Francisco Bay Plan Climate Change Policy Guidance (Guidance) in July 2021. The Guidance provides non-regulatory, but interpretive, information to assist in the development of prospective projects in relation to the requirements of the climate change policies with permit applicants, local jurisdictions, and the public at large. *Climate Change Policy 2 – Risk Assessment of the Guidance* states:

> When planning shoreline areas or designing larger shoreline projects, a risk assessment should be prepared by a qualified engineer and should be based on the estimated 100-year flood elevation that takes into account the best estimates of future SLR and current flood protection and planned flood protection that will be funded and constructed when needed to provide protection for the proposed project or shoreline area. A range of SLR projections for midcentury and end of century based on the best scientific data available should be used in the risk assessment. Inundation maps used for the risk assessment should be prepared under the direction of a qualified engineer. The risk assessment should identify all types of potential flooding, degrees of uncertainty, consequences of defense failure, and risks to existing habitat from proposed flood protection devices.

*Climate Change Policy 3 – Resilient to Mid-Century and Adaptable to End of Century* states:

> To protect public safety and ecosystem services, within areas that a risk assessment determines are vulnerable to future shoreline flooding that threatens public safety, all projects––other than repairs of existing facilities, small projects that do not increase risks to public safety, interim projects and infill projects in existing urbanized areas––should be designed to be resilient to a mid-century SLR projection. If it is likely the project will remain in place longer than midcentury, an adaptive management plan should be developed to address the long-term impacts that will arise based on a risk assessment using the best available science-based projection for SLR at the end of the century.

If a project has a short lifespan, BCDC Climate Change policies may potentially apply depending on the circumstances. The determination of whether a project is considered a "larger shoreline project" (Climate Change Policy 2) requiring a risk assessment depends more on a project's physical characteristics (e.g., scale or intensity of use) than the life of a project. If a project is not required to prepare a risk assessment, a project may still be subject to other Bay Plan policies related to SLR and flooding, such as shoreline protection, safety of fills, and habitat projects. Coordination with other state and federal agencies, such as USACE, CDFW, and USFWS, would also occur during project review.

### 4.1.3.3. CCJPA SLR Vulnerability Assessment

CCJPA and Adapting to Rising Tides (ART), a program partnership between BCDC and the MTC, ABAG, and BARC considered regional capacity and climate change in their studies. In 2014, the CCJPA SLR Vulnerability Assessment identified vulnerabilities in its rail operations and possible adaptation responses. The report was written prior to the State of California SLR Guidance 2018 update and did not assess areas specific to the proposed Project; however, it is referenced in this report because it suggests some adaptation measures that the proposed Project can consider. The assessment concludes that the railroad system has a mix of physical, functional, governance, and information vulnerabilities. The railroad lacks redundancy due to the linear connectivity of the track alignment, and the railroad system is highly dependent on the signal system. The CCJPA SLR Vulnerability Assessment also found that several stations and maintenance facilities are vulnerable to rising sea levels due to their geographic location. It was noted that the multi-agency ownership and management structure of CCJPA may provide challenges to the planning process for adaptation projects, especially due to the lack of information on the railroad infrastructure owned by UPRR.

The 2014 CCJPA SLR Vulnerability Assessment made adaptation recommendations that are relevant to the proposed Project. These recommendations still remain relevant and are discussed further in Section 5.4.2. Recommendations for CCJPA include 1) addressing governance and information vulnerabilities because CCJPA does not own the physical railroad assets, and 2) working with existing stakeholders and community partners to plan future adaptation projects.

# 4.2. Methods for Evaluating Environmental Impacts

## 4.2.1. Definition of RSA

This section defines the RSA and describes the methods used to analyze the impacts of SLR on the RSA. As defined in Section 3.1, Introduction, RSAs are the geographic boundaries within which the environmental investigations specific to each resource topic were conducted. The SLR RSA includes all areas within the limits of proposed Project footprint that are potentially under BCDC jurisdiction. Through consultation with BCDC staff, BCDC determined that seven areas of proposed improvements within the Project footprint are potentially within its jurisdiction.[1] The seven areas identified to potentially be within BCDC jurisdiction are:

- **Location 1: San Leandro Creek.** Tracks crossing San Leandro Creek MP 14.29.
- **Location 2: Heron Bay.** Tracks crossing Estudillo Canal extending to the tracks north of Lewelling Boulevard, parallel to Santa Ynez Street in San Leandro near Heron Bay MP 16.93 to MP 17.92.
- **Location 3: San Lorenzo Creek.** Tracks crossing San Lorenzo Creek MP 18.25.
- **Location 4: Oro Loma Marsh.** Tracks south of the Bockman Canal crossing and north of the Sulphur Creek crossing, east of Oro Loma Marsh in San Lorenzo and Hayward MP 18.95 to MP 19.77.
- **Location 5: Old Alameda Creek.** Tracks south of SR-92, adjacent to Eden Landing in Hayward MP 23.09 to MP 23.78 and tracks crossing Old Alameda Creek MP 24.18.
- **Location 6: Alameda Creek.** Tracks crossing Alameda Creek and unlined channel MP 26.9 to MP 27.3.
- **Location 7: Newark Slough.** Tracks crossing Newark Slough and an unnamed channel MP 29.30 to MP 30.20.

All locations were identified to potentially be within BCDC jurisdiction based on their proximity to adjacent marshes or tidal marshes, with final jurisdictional determination pending additional coordination with BCDC. The seven locations comprise the seven SLR RSAs assessed for this EIR and are shown below in Figure 4-1 through Figure 4-7, respectively. The SLR RSAs are bounded by the UPRR ROW and occur within the limits of proposed Project improvements at all locations.

[1] Topographic field survey will be conducted during the next stages of Project design throughout the Project footprint to confirm that these areas are or are not within BCDC jurisdiction. For the purpose of this EIR analysis, the seven sites were assumed within BCDC jurisdiction and were evaluated for sea level rise risk and assessment.

**Figure 4-1. Estimated BCDC Jurisdiction, Extent 1**

**Figure 4-2. Estimated BCDC Jurisdiction, Extent 2**

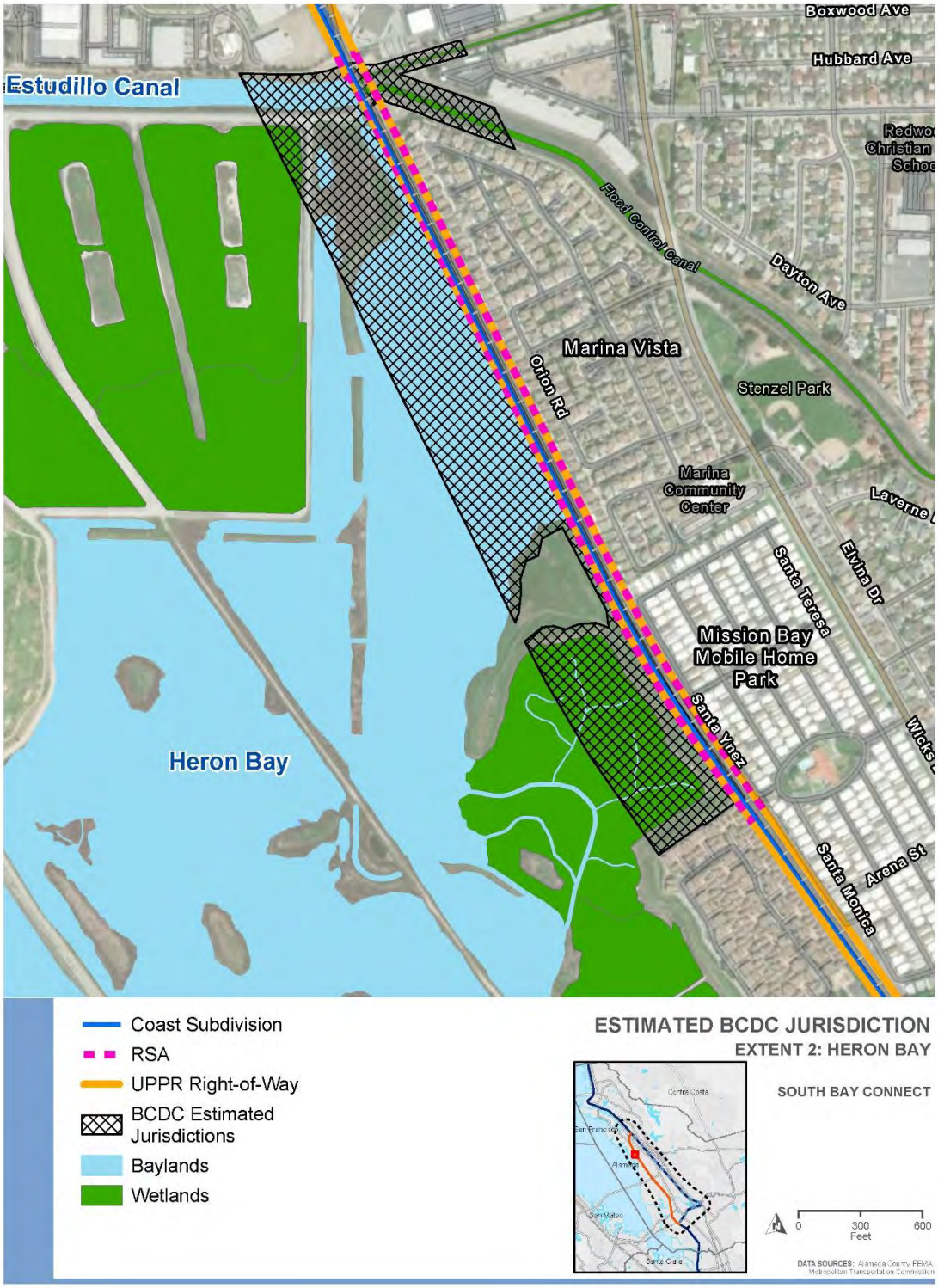


**Figure 4-3. Estimated BCDC Jurisdiction, Extent 3**

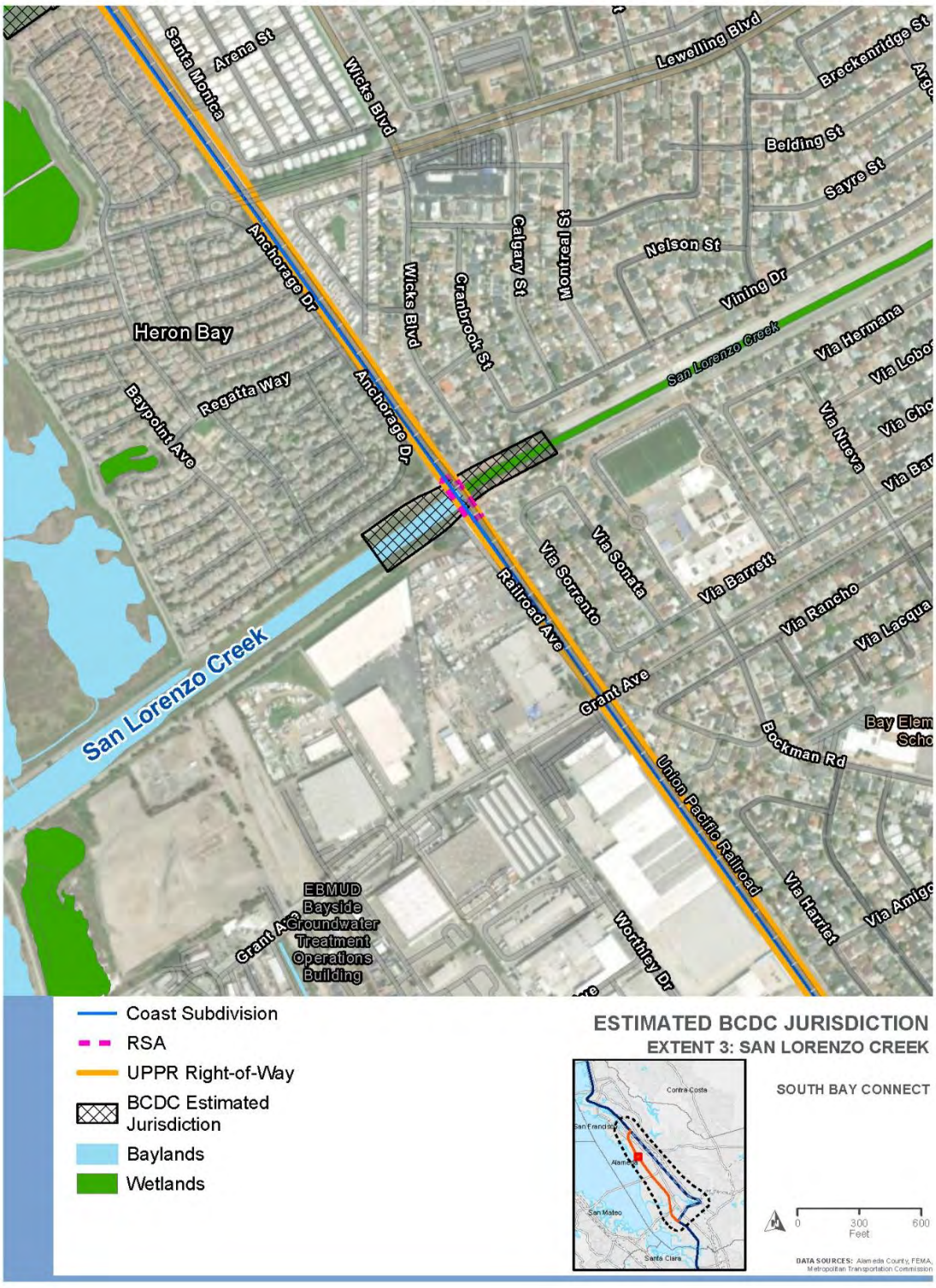


**Figure 4-4. Estimated BCDC Jurisdiction, Extent 4**

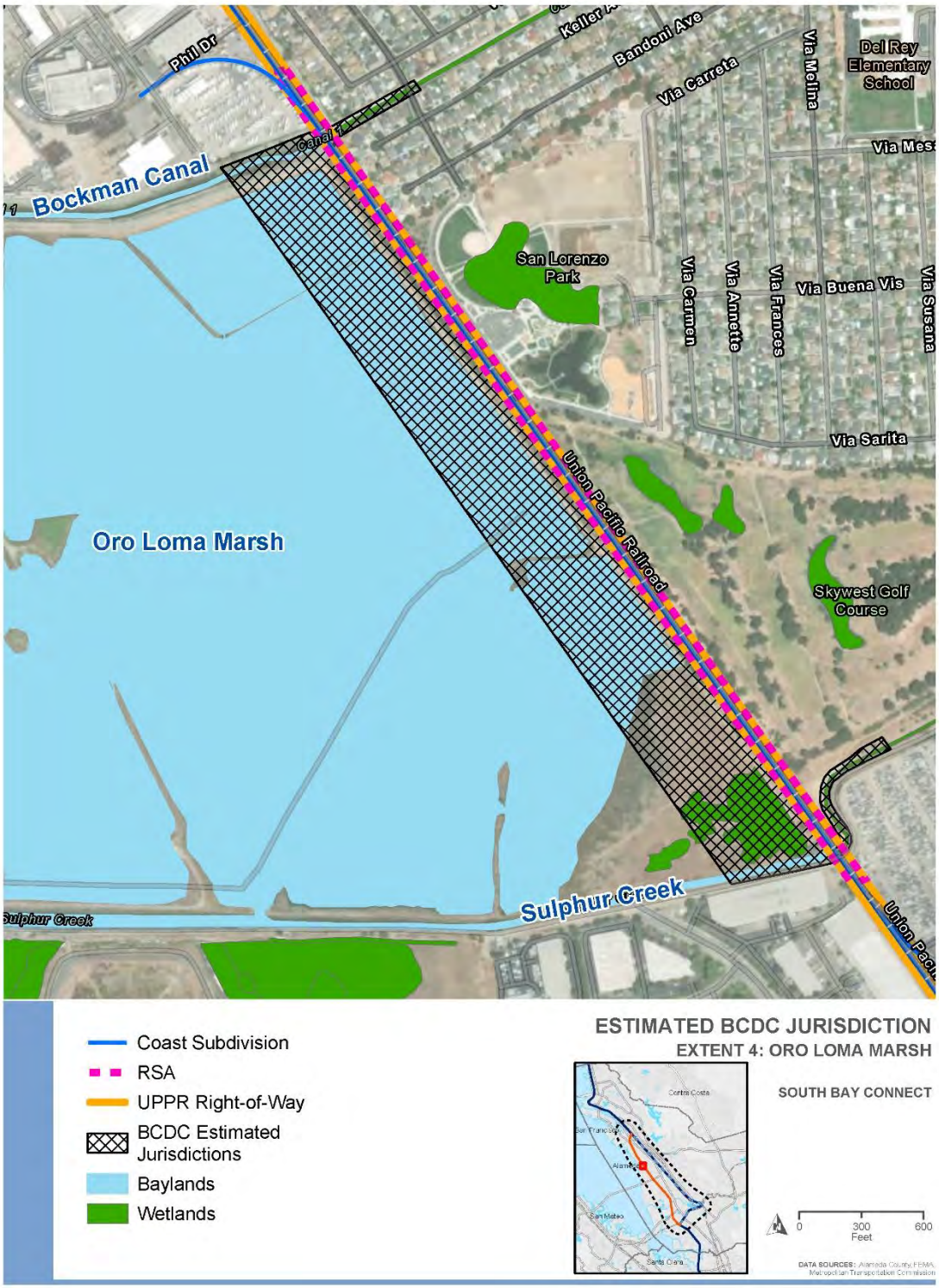


**Figure 4-5. Estimated BCDC Jurisdiction, Extent 5**

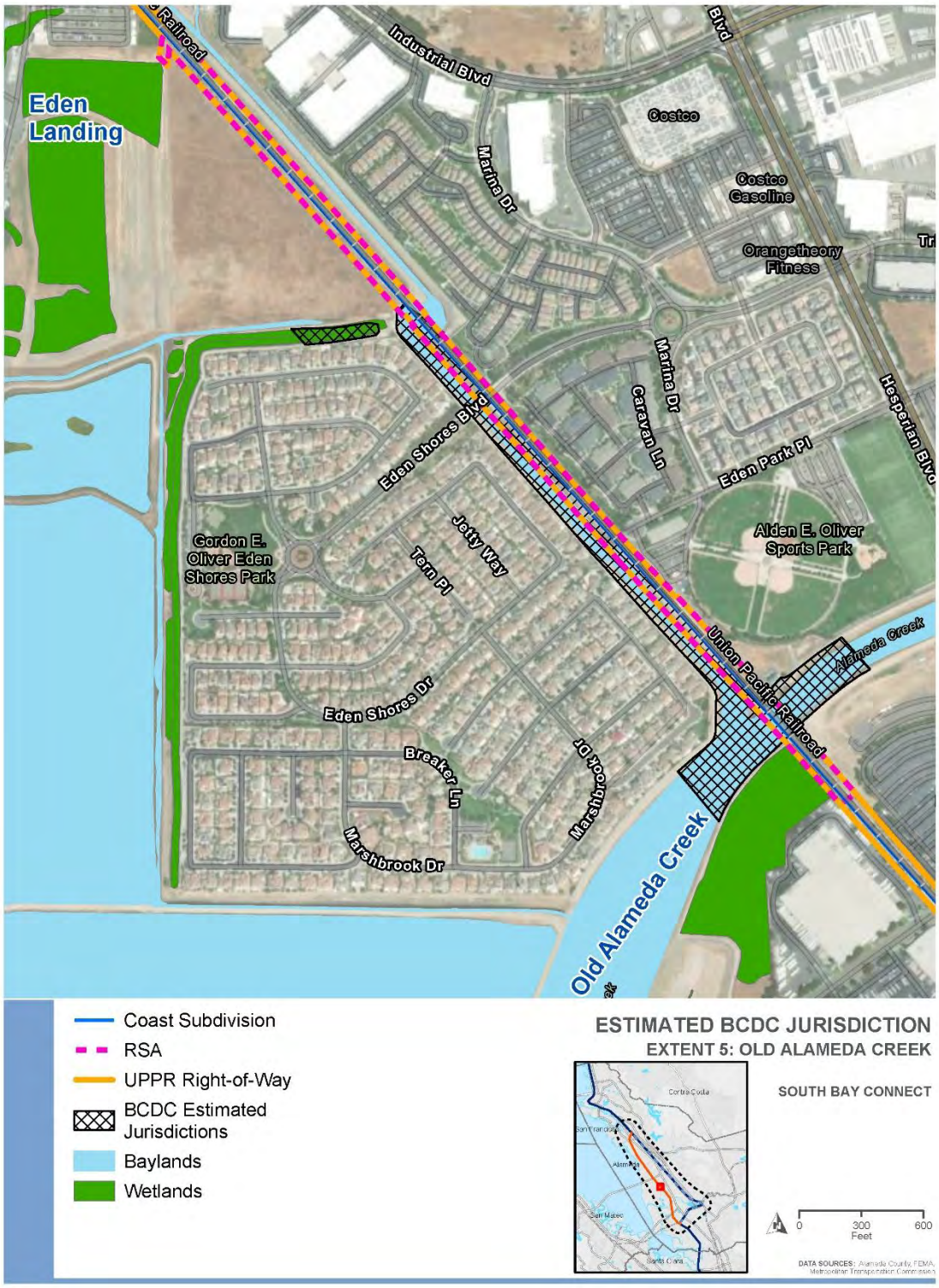
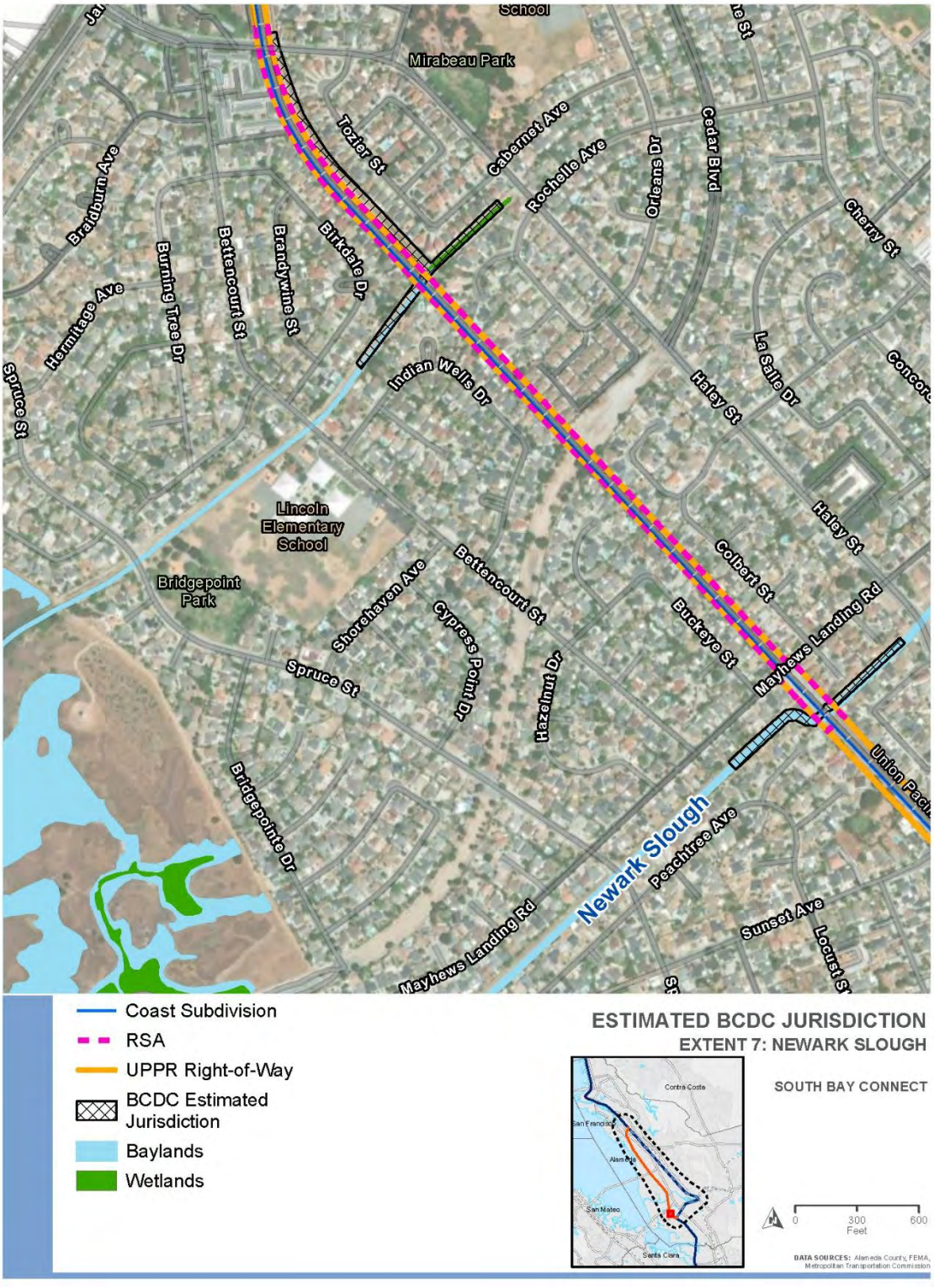


**Figure 4-6. Estimated BCDC Jurisdiction, Extent 6**

**Figure 4-7. Estimated BCDC Jurisdiction, Extent 7**



## 4.2.2. Data Sources

This section describes the data sources, reports, and guidance used for evaluating the effects of SLR on the proposed Project. Table 4-1 lists references and associated GIS data used to describe the SLR affected environment.

**Table 4-1. Summary of Data Sources**

| Data Source | Name/Description of Source(s) |
|---|---|
| Adapting to Rising Tides (ART) | San Francisco Bay Tidal Datums and Extreme Tides Study |
| ART | Bay Shoreline Flood Explorer Map |
| CCJPA | CCJPA Sea Level Rise Vulnerability Assessment |
| CNRA & OPC | State of California SLR Guidance 2018 Update |
| Federal Emergency Management Agency (FEMA) | Alameda County Flood Insurance Rate Map (FIRM) Number 06001C0266H |
| Google Earth | Elevations |
| HDR | Project Information (Mapbooks, Cumulative Project Map) |
| San Francisco Bay Conservation and Development Commission (BCDC) | Email Correspondence |
| BCDC | San Francisco Bay Plan Climate Change Policy Guidance July 2021 |
| United States Geological Survey (USGS) | CoSMoS (Coastal Storm Modeling System) |

As discussed previously, the Project team has coordinated with BCDC during the development of the proposed Project to define the BCDC jurisdictional areas. Through further coordination, a final determination of jurisdictional areas within the proposed Project footprint and SLR RSA along the Coast Subdivision would be made during the environmental permitting process. A record of early communication is shown in Table 4-2.

**Table 4-2. BCDC Record of Communication**

| Date and Type of Communication | Content |
|---|---|
| June 25, 2021, Email | SBC Team (Maria Levario) requested BCDC delineation of 100-foot shoreline boundary. |
| July 1, 2021, Email | BCDC (Todd Hallenbeck) requested that SBC team provide a KMZ of the Coast Subdivision Project limits. KMZ was sent to BCDC. |

**Table 4-2. BCDC Record of Communication**

| Date and Type of Communication | Content |
|---|---|
| July 22, 2021, Email | BCDC (Rowan Yelton) provided an initial assessment of areas that may be within BCDC jurisdiction. Four potential areas were identified. |
| August 10, 2021, Webex Meeting | Meeting Attendees: BCDC (Anniken Lydon and Rowan Yelton), HDR (Maria Levario), and HNTB (Pierre-Abi-hanna). An overview of the Project was provided, and the four potential areas identified by BCDC staff were discussed and reviewed. BCDC stated they would continue to review the potential locations and would advise the SBC team. |
| September 1, 2021, Email | BCDC (Rowan Yelton) indicated that only one of the four locations is likely within the 100-foot-shoreline band jurisdiction and possibly within Bay jurisdiction. |
| September 13, 2021, Email | SBC Team (Maria Levario) confirmed BCDC assessment that only one location is likely within BCDC jurisdiction, pending survey of that location by the design team. |
| December 7, 2021, Email | SBC Team (Maria Levario) advised BCDC that a Draft Sea Level Rise Assessment has been prepared to include the one potential BCDC jurisdiction location. Survey work was still pending. SBC Team requested to meet with BCDC staff (Rowan Yelton and Anniken Lydon) to review the draft assessment. |
| December 7, 2021, Email | BCDC (Rowan Yelton) agreed to meet to discuss the results of the Draft Sea Level Rise Assessment. BCDC requested to review the assessment prior to meeting with the SBC Team. |
| December 21, 2021, Email | SBC Team (Maria Levario) advised BCDC that Capitol Corridor Staff will need to review the Draft Sea Level Rise Assessment before it can be sent to BCDC. |
| December 23, 2021, Email | BCDC (Rowan Yelton) acknowledged and requested that the meeting be scheduled once they receive the draft assessment for their internal review. |
| April 29, 2022, Webex Meeting | BCDC CCJPA Meeting |
| May 23, 2022, Email | BCDC provides comments on Sea Level Rise Memo |
| June 17, 2023, Email | HDR provides response to BCDC Comments |
| August 8, 2023, Webex Meeting | SBC Team met with BCDC to discuss potential jurisdictional areas as part of the proposed Project and past comments. |
| September 13, 2023 | HDR provides updated potential BCDC jurisdictional areas for the proposed Project. |

**Table 4-2. BCDC Record of Communication**

| Date and Type of Communication | Content |
|---|---|
| September 29, 2023 | Team issued response to BCDC comments on the previous memo submitted. No further response from BCDC has been received to date. |

### 4.2.3. Steps for SLR Projections and Vulnerability Assessment

The following steps were performed to evaluate SLR impacts on the proposed Project within the SLR RSA and to identify potential adaptation measures.

Determined the service life of the Project.

Calculated SLR projections based on the service life of the Project, local active tidal information at the Project site, and probabilistic projections directly tied to a range of emissions scenarios.

Generated a depiction of Coastal Storm Modeling System (CoSMoS) model and the ART Bay Shoreline Flood Explorer Map (ART Map).

Considered potentially feasible adaptation measures.

## 4.3. Affected Environment

### 4.3.1. Regional Setting

The SLR RSAs are located in the western part of Alameda County in the City of Oakland, City of San Leandro, census-designated place San Lorenzo, the City of Hayward, Union City, City of Fremont, and City of Newark. The surrounding topography generally slopes moderately to the west. All SLR RSAs discussed in this section are located within the Coast Subdivision, which lies on flat terrain by the San Francisco Bay (Figure 4-1 through Figure 4-7).

RSA Location 1 spans the San Leandro Creek crossing. San Leandro Creek crosses the trackway flowing northwest into the San Leandro Bay, ultimately draining to the San Francisco Bay to the west. San Leandro Creek separates the City of Oakland from the City of San Leandro.

RSA Location 2 is located east of Heron Bay and south of the Estudillo Canal. Heron Bay consists of low-lying wetland and baylands sloping gradually to the west. The Estudillo Canal crossing flows east to west. Both waterbodies drain to the San Francisco Bay.

RSA Location 3 spans the San Lorenzo Creek crossing. San Lorenzo Creek crosses the trackway flowing east to west until reaching the San Francisco Bay. San Lorenzo Creek separates the City of San Leandro from San Lorenzo.

RSA Location 4 is between two waterbodies that flow east to west into the San Francisco Bay, Bockman Canal to the north and Sulphur Creek to the south. The Cities of Hayward and San Lorenzo are separated by a housing development to the north and a golf course to the south. Oro Loma Marsh spans the entirety of RSA Location 4 and is located to the west.

RSA Location 5 is located east of Eden Landing, a wetland area located within the City of Hayward. It is south of SR-92 and west of Industrial Boulevard. A channel runs adjacent the RSA to the east, crossing underneath the trackway approximately 380 feet north of the Eden Shores Boulevard overcrossing. The channel flows adjacent to the trackway until it reaches Old Alameda Creek. RSA Location 5 also spans the Old Alameda Creek crossing. The railway alignment separates the City of Hayward to the west and Union City to the east of the RSA. A park is located on the northeastern shore of the crossing and is adjacent the RSA.

RSA Location 6 spans the Alameda Creek crossing and an unlined channel to the south. Alameda Creek crosses the trackway flowing southwest toward the San Francisco Bay. Alameda Creek separates Union City to the north from the City of Fremont to the south of the creek boundaries. The unlined channel joins with Alameda Creek just west of the RSA crossing. The trackway at this RSA separates Union City at the northwest portion of the crossing from the City of Fremont to the east.

RSA Location 7 covers the unnamed channel and Newark Slough crossings. Both the unnamed channel and Newark Slough flow southwest when crossing the trackway. Newark Slough and the unnamed channel join downstream to form an unrestricted waterbody flowing toward the San Francisco Bay.

## 4.3.2. Local Topography

Due to the nature of the proposed work, the existing elevations would not change considerably as a result of the proposed Project. Therefore, identification of tidally influenced areas is based on the existing topography within the limits of the proposed Project. The datum used for analysis was North American Vertical Datum of 1988. Google Earth was used to provide elevations for the evaluated Project areas.

RSA Location 1, spans San Leandro Creek. Trackway elevation at SLR RSA Location 1 is approximately 21 feet. Elevations within the creek crossing range from approximately 4 feet at the creek crossing and 17 feet along the creek bank.

RSA Location 2 spans Estudillo Canal. Trackway elevation at the Estudillo Canal crossing is approximately 10 feet. Elevations within the canal crossing range from approximately 2 feet at the actual water crossing to 8 feet along the top of bank. The railroad alignment is parallel to an unnamed channel with an inlet to the marsh farther north, and west of the channel is a berm which separates this channel from the marsh. The channel is the lowest elevation while the top of the railroad embankment is the highest.

RSA Location 3 spans San Lorenzo Creek. Trackway elevation at the RSA is approximately 16 feet. Elevations within the creek crossing range from approximately 1 foot at the creek crossing and 16 feet along the creek bank.

At RSA Location 4, the elevation of the trackway is consistently within an approximate range of 10 to 11 feet. The trackway is adjacent to and east of the Oro Loma Marsh. Within the channel that runs from Bockman Canal to Sulphur Creek, elevations between the trackway and Oro Loma Marsh range between 3 feet and 6 feet with the lowest elevations being those at the channel crossing at Sulphur Creek.

RSA Location 5 is east of Eden Landing, a tidal marsh area, with the elevation of the trackway consistently within the range of approximately 10 to 11 feet. Elevations within the channel included

in the RSA range from approximately 1 to 3 feet with the lowest elevations being at the southern end of the channel. Trackway elevations at the Old Alameda Creek crossing are approximately 10 to 11 feet. Elevations within the Alameda Creek crossing and RSA range from approximately 0 to 5 feet.

At RSA Location 6, the trackway crosses Alameda Creek and has an elevation of 38 to 40 feet throughout. Elevations within the creek crossing range from approximately 6 feet at the creek crossing and 25 feet along the creek bank. The trackway crossing above the unlined channel (Figure 4-6, below Farmhouse Street) has an elevation of 28 feet. Alameda Creek at the crossing is at an approximate elevation of 10 feet.

At RSA Location 7, the elevation of the trackway is consistently within 19 to 20 feet. The trackway is located within a residential area and spans an unnamed channel (roughly between Cabernet and Rochelle Avenues, Figure 4-7), and Newark Slough crossings. Elevations at both of these two waterway crossings are at approximately 8 feet.

## 4.3.3. Tidal

Tidal data for the RSAs was obtained from the San Francisco Bay Tidal Datums and Extreme Tides Study (ART, 2016). The study performed extreme tide analysis for more than 900 locations in the San Francisco Bay based on the current National Tidal Datum Epoch (NTDE), and the gauge locations (612, 625, 629, 631, 646, 655, and 675) nearest to the RSA Locations 1 through 7, respectively, were selected for use in this analysis. The North American Vertical Datum of 88 (NAVD 88) is used to discuss elevations for the proposed Project. The extreme tide elevations recorded at the selected gauge are shown in Table 4-3.

**Table 4-3. Current Extreme Tide Elevations**

| Tidal Datum/ Extreme Tide | Elevation (Feet NAVD 88) | | | | | | |
|---|---|---|---|---|---|---|---|
| | Location 1 | Location 2 | Location 3 | Location 4 | Location 5 | Location 6 | Location 7 |
| MHHW | 6.26 | 6.91 | 6.94 | 6.96 | 7.05 | 7.15 | 7.31 |
| 1-YR | 8.30 | 8.30 | 8.30 | 8.32 | 8.36 | 8.44 | 8.60 |
| 10-YR | 9.15 | 9.17 | 9.19 | 9.21 | 9.31 | 9.42 | 9.60 |
| 100-YR | 10.11 | 10.19 | 10.24 | 10.26 | 10.50 | 10.68 | 10.93 |

***Source: ART San Francisco Bay Tidal Datums and Extreme Tides Study (2016)***

## 4.3.4. Existing FEMA Floodplains

As discussed in Section 3.11.2, Regulatory Section (Hydrology and Water Quality Section), FEMA develops Flood Insurance Rate Maps (FIRMs) that delineate communities into zones of relative flood risk severity, independent of SLR. Throughout the Project corridor, as presented in Section 3.11 Hydrology and Water Quality, proposed activities are located within the following FEMA Zones: A, AE, AH, AO, Shaded X, and Unshaded X (Appendix J includes detailed maps and discussions for each

SLR RSA Location). FEMA Zones A, AE, AH, and AO represent special flood hazard areas. FEMA Zones identified within the Project footprint are:

- Zone A represents areas with a 1 percent annual chance flood, or 100-year floodplain.
- Zone AE represents areas with a 1 percent annual chance flood.
- Zone AH represents areas with a 1 percent annual chance of shallow flooding with average depths of 1 to 3 feet.
- Zone AO represents areas with a 1 percent annual chance of shallow flooding with average depths of 1 to 3 feet.
- Shaded Zone X represents areas that have a moderate flood hazard between the 1 percent annual chance flood and the 0.2 percent annual chance flood.
- Unshaded Zone X represents areas that have a minimal flood hazard, which are the areas outside the 0.2 percent annual chance flood.

## 4.3.5. SLR Projections

### 4.3.5.1. Project Service Life and Corresponding SLR Evaluation Periods

The service life of the proposed Project improvements within the SLR RSAs is anticipated by the design team to range from 10 to 100 years, depending on structure. Proposed work at all RSA locations would include a track realignment with upgrades to rail and ties. The proposed Project also includes an additional trackway, which would be constructed from the Elmhurst to Newark connections spanning all seven RSA locations. Rail components have a standard service life of 10 to 20 years. As part of the proposed Project, new culverts are proposed at RSA Location 7, spanning the Newark Slough and unlined channel. Culverts have a standard service life of 50 years. With the addition of the new trackway from Elmhurst to Newark, new bridge structures are proposed at RSA locations 1 through 6. Bridge structures have a standard service life of 100 years. Based on preliminary Project schedule, construction would be completed in 2029, so the years 2040, 2050, 2080, and 2130 were selected as the years when SLR would be evaluated.

### 4.3.5.2. SLR Scenarios

SLR projections are based on the latest BCDC guidance, as of July 2021, which recognizes the State of California SLR 2018 Update (CNRA & OPC, 2018) to be the best estimate of future SLR. These projections use the approach developed by Kopp et al (2014), which represents the best available science. The methods use probabilistic modeling to develop SLR estimates based on different global greenhouse gas emission scenarios during this century and beyond, ranging between "business-as-usual" and significant reduction.

SLR projections for the San Francisco tide gauge were applied to the proposed Project. A summary of the values used in the Project evaluation are included in Table 4-4; the projections are with respect to a baseline year of 2000. Table 4-4 source information is included in Table 7 of Appendix J, which is from the State of California SLR 2018 Update. With the first Project improvement's service life ending in 2040 and 2050, only values for the high-emissions scenario are available for consideration. This is due to differences in SLR projections being minor under high and low

emissions scenarios prior to 2050, as the 2050 projections are strongly linked to emissions that have already occurred. The projected SLR of the proposed Project in the 2050 medium-high (1-in-200 chance) risk aversion scenario is 1.9 feet, and the projected SLR in the 2050 extreme (H++) risk aversion scenario is 2.7 feet. Analysis of the SLR in the 2050 scenario was completed to assess the SLR impacts to the Project RSAs at the end of the service life for the proposed trackway improvements. The projected SLR of the proposed Project in 2080 in the medium-high risk aversion scenario is 4.5 feet. This SLR scenario was evaluated to assess the SLR at the end of the service life for the proposed culverts at RSA Location 7. The projected SLR of the proposed Project in the 2130 medium-high risk scenario is 10 feet. This SLR scenario was evaluated to assess the SLR at the end of the service life for the proposed bridge structures at RSA Locations 1 through 6. The medium-high risk aversion scenario was selected for the proposed Project due to the Project's lack of adaptability and high consequences for underestimating SLR. The H++ scenario does not represent a probability of occurring, rather it serves as the "maximum physically plausible" projection of SLR. As such, the H++ scenario will not be evaluated further.

**Table 4-4. Projected SLR for Medium-High Risk and H++ Scenarios**

| Year | High Emissions/Medium-High Risk Aversion: 1-in-200 Chance Occurrence Scenario (SLR in feet) | Extreme Risk Aversion: H++ Scenario (SLR in feet) |
|---|---|---|
| 2030 | 0.8 | 1.0 |
| 2040 | 1.3 | 1.8 |
| 2050 | 1.9 | 2.7 |
| 2080 | 4.5 | 6.6 |
| 2090* | 5.6 | 8.3 |
| 2100* | 6.9 | 10.2 |
| 2130 | 10 | 16.6 |

**** Years correlated to closest available ART and CoSMoS visualizations for 100-year service life.***
***Source: CNRA & OPC, 2018 (Table 7 of Appendix J)***

## 4.3.5.3. Potential SLR Inundations at Project Site

Two mapping tools (CoSMoS model and ART model) were employed to evaluate inundations at all RSAs using the SLR values from Table 4-4. The SLR projection years of 2040 and 2050 were evaluated at all locations. For RSA Locations 1 through  where the projected service life of improvements is year 2130, inundation maps for an increase of 10 feet were unavailable for both mapping tools. The highest available SLR projection scenario was used for the purpose of presenting a visual aid. This included the projection year 2100 for the CoSMoS model and 2090 for the ART model. Maps for all scenarios run for the seven SLR RSA's are included in Appendix J.

The end of construction is anticipated to be the Year 2029, and the service life of the components in the RSA is anticipated to be 10 to 20 years for all railway improvements, 50 years for all proposed culverts, and 100 years for all bridge improvements. The CoSMoS model developed by the USGS incorporates long-term coastal processes and flooding to make predictions, and it was used to

visualize the total water level (TWL) under the 100-year storm events. The TWL is the total elevation of the water surface including tides, storm surge, and wave runup. The ART Map was also reviewed for comparison since it includes more detailed local topography. However, it does not include wave runup.

The projected water surface elevations (WSE) under the medium-high risk aversion SLR scenario in the 100-year tide event, along with the approximate track elevation from Google Earth, are provided for reference in Table 4-5. These projected WSEs are still water levels (SWL), which are less than the TWLs that were visually demonstrated by the mapping tools because they do not include wave runup. Portions of the track are inundated by the SWLs for all projection years, without adding the wave runup that further increases water levels. Locations 2, 4, and 5 are modeled to be flooded for all year scenarios. Locations 1 and 6 are not inundated in any of the year scenarios.

**Table 4-5. Projected 100-Year SLR SWLs for RSA Locations**

| Year | High Emissions/ Medium-High Risk Aversion 1-in-200 Chance Occurrence Scenario (SLR in feet) | Medium-High Risk Aversion 100-yr WSE (feet) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Location 1, elevation 21 feet** | Location 2, elevation 10 feet** | Location 3, elevation 16 feet** | Location 4, elevation 10-11 feet** | Location 5, elevation 10-11 feet** | Location 6, elevation 38-40 feet** | Location 7, elevation 19-20 feet** |
| **2000** | N/A | 10.11 | 10.19 | 10.24 | 10.26 | 10.50 | 10.68 | 10.93 |
| **2030** | 0.8 | 10.91 | 10.99 | 11.04 | 11.06 | 11.30 | 11.48 | 11.73 |
| **2040** | 1.3 | 11.41 | 11.49 | 11.54 | 11.56 | 11.80 | 11.98 | 12.23 |
| **2050** | 1.9 | 12.01 | 12.09 | 12.14 | 12.16 | 12.40 | 12.58 | 12.83 |
| **2080** | 4.5 | 14.61 | 14.69 | 14.74 | 14.76 | 15.00 | 15.18 | 15.43 |
| **2090*** | 5.6 | 15.71 | 15.79 | 15.84 | 15.86 | 16.10 | 16.28 | 16.53 |
| **2100*** | 6.9 | 17.01 | 17.09 | 17.14 | 17.16 | 17.40 | 17.58 | 17.83 |
| **2130** | 10.0 | 20.11 | 20.19 | 20.24 | 20.26 | 20.50 | 20.68 | 20.93 |

**** Years correlated to closest available ART and CoSMoS visualizations for 100-year service life.***

***** These are approximate elevations. For exceptions to these elevations, see Section 4.3.2 above.***

## CoSMoS Modeling

CoSMoS was utilized to visualize areas of SLR flooding. The CoSMoS model generates visual results for every 0.8 foot of SLR, so the model is not able to generate the visual results to exactly match the SLR projections in Table 4-4 for 2040 and 2050. The CoSMoS visualizations of 1.6 and 4.9 feet in SLR

were selected to be analyzed, which correspond roughly to the SLR projections for the years 2040 (1.3 feet), 2050 (1.9 feet), and 2080 (4.5 feet), respectively. No visualization data were available for the SLR scenario closest to the projected 100-year service life of 10 feet. The closest available visual data were for 6.6 feet of SLR (figures included in Appendix J), which most closely corresponds to the projected SLR in the year 2100, or the 70-year projected service life of the proposed Project. The visualization of the year 2100 SLR scenario is included as a visual aid to gain a better understanding of the minimum reaches of the 100-year inundation levels. The CoSMoS model figures included in Appendix J show two layers, the flood extent and flood-prone low-lying areas. For the years 2040 and 2050, flood extent area is shown in bright red and flood-prone low-lying areas are shown in dark red. For the year 2100, the flood extent area is shown in blue and flood-prone low-lying areas are shown in green. The flood extent includes areas projected to be underwater for at least one minute under a given SLR scenario. Flood-prone low-lying areas are those areas with no direct surface water connection to the ocean but lie below the projected TWL.

The most accurate corresponding CoSMoS visualization for both the 2040 and 2050 SLR scenarios is a 100-year storm event and 1.6 feet of SLR. Figure 15 of Appendix J shows that there would be no impacts to RSA Location 1 or surrounding area during this event. In the case of 6.6 feet of SLR during a 100-year storm, which most closely matches the SLR projection for the year 2100, Figure 15 of Appendix J shows still no impacts to the RSA Location 1.

At RSA Location 2, the most accurate corresponding CoSMoS visualization for the years 2040 and 2050, a 100-year storm event and 1.6 feet of SLR, shows that there would be a flood-prone low-lying area north of the Estudillo Canal crossing on either side of the RSA. Figure 16 of Appendix J shows an additional section of RSA Location 2 to the south as a flood-prone low-lying area. SLR would inundate areas west of RSA Location 2. The channel next to the berm is not rendered in the CoSMoS model likely due to the scale of topographic data used in its calculations. CoSMoS visualization for 6.6 feet of SLR during a 100-year storm shows inundation covering the entire RSA Location 2.

At RSA Location 3, inundation impacts at 1.6 feet of SLR during a 100-year storm are contained within San Lorenzo Creek as shown in Figure 17 of Appendix J. The CoSMoS visualization for 6.6 feet of SLR during a 100-year storm event shows inundation impacts extending on either side of the trackway and encroaching within UPRR ROW.

Figure 18 of Appendix J shows that at RSA Location 4, inundation impacts for a 100-year storm event and SLR of 1.6 feet at the northern and southernmost ends of the RSA are contained within Bockman Canal and Sulphur Creek. The CoSMoS visualization shows inundation areas adjacent Oro Loma Marsh extend along the trackway crossing the UPRR ROW and extending deeper into the park east of the trackway. CoSMoS visualization for 6.6 feet of SLR during a 100-year storm shows inundation covering the entire RSA.

The corresponding CoSMoS visualization for the years of 2040 and 2050, a 100-year storm event with 1.6 feet of SLR, shows extensive inundation throughout the northern end of RSA Location 5. Inundation extends from Old Alameda Creek until Hesperian Boulevard and via the channel east of and adjacent to RSA Location 3, extends into the developed area to the east. Inundation impacts spread south from the Old Alameda Creek into the undeveloped area between the Kaiser Permanente parking lot and the creek itself. CoSMoS visualization for 6.6 feet of SLR during a 100-year storm shows inundation covering the entire RSA. Both inundation scenarios are shown in Figure 19 of Appendix J.

At RSA Location 6, there are no inundation impacts at 1.6 feet of SLR during a 100-year storm event as shown in Figure 20 of Appendix J. During the 100-year storm event at 6.6 feet of SLR there are low-lying areas within Alameda Creek near the crossing. Flooding extents during this SLR scenario are limited to the residential areas west of the trackway and Alameda Creek itself.

For RSA Location 7, the most accurate corresponding CoSMoS visualization for both SLR scenarios is a 100-year storm event and 6.6 feet of SLR. **Table 4-4** Under this scenario, Figure 21 of Appendix J shows that there would be limited impacts to RSA Location 7 or surrounding area with the flooding extents reaching the edges of the railway ballast, but within the RSA. Flooding extents in the surrounding area extend to the residential zones east of the RSA. However, there are no inundation impacts to the RSA Location 7 during the 1.6-feet SLR scenario.

## ART Modeling

The ART Bay Shoreline Flood Explorer Map was also used to visualize inundation at the RSAs. The ART Map does not include wave action within their storm surges like CoSMoS but incorporates useful data about berms and levees from local stakeholders. The ART Map also cannot generate results to exactly match each SLR projection, so 1 foot, 2 feet, and 4.5 feet of SLR were used as they were closest to the SLR projections in Table 4-7 in Appendix J. These SLR depths respectively correspond to the projections for the years 2040 (1.3 feet), 2050 (1.9 feet), and 2080 (4.5 feet). There are no visualization data available on the ART Map for any SLR scenario greater than 5.5 feet. According to the data listed in Table 4-5 above, an SLR scenario of 5.5 feet best matches the projected SLR in the year 2090. Year 2090 represents a 60-year projected life span of the proposed Project. Visualizations for the projected 5.5 feet of SLR are included to serve as visual aids when considering the 100-year projected SLR. The ART Map visualizes depths of flooding in 2 feet intervals.

RSA Location 1 ART Maps for the 100-year tide event and 1-, 2-, and 5.5 feet of SLR are shown in Appendix J in Figure 22, Figure 23, and Figure 24, respectively. The figures show that the 1- and 2-foot SLR are contained within San Leandro Creek. The 5.5 feet of SLR inundation would extend to 0–2 feet along the creek banks adjacent to the trackway.

RSA Location 2 and the impacts of the 100-year tide event and 1-, 2-, and 5.5 feet of SLR, are shown in Appendix J in Figure 25, Figure 26, and Figure 27, respectively. Figure 25 in Appendix J shows that SLR would inundate the entire RSA Location 2, overtopping the railroad structure from the west by approximately 1 foot. Depths would range from 0 to 6 feet, with water deepest on the west side of the railroad in the existing channel. Unlike the CoSMoS model, water would flow from north to south through the existing channel and overtop the berm in a small segment in this scenario. This better matches the existing flow patterns and topography visible on Google Earth, which shows the channel currently inundated. The 2 feet of SLR inundation shown Figure 26 in Appendix J, indicates that SLR would flood the entire RSA Location 2 similarly to the 2040 scenario, but to a deeper depth of up to 6 feet. The railroad and a slightly larger segment of the berm to the west is overtopped. RSA Location 2 also receives flow from the northeast from Estudillo Canal, which overtops its banks. Inundation impacts from 5.5 feet of SLR during a 100-year storm event extend throughout RSA Location 2 with inundation depths reaching up to 8 feet along the trackway.

RSA Location 3 ART Maps for the 100-year tide event and 1-, 2-, and 5.5-feet of SLR are shown in Appendix J in Figure 28 Figure 29, and Figure 30, respectively. One foot of SLR impacts would be contained within San Lorenzo Creek. Inundation depths within the creek would reach approximately

6 to 8 feet. At 2 feet of SLR, impacts within RSA Location 3 extend to both sides of the creek, limited to the south side of the UPRR ROW, with a flooding depth of 0 to 2 feet, as well as a small area of 2-4 feet depth to the east and one of 8-10 feet depth to the west. Impacts due to 5.5 feet of SLR extend throughout the RSA Location 3 with inundation levels ranging up to 8 feet in areas surrounding the RSA on both sides of the creek and of UPRR ROW.

RSA Location 4 ART Maps for the 100-year tide event and 1-, 2-, and 5.5 feet of SLR are shown in Appendix J in Figure 31, Figure 32, and Figure 33, respectively. The ART flood layer for the 1-foot SLR scenario shows inundation crossing the RSA and spilling into the park areas to the east. Inundation by the trackway reaches a potential depth of 2 feet with the adjacent park areas reaching potential depths of 4 feet. In the 2-foot SLR inundation scenario, flooding expands past the park and into the residential areas farther east. These residential areas experience potential flooding depths of up to 2 feet. Inundation by the trackway reaches potential depths of up to 6 feet under this scenario. In the 5.5-foot SLR visualization, inundation impacts extend past the trackway into the park and residential community to the east. Inundation depths along the trackway and within UPRR ROW range from 4 to 6 feet.

RSA Location 5 ART Maps for the 100-year tide event and 1-, 2-, and 5.5 feet of SLR are shown in Appendix J in Figure 34, Figure 35, and Figure 36, respectively. During the 1-foot SLR scenario, there is extensive flooding throughout the RSA. Flooding impacts from the Eden Landing marsh areas as well as the channel to the east of the trackway extend throughout the length of the RSA Location 5. Inundation depths by the trackway at Eden Landing reach a potential depth of 6 feet. Flooding extends beyond the Old Alameda Creek crossing with inundation by this segment of the trackway reaching potential depths of up to 4 feet. In the 2-foot SLR scenario, inundation extends past the channel adjacent the RSA into the developed areas to the east. This developed area experiences inundation impacts from the overtopping of the adjacent channel as well as Old Alameda Creek east of the crossing. Inundation by the trackway along RSA Location 5 reaches a potential depth of 8 feet under this scenario. The greatest levels of inundation at this location occur within the channel adjacent the railway. In the same scenario, inundation by the trackway remains at a potential depth of 4 feet. Inundation extents in this scenario go beyond Hesperian Boulevard and extend to the east. A majority of the inundation impacts adjacent the RSA reach potential depths of up to 4 feet. Inundation in the 5.5-foot SLR scenario extends throughout the RSA Location 5 and the surrounding area. Inundation in the areas adjacent the trackway reach depths of 10 to 12 feet.

RSA Location 6 ART Maps for the 100-year tide event and 1-, 2-, and 5.5 feet of SLR are shown in Appendix J in Figure 37, Figure 38, and Figure 39, respectively. The ART flood layer for the 1- and 2-foot SLR scenario shows inundation at the crossing contained within Alameda Creek and southern unlined channel crossings. Inundation during the 5.5-foot SLR scenario is contained within Alameda Creek at the trackway crossing. Inundation at the southern unlined channel crossing extends just outside the trackway at depths of 0 to 2 feet with the majority of the inundation impacts contained within the channel. Areas north and west adjacent to the trackway are impacted by inundation 0 to 4 feet in depth but are outside of the UPRR ROW.

RSA Location 7 ART Maps for the 100-year tide event and 1-, 2-, and 5.5 feet of SLR are shown in Appendix J in Figure 40, Figure 41, and Figure 42, respectively. There are no impacts to the RSA Location 7 from SLR in either the 1-foot or 2-foot SLR scenario. In the 4.5-foot SLR scenario, inundation of depths range from 0 to 2 feet extending throughout the residential areas to the west of the trackway, but do not impact the RSA Location 7.

The ART Map shows greater inundation than CoSMoS in the 2040, 2050, and 2080 scenarios. The ART Map even shows greater inundation than CoSMoS when comparing the 2090 projected SLR impacts shown by ART to the 2100 projected SLR impacts shown in the CoSMoS maps, despite the ART Map not including wave runup which would increase the TWL. Table 4-6 below summarizes the susceptibility of each RSA to SLR at each service life horizon.

**Table 4-6. SLR Susceptibility by ART and CoSMoS Visualizations at Each Service Life Horizon**

| RSA Location | 2040 | | 2050 | | 2090/2100 | |
|---|---|---|---|---|---|---|
| | ART | CoSMoS | ART | CoSMoS | ART | CoSMoS |
| 1 | No | No | No | No | No | No |
| 2 | Yes | Yes | Yes | Yes | Yes | Yes |
| 3 | No | No | Yes | No | Yes | Yes |
| 4 | Yes | Yes | Yes | Yes | Yes | Yes |
| 5 | Yes | Yes | Yes | Yes | Yes | Yes |
| 6 | No | No | No | No | No | No |
| 7 | No | No | No | No | Yes | Yes |

# 4.4. Assessment of Effects and Adaptation Measures

## 4.4.1. Impact Assessment

Based on the projected SLR elevation in 2050 under the medium to high-risk aversion scenario, RSAs 2 through 5 may be prone to potential inundation by 2050 in the 100-year tide event with 1.9 feet of SLR.

RSA Location 2 may be prone to potential inundation by 2050 as the flow of water from the north and the overtopping of berms and levees in the RSA vicinity could cause flooding. The CoSMoS mapping tool shows that a section of RSA Location 2 would be a flood-prone low-lying area. The ART Map displays deeper flooding than CoSMoS in the same scenario, showing that the railroad would be overtopped in the 100-year tide event with 1-in-200 scenario SLR.

RSA Location 3 may be prone to potential inundation by 2050 due to the impacts of flow from Heron Bay to the north of the RSA. The ART mapping tool shows flows overtopping Heron Bay and flooding the residential community adjacent to the trackway. CoSMoS does not show this area impacted by SLR in the year 2050.

RSA Location 4 may be prone to potential inundation by 2050 as the overtopping of the berm west of the RSA could cause flooding. The CoSMoS mapping tool shows that flooding would extend into

the park but stop before reaching residential development. The ART Map displays deeper flooding than CoSMoS in the same scenario, showing that flooding would extend into the residential area to the east.

RSA Location 5 may be prone to potential inundation by 2050 due to its proximity to the adjacent trackway and Old Alameda Creek. The CoSMoS mapping tool shows that flooding would extend from Old Alameda Creek east of the RSA and the channel east of the trackway extending into the residential area between the railway and Hesperian Boulevard. The ART Map displays deeper flooding than CoSMoS in the same scenario showing that flooding would extend past Hesperian Boulevard.

## 4.4.2. Considered SLR Adaptation Measures

Adaptation measures of local and regional projects, ongoing SLR adaptation efforts currently proposed by the City of San Leandro, City of Hayward, as well as the CCJPA SLR Vulnerability Assessment were researched and reviewed. BCDC recommends an adaptive management approach to SLR if a project is expected to remain in place past mid-century. The following sections provide a description of those adaptation measures recommended by BCDC and their applicability to the proposed Project.

### 4.4.2.1. SLR Adaptation Measure Categories

The adaptation measures identified were grouped into the following categories: Project Improvements within the RSA, Operational Measures, and Regional Coordination Efforts (defined below).

- Category 1: Project Improvements within the RSA.
    - Raise the elevation of the railroad tracks.
    - Raise electrical and signal equipment above projected SLR elevation.
    - Install watertight or corrosion-resistant electrical conduits, vaults, and appurtenances.
    - Build flood walls along the Project corridor.
- Category 2: Operational Measures.
    - Update Amtrak's emergency evacuation and train operation plans in case of inundation to include the possibility of retreat as a response to SLR.
    - Coordination with UPRR on train operation plans and adaptation responses to SLR.
    - Allocate future CCJPA funding to assist in SLR adaptation projects with partner agencies.
- Category 3: Regional Coordination Efforts.
    - Work with regional agencies and local communities as part of a larger regional adaptation planning process.
    - Work with UPRR to plan for long-term SLR adaptation along the entire Project corridor. Encourage the incorporation of waterproof and corrosion-resistant materials.

- Install flood control infrastructure (berms, levees, tide gates) outside the RSA.
- Collaborate on environmental-based flood control infrastructure (horizontal levees, creek reconnection, construction and designation of upland inundation areas).

## 4.4.2.2. Feasibility of Adaptation Measures

The feasibility analysis used in the SLR assessment for the proposed Project to assess viability of incorporating SLR adaptation measures included the evaluation of the potential benefits of the proposed improvements, the potential impacts to the proposed Project scope, and the costs of the SLR adaptation measures.

### Category 1: Projects Improvements within the RSA

A possible adaptation measure within the RSAs considered was to raise the elevation of the railroad tracks where inundation impacts are anticipated. Elevating the railroad more than once depending on the rate of SLR was discussed. Raising the track may require reconstructing the at-grade crossings north and south of the RSA locations, regrading the full extent of the UPRR ROW between the reconstructed at-grade crossings, and reconstructing the railroad bridges over the Estudillo Canal, San Leandro, San Lorenzo, Sulphur, Alameda, and Old Alameda Creeks and Bockman Canal  The decision to raise the tracks will be made based on the site design conditions of each segment and tracks will be raised as necessary to a height that provides operational passage while addressing SLR to the extent possible.

If necessary, within the RSAs, possible adaptation measures to minimize the effects of SLR include waterproofing of electrical equipment and conduits and elevating aboveground components to avoid damage from SLR. Additional communication with UPRR is possible concerning the incorporation of design standards with waterproof and corrosion-resistant materials as a part of the proposed Project's SLR adaptation measures.

The possibility of building flood walls would be best coordinated with regional efforts for comprehensive flood control infrastructure. Without regional coordination, building flood walls may divert and exacerbate inundation to adjacent areas not protected by flood walls.

### Category 2: Operational Measures

Amtrak operates the trains on the CCJPA corridor and could update their emergency plan as a possible measure to address evacuation in case of flooding from SLR at the RSA. As part of an updated plan, CCJPA could incorporate managed retreat as part of their seasonal response to SLR impacts in the near term. In the long term, dependent on regional planning, total retreat could also be a potential response to SLR impacts along the corridor. CCJPA could also develop an operational plan on how address a service gap due to SLR at the RSA, including bus bridges, train movement, and storage. Any changes to train operation plans would be coordinated with UPRR.

Future CCJPA funding could be allocated for SLR adaptation projects with local and regional partners. Regional coordination efforts will be discussed further in the next section.

### Category 3: Regional Coordination Efforts

While the proposed Project alone cannot provide a comprehensive response to SLR impacts along the proposed Project area, regional approaches can be supported to provide SLR management to the area. On a regional scale, the proposed Project's ROW is very limited, thus limiting the options for

on-site SLR management. As such, SLR impacts within or adjacent to the Project area may be best addressed by collaborating with an existing regional approach and coordinating with UPRR on a future long-term adaptation response to SLR. As owner of the railroad, UPRR has more control over infrastructure improvements than CCJPA.

As an effort to reduce the impact of SLR on the RSAs, CCJPA will support SLR management efforts beyond the footprint of the proposed Project. This is outlined in the CCJPA SLR Vulnerability Assessment and encouraged by BCDC. BCDC's Climate Change Policy 6 recommends the development of such a regional strategy of climate change adaptation, in which existing shoreline development and critical infrastructure such as regional transportation would be protected. In accordance with the next steps outlined in the CCJPA Vulnerability Assessment, CCJPA is willing to be an active participant in organizations focused on providing regional approaches to mitigating SLR impacts. Beyond participation in the SLR mitigation strategies set by regional coordination organizations, CCJPA will consider future coordination with cities and municipalities that have initiatives potentially impacting the RSAs identified in this document. The proposed Project has identified the following regional organizations and local agencies that CCJPA may collaborate or form potential partnerships with:

- Bay Adapt is an initiative to establish regional agreement on the actions necessary to protect people and the natural and built environment from rising sea levels. The initiative is facilitated by BCDC. Bay Adapt developed Joint Platform, a consensus-based strategy that will protect people and the natural and built environment from rising sea levels. In June 2021, Bay Adapt agreed that the actions in its Joint Platform were ready to move towards implementation. The initiative consists of members across a wide range of public agencies, interest groups, and community organizations, including BART and the Caltrans.

- The San Francisco Bay Regional Coastal Hazards Adaptation Resiliency Group (CHARG) is a current organization of flood managers and scientists responsible for reducing flood risk in the San Francisco Bay Area. It is a strategic initiative of the Bay Area Flood Protection Agencies Association (BAFPAA). The group consists of members from the Alameda County Flood Control District, the county in which the SLR RSAs are located. CHARG seeks to engage local flood control districts to advance the scientific foundation needed to direct SLR adaptation at a regional scale.

- The City of San Leandro has several planned projects that would impact RSA Location 2. Per the San Leandro 2035 General Plan, Alameda County Public Works Agency and the City of San Leandro are working together to remove property in western San Leandro from FEMA's 100-year floodplain designation. As stated in the Plan, this will require the construction of sea walls in locations such as the western edge of Mission Bay Mobile Home Park, and the raising of bank heights along the Estudillo Canal below Wicks Boulevard. Both projects would impact the RSA, as the RSA lies directly west adjacent to the Mission Bay Mobile Home Park, and based on the ART mapping tool, the RSA receives flow from Estudillo Canal during 100-year storms with SLR. The 2035 General Plan also mentions rehabilitation of the Estudillo Canal tide gates as a planned flood control project. These projects have potential to reduce the impact of SLR on the RSA. Coordination with the City of San Leandro would be necessary to suggest a sea wall adjacent to the Mission Bay Mobile Home Park in a location to better protect other stakeholders. Additionally, as stated in the San Leandro Draft 2021 Climate Action Plan, the City of San Leandro plans to seek funding for the sandbank restoration of Long Beach, near Roberts

Landing. This planned project would lie directly west of the RSA on the shoreline of San Francisco Bay and would help reduce SLR at the RSA.

- The First Mile Horizontal Levee Project located in the City of Hayward and encompasses a portion of the Oro Loma Marsh. This project is part of a system of sea level rise adaptation measures identified in the Hayward Shoreline Adaptation Master Plan (City of Haward 2021) adopted by the Hayward Area Shoreline Planning Agency in 2021. Current partners of this project include ERPD, East Bay Dischargers Authority, San Francisco Estuary Partnership, and Hayward Area Shoreline Planning Agency. The concept for this project, which has been tested through the Oro Loma Horizontal Levee Demonstration Project, is to use nature-based solutions to provide SLR resilience, water quality improvement, and habitat enhancements, in addition to the flood protection functions of a more traditional levee. The First Mile Horizontal Levee Project would provide an opportunity for UPRR to participate on a potential integration of railroad track embankment into a larger SLR embankment/levee structure that consolidates flood defense with an access corridor.

## 4.4.3. Cumulative Impact Analysis

Cumulative impacts are impacts to resources in the environment that result from past, present, and reasonably foreseeable future actions, combined with the potential impacts of the proposed Project. Section 15355 of the State CEQA Guidelines defines cumulative impacts as two or more individual effects that, when considered together, are considerable and may compound or increase other environmental impacts. These impacts may result from residential, commercial, industrial, and highway development that can degrade habitats, alter hydrology, and harm water quality.

This section analyzed the impact of SLR on the proposed Project. The section does not investigate the inverse relationship, the impact of the proposed Project on SLR, which is not an environmental resource. SLR is an environmental condition that will occur regardless of the proposed Project and others in the vicinity, so the proposed Project would have no cumulative impact on SLR.

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# Chapter 5 **Other CEQA Considerations**

This chapter addresses other California Environmental Quality Act (CEQA) considerations that are required as part of an Environmental Impact Report (EIR).

## 5.1 Introduction

In addition to identifying the potential for physical effects of the proposed Project and measures to mitigate any identified significant effects (Chapter 3, Environmental Impact Analysis), the CEQA Guidelines also require evaluation of the following topics:

- Significant Irreversible Environmental Changes (CEQA Guidelines Section 15126.2 [d])
- Environmentally Superior Alternative (CEQA Guidelines section 15126.6)
- Growth-Inducing Impacts (CEQA Guidelines Section 15126 [e])
- Significant and Unavoidable Impacts (CEQA Guidelines Section 15126.2 [c])

Section 5.6 also provides an Environmental Justice assessment of the proposed Project and a findings determination.

## 5.2 Significant Irreversible Environmental Changes and Irretrievable Commitments of Resources

CEQA Guidelines Section 15126.2(d) requires that an EIR must identify irreversible impacts (also referred to as irreversible environmental changes) that may be caused by a project if it is implemented. Further, irretrievable commitments of non-renewable resources should be evaluated to justify current consumption.

Generally, implementation of the proposed Project would not consume a substantial quantity of resources that would deplete current resources and prohibit their future use because work sites would be limited in size and duration. However, as discussed in Section 3.7, Energy, during construction, gasoline, diesel, and electricity, all defined as non-renewable resources, would be consumed to produce and transport construction materials, operate construction equipment, and transport workers to/from the Project study area. As a result, construction of the proposed Project would cause a temporary increase in energy consumption. However, construction-related energy consumption would be overcome by operational energy savings (associated with decreased personal auto use) within four years of the proposed Project's operation (Section 3.7). Further, operation of the proposed Ardenwood Station would represent net energy savings in 2025 and 2040 as compared to the existing Hayward Station, and therefore, would not impact energy resources. Additionally, operation of the proposed Project is expected to result in an overall net reduction in locomotive fuel consumption for Capitol Corridor passenger rail service, based on shorter and more efficient route length, thereby reducing long-term energy consumption of the Capitol Corridor passenger service. Therefore, the proposed Project would not result in significant environmental effects due to wasteful, inefficient, or unnecessary consumptive use of energy.

Regarding the potential for loss of mineral resources, another non-renewable resource, as discussed in Section 3.13, no valuable or locally-important mineral resources or active mining operations are present within the Project footprint. As a result, the potential for mineral resources to be disturbed is low.

Finally, the proposed Project would require approximately 7.4 million gallons of water during construction, but coordination with EBMUD, HWS, and ACWD would allow for most of the water required to come from recycled sources, sparing potable water. Coordination with these agencies would further allow avoidance of irretrievable commitment of expenditures when water resources are scarce, as in dry years. As discussed in threshold b under Utilities and Service Systems (Section 3.20.6.2), operational water use is expected to be less than the use of an average household in Alameda County. As such, no irretrievable use of water resources is expected. Section 3.20, Utilities and Service Systems, also addresses solid waste and wastewater treatment. Neither of these resources are expected during construction or operations to require any irretrievable investment of resources.

Therefore, no significant irreversible environmental changes nor irretrievable commitments of resources would result from implementation of the proposed Project during construction or operations.

## 5.3 Environmentally Superior Alternative

CEQA Guidelines Section 15126.6 [e](2) requires that an "environmentally superior" alternative be selected among the alternatives that are evaluated in the EIR. The environmentally superior alternative is considered to be the Project alternative that has the least environmental impact and would be expected to generate the fewest adverse environmental impacts. Further, CEQA Guidelines Section 15126.6 [e](2) states that "If the environmentally superior alternative is the 'no project' alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives".

As described in Chapter 2, Alternatives Description, after an extensive alternatives screening process, consideration of public input received during the scoping process, and continued modifications to the proposed Project during conceptual design, CCJPA defined the Project Alternatives as:

- Proposed Project
- No Project Alternative

Chapter 2 also includes information on other alternatives considered but eliminated from evaluation in the EIR, based on established screening criteria. During assessment of environmental impacts by resource area in Chapter 3, comparisons of the level of impacts under the proposed Project and No Project Alternative considered in this EIR are provided. In many instances, the proposed Project would result in impacts that would not occur under the No Project Alternative. Among others, these include construction impacts from noise and vibration (Section 3.14), impacts to biological resources (Section 3.5), recreation (Section 3.17), hydrology and water quality (Section 3.11), air quality (Section 3.4), and greenhouse gas emissions (GHG; Section 3.9).

However, with implementation of identified mitigation measures, all of these impacts would be rendered less than significant after mitigation and would be limited to the period of construction.

Finally, proposed Project operations would result in a net benefit of an annual reduction of between 20,000 and 40,000 VMT and improved GHG emissions (Section 3.9, Greenhouse Gas Emissions) as a result of forecasted increases in passenger rail ridership that would result from Project implementation.

Because construction (short-term) impacts will be reduced to less than significant after mitigation is incorporated and the significant operations (long-term) benefits of the proposed Project, the proposed Project has been identified as the environmentally superior alternative.

## 5.4 Growth-Inducing Impacts

CEQA requires an EIR to discuss any growth-inducing impacts that would result from the proposed Project. Section 15162.2(d) of the CEQA Guidelines states that "an EIR shall discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment." Based on this statement, the proposed Project would be considered to have growth-inducing impacts if it directly or indirectly fosters economic growth, population growth, or the construction of additional housing beyond which is forecasted and planned for in city and county general plans. Section 15162.2(d) also states that growth-inducing impacts would also be due to other activities that could significantly impact the environment which are encouraged and facilitated by the proposed Project.

The proposed Project objectives (Chapter 2, Project Alternatives) are to increase rail ridership of existing trains and allow for better connections between high-demand destinations and job centers in the region, as well as to provide more access to affordable housing locations within Northern California. No increase in the number of Capitol Corridor passenger trains is included in the proposed Project.

The addition of the new Ardenwood Station could encourage more development locally, specifically transit-oriented developments. However, the Project Definition Report (2019), which is located for review here, assessed the anticipated ridership use of the Ardenwood Station and found that the station would be more likely to support passengers changing to other transportation modalities (i.e., passenger rail to local train service), rather than being the home station for passengers, which would be more likely to induce local population growth. The station provides opportunities for rail passengers coming from farther locations to better access existing local transportation options, including buses and shuttles to the San Francisco Peninsula. Providing these connections to high-quality active and mass transportation options at Ardenwood will also be critical to get riders to their ultimate destination.

The proposed Project would not construct additional infrastructure that would expand the already existing road and transportation network. It would also not create any new commercial development that would foster a substantial or unplanned population or economic growth. The employment and economic opportunities presented due to the proposed Project are expected to be filled by residents within Alameda County, which is where the proposed Project is located. In addition, the new Ardenwood Station is within an already suburbanized area and the surrounding parcels are of residential, office, and business uses. While there are some vacant parcels adjacent to the new Ardenwood Station, the type of development that could occur would be governed by the existing land use plan of the City of Fremont where the development would occur. This anticipated

growth of the vacant parcels is already included in the City of Fremont's General Plan future growth projections.

Additionally, the proposed Project would not foster the construction of additional housing. The majority of the proposed Project improvements would occur within or directly adjacent to the existing UPRR ROW and adjust to a pre-existing transit facility. The proposed Project would not require any full parcel acquisitions of residential zoned property. Thus, there would be no residential relocations required. Moreover, because a majority of the improvements would occur within existing railroad ROW, the proposed Project would not impede or increase the use of existing parks and recreational facilities during operations nor would require the construction of new recreational facilities. Therefore, this would address the "other activities that could significantly impact the environment" per Section 15162.2(d). Because the project would not negatively alter the existing jobs and housing balance, impact existing recreational facilities, necessitate new housing, or be inconsistent with the City of Fremont General Plan and its future growth projections, the growth-inducing impact would be less than significant with no mitigation required.

# 5.5 Significant and Unavoidable Impacts

CEQA Guidelines Section 15126.2(c) requires an EIR to discuss significant effects, including those that can be mitigated but not reduced to a level of insignificance. The CEQA Guidelines state that:

> *(w)here there are impacts that cannot be alleviated without imposing an alternative design, their implications, and reasons why the project is being proposed, notwithstanding their effect, should be described.*

Table 5-1 summarizes those resource topic areas found to have the potential for significant impacts resulting from the proposed Project, as analyzed in Chapter 3. Significant impacts would occur for the following resource topic areas: aesthetics, air quality, biological resources; cultural resources; geology and soils; hydrology and water quality; noise and vibration; recreation; tribal cultural resources. However, as discussed in detail in the Chapter 3 resource sections and summarized below, all impacts will be mitigated to a less-than-significant level, and no significant and unavoidable impacts are anticipated.

**Table 5-1. Potentially Significant Impacts of the Proposed Project**

| Resource Area | Potential for Significant Impacts from the Proposed Project | Effectively Mitigated to Less than Significant | Significant and Unavoidable Impacts |
|---|---|---|---|
| ***Aesthetic Resources*** | | | |
| **Would the project have a substantial adverse effect on a scenic vista?** | ✓ | ✓ | — |

**Table 5-1. Potentially Significant Impacts of the Proposed Project**

| Resource Area | Potential for Significant Impacts from the Proposed Project | Effectively Mitigated to Less than Significant | Significant and Unavoidable Impacts |
|---|---|---|---|
| **Would the project 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 proposed Project is in an urbanized area, would the proposed Project conflict with applicable zoning and other regulations governing scenic quality?** | ✓ | ✓ | — |
| **Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?** | ✓ | ✓ | — |
| ***Air Quality*** | | | |
| **Would the project 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?** | ✓ | ✓ | — |
| **Would the project expose sensitive receptors to substantial pollutant concentrations?** | ✓ | ✓ | — |
| ***Biological Resources*** | | | |
| **Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife, U.S. Fish and Wildlife Service, or NOAA Fisheries?** | ✓ | ✓ | — |

**Table 5-1. Potentially Significant Impacts of the Proposed Project**

| Resource Area | Potential for Significant Impacts from the Proposed Project | Effectively Mitigated to Less than Significant | Significant and Unavoidable Impacts |
|---|---|---|---|
| **Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?** | ✓ | ✓ | — |
| **Would the project have a substantial adverse effect on state or federally protected wetlands (including but not limited to, marsh, vernal pool, coastal etc.) through direct removal, filling, hydrological interruption, or other means?** | ✓ | ✓ | — |
| **Would the project 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?** | ✓ | ✓ | — |
| **Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?** | ✓ | ✓ | — |
| ***Cultural Resources*** | | | |
| **Cause a substantial adverse change in the significance of a historical resource pursuant to CEQA Guidelines Section 15064.5** | ✓ | ✓ | — |
| **Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5** | ✓ | ✓ | — |
| **Disturb any human remains, including those interred outside of formal cemeteries** | ✓ | ✓ | — |

**Table 5-1. Potentially Significant Impacts of the Proposed Project**

| Resource Area | Potential for Significant Impacts from the Proposed Project | Effectively Mitigated to Less than Significant | Significant and Unavoidable Impacts |
|---|---|---|---|
| ***Geological and Paleontological Resources*** | | | |
| **Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?** | ✓ | ✓ | — |
| ***Hydrology and Water Quality*** | | | |
| **Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?** | ✓ | ✓ | — |
| **Would the project 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:**<br>**(ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite? (iv) impede or redirect flood flows?** | ✓ | ✓ | — |
| ***Noise and Vibration*** | | | |
| **Would the project result in the generation of a substantial temporary or permanent increase in ambient noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?** | ✓ | ✓ | — |
| **Would the project result in the generation of excessive ground-borne vibration or ground-borne noise levels?** | ✓ | ✓ | — |

**Table 5-1. Potentially Significant Impacts of the Proposed Project**

| Resource Area | Potential for Significant Impacts from the Proposed Project | Effectively Mitigated to Less than Significant | Significant and Unavoidable Impacts |
|---|---|---|---|
| ***Recreation*** | | | |
| **Include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment** | ✓ | ✓ | — |
| ***Tribal Cultural Resources*** | | | |
| **Would the Project cause a substantial adverse change in the significance of a TCR, defined in PRC Section 21074 that is (a) listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in PRC Section 5020.1(k)** | ✓ | ✓ | — |
| **Would the Project cause a substantial adverse change in the significance of a TCR, defined in PRC Section 21074 that is (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.** | ✓ | ✓ | — |

# 5.6 Environmental Justice

This section describes the proposed Project's impacts on communities with environmental justice (EJ) concerns (low-income and people of color communities), in accordance with recent California State guidelines. While EJ is a requirement by federal law[1], there is no explicit California Environmental Quality Act (CEQA) requirement at this time. However, in February 2018, the California Attorney General established the Bureau of Environmental Justice. Its mission is "to protect people and communities that endure a disproportionate share of environmental pollution

[1] Federal Actions to Address Environmental Justice in Minority Populations (Executive Order 12898)

and public health hazards." Under state law, "environmental justice" means the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies (Gov. Code, § 65040.12, subd (e)).

The Bureau of Environmental Justice recommends that CEQA be used to study the potential additional burdens on communities with EJ concerns. This section includes a review of the regulatory context and methodology, identification of low-income and people of color communities, assessment of impacts that would affect low-income and people of color communities, and the results of the Project's EJ analysis.

**Regulatory Setting**

The proposed Project would comply with all relevant federal, state, and local policies and regulations as it relates to minority populations and low-income populations. These policies are listed in the Environmental Justice technical memorandum (Appendix K). The proposed Project would be required to meet all applicable policies and regulations, which includes compliance with federal Executive Order 12898 *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* and all goals and policies set forth by Alameda County and all respective cities within the study area. These cities include Fremont, Hayward, Oakland, Newark, San Leandro, and Union City.

## 5.6.1 Methodology for Analysis and Significance Determination

This section defines and describes the methods used to identify communities with EJ concerns within the RSA and to address the potential for the proposed Project to cause disproportionately high and adverse human health and environmental effects on low-income and people of color communities. The communities with EJ concerns were identified in accordance with Federal Transit Administration (FTA) methodology, as described in the August 15, 2012, *FTA Circular 4703.1* which is standard across all U.S. Department of Transportation (USDOT) divisions, including the Federal Railroad Administration.

### 5.6.1.1 Environmental Justice Resource Study Area

RSAs are the geographic boundaries within which the environmental analyses specific to each resource topic were conducted. As shown in Figure 5-1, the EJ RSA is located in the jurisdictions of Alameda County and the cities of Fremont, Newark, Union City, Hayward, San Leandro, and Oakland.

As shown in Figure 5-2 through Figure 5-5, the EJ RSA for direct, indirect, and cumulative effects on low-income and people of color communities is defined as all U.S. Census Bureau block groups that fall partially or completely within a 0.5-mile radius of the Project Study Area. The Project Study Area is inclusive of temporary and permanent improvements associated with the proposed Project. A 0.5-mile radius is in alignment with the service availability standard in *FTA Circular 4702.1B*, which denotes that passengers will generally walk up to 0.5 mile to a light or heavy rail station.

**Figure 5-1: Environmental Justice Resource Study Area**

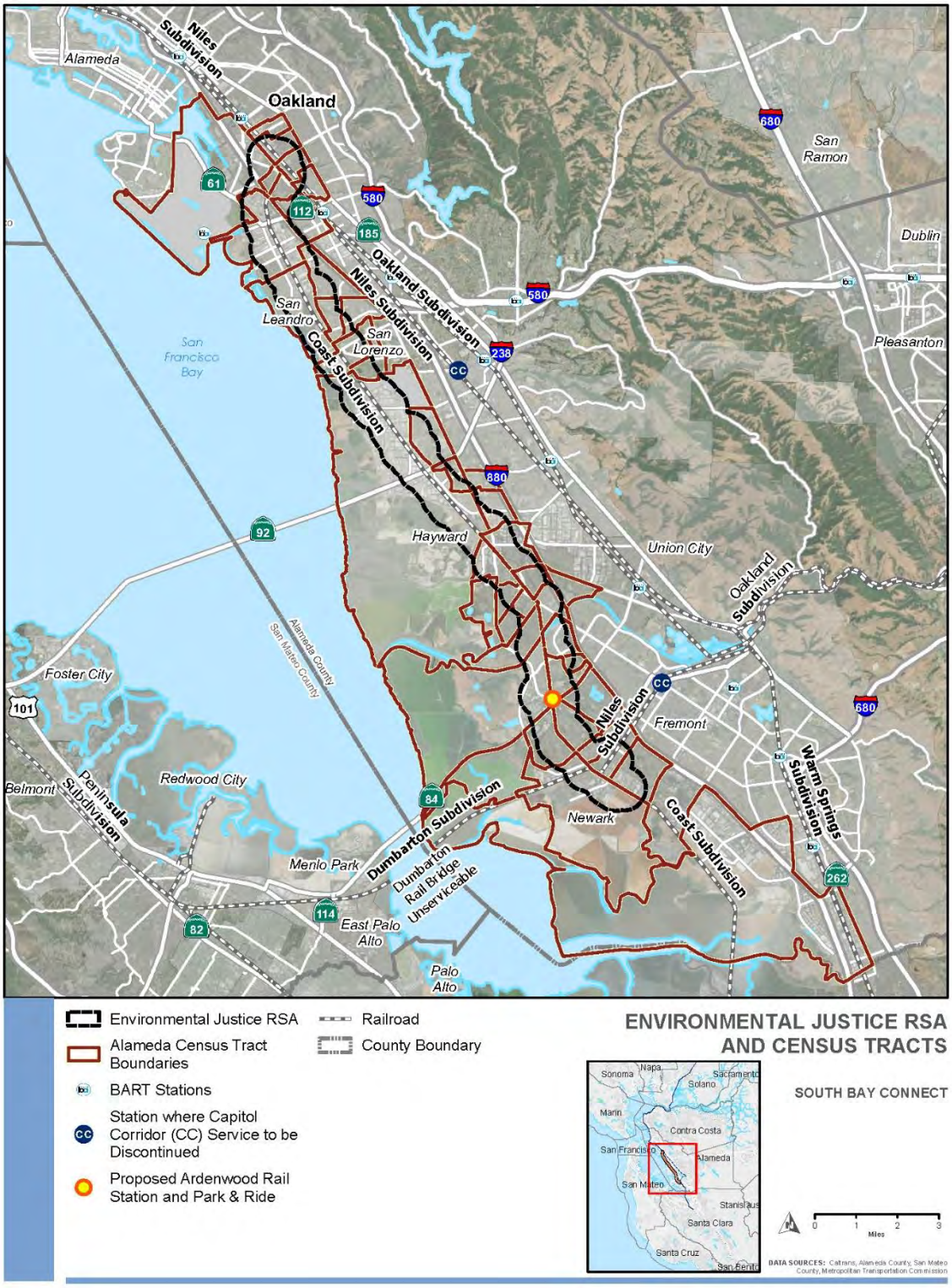


**Figure 5-2: Environmental Justice Resource Study Area Block Group 1**

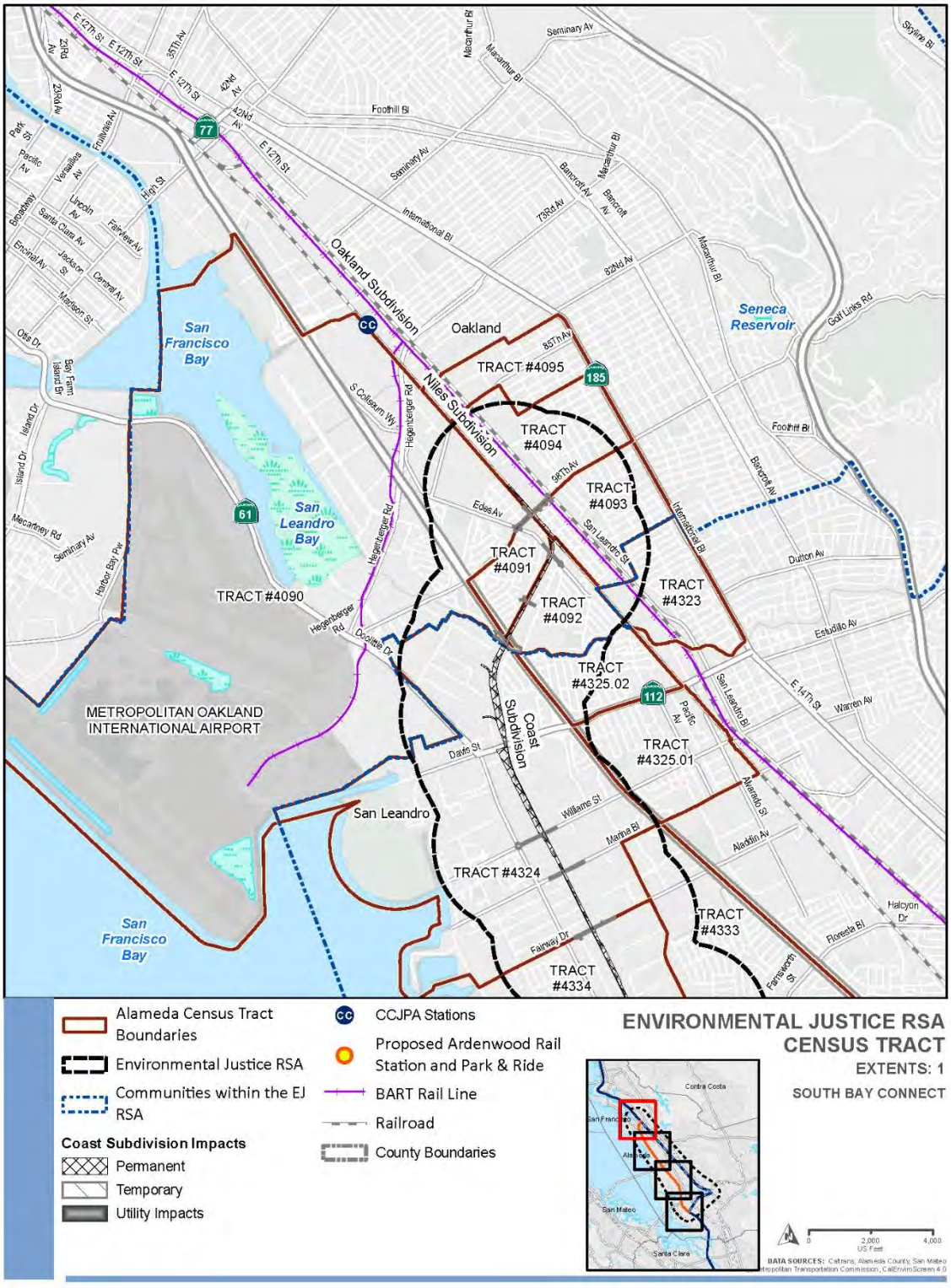


**Figure 5-3: Environmental Justice Resource Study Area Block Group 2**

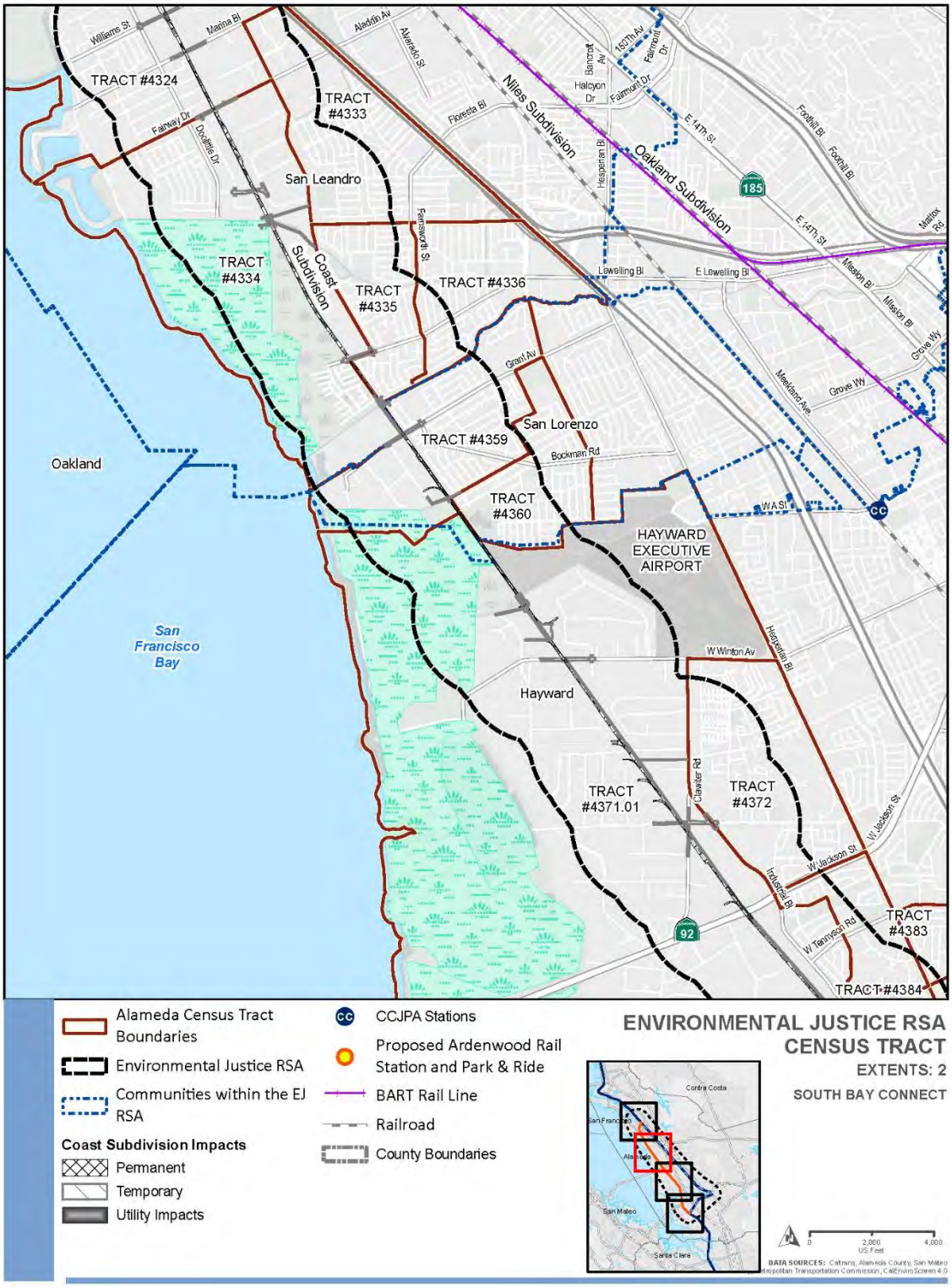


**Figure 5-4: Environmental Justice Resource Study Area Block Group 3**

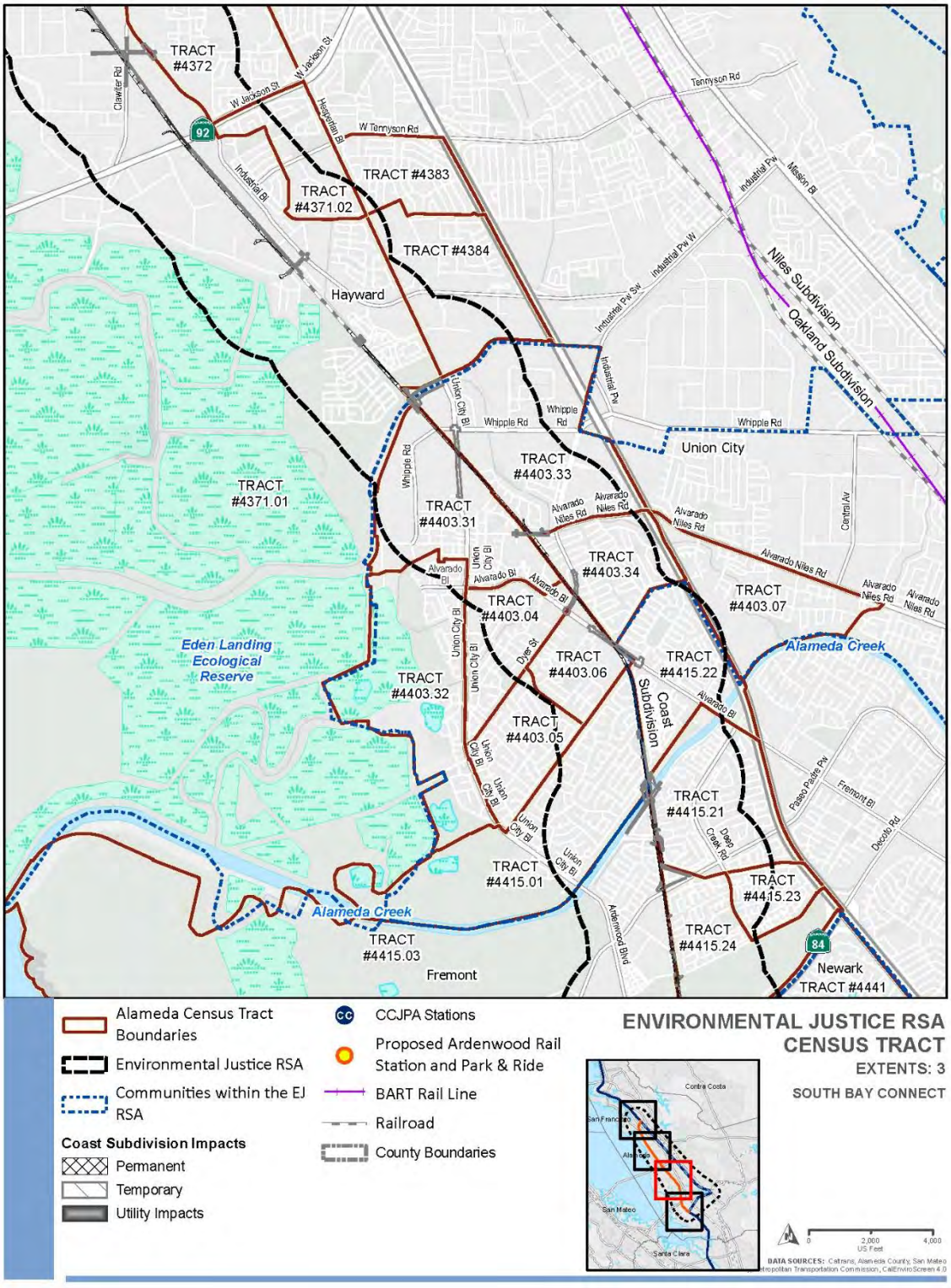
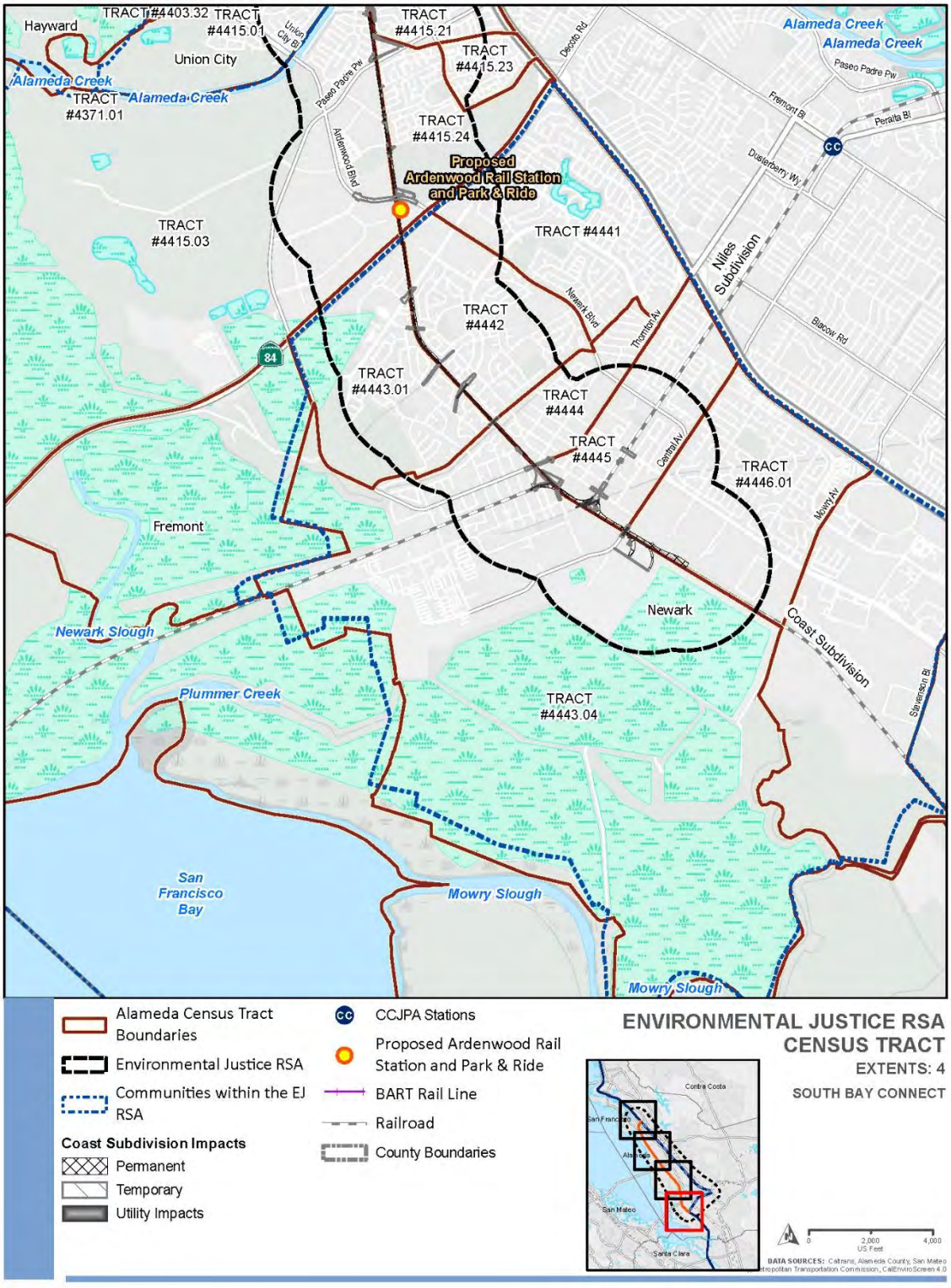


**Figure 5-5: Environmental Justice Resource Study Area Block Group 4**



## Identification of Communities for EJ Analysis

To identify people of color, per FTA, "minority" includes persons who are American Indian and Alaska Native, Asian, Black or African American, Hispanic or Latino, and Native Hawaiian and other Pacific Islander. Inclusive of those identifying as "some other race" and "2 or more races", this analysis includes all persons who are not non-Hispanic/Latino, white, one-race only.

To identify block groups that qualify as "communities with EJ concerns" for Minority/ People of Color, the FTA Circular encourages the use of local thresholds. This analysis uses the threshold developed by the San Francisco Bay Area's Metropolitan Planning Organization (MPO), the Metropolitan Transportation Commission (MTC), consistent with their definition of Equity Priority Communities – if 70% or greater of the block group consists of people of color, it is considered a minority / people of color community. Per FTA guidance, to identify households that are considered low-income, if a household has an annual income at or below 150% of the federal poverty level, it is considered low-income. However, FTA encourages the use of a locally developed threshold, provided that the local threshold is at least as inclusive as the federal threshold (FTA Circular C 4703.1). Considering FTA's encouragement of the use of local thresholds, the EJ analysis for the proposed Project defines low-income households as those at or below 200% of the federal poverty level for their household size, consistent with MTC's definition of Equity Priority Communities.

To identify block groups that qualify as "communities with EJ concerns" for low-income communities, considering FTA's encouragement of the use of local thresholds, this analysis uses the threshold developed by MTC, consistent with their definition of Equity Priority Communities, that states if 28% or greater of the block group consists of low-income households, it is considered a low-income community.

## Methodology for Impact Analysis

To determine the potential for the proposed Project to result in disproportionate health or environmental effects on communities with EJ concerns, the Project effects on each resource under study were reviewed, and the likelihood of any of these impacts to affect the communities with EJ concerns was assessed. The EJ impact analysis considers the USDOT Order 5610(c) definition of adverse effects, which are the totality of significant individual or cumulative human health or environmental effects, including interrelated social and economic effects, and the denial of, reduction in, or significant delay in the receipt of, benefits of DOT programs, policies, or activities.

A review of the temporary construction and permanent operational effects of the proposed Project was conducted, and the magnitude of the effects, whether effects are adverse or beneficial, the duration of effects (temporary or permanent), and the geographic location of the effects on the communities with EJ concerns within the RSA were identified. Determination of potential disproportionately adverse effects on communities with EJ concerns was based on the following considerations:

- Identification of adverse effects:
    - Effects that were minimized through mitigation were evaluated to determine whether the mitigation measures were proportionately applied to communities with EJ concerns and non-EJ communities, and if they addressed the concerns of the communities with EJ concerns. If both of these conditions applied, the effects were not considered adverse.

    - Effects that were not substantially reduced through mitigation were considered adverse

- Identification of disproportionate adverse effects:
    - Would the adverse effects be predominantly borne by communities with EJ concerns?
    - Would adverse effects be suffered by communities with EJ concerns and would those adverse effects be appreciably more severe or greater in magnitude than the adverse effect suffered by the non-EJ communities?
- Would the project provide offsetting benefits to communities with EJ concerns?

## 5.6.2 Existing Conditions

### 5.6.2.1 People of Color Communities

For purposes of this analysis, people of color communities are defined as census block groups where 70 percent or more of the population identify as non-white and/or Hispanic, which includes Asian Pacific Islander, African American, Hispanic, Native American, or other non-white ethnic groups. Table 5-2 provides a summary of the percent of the population who identify as non-white and/or Hispanic persons in each census block group in the EJ RSA, while Attachment A of Appendix K provides a breakdown for each race/ethnicity population for each geographic location within the EJ RSA.

On a county level, 72.1% of the total population identify as a person of color. For the proposed Project, the total population within the majority of the reference cities that identify as a person of color is also higher than the county level at 83.1% (City of Fremont), 88.4% (City of Hayward), 80.5% (City of Newark), 79.5% (City of San Leandro), 78.6% (San Lorenzo CDP), and 86.5% (City of Union City). The total population that identify as a person of color within the City of Oakland is 70.4% which is lower than the county level of 72.1%.

Based on data available from the U.S. Census Bureau and as shown on Figure 3 of Appendix K, the northern section of the EJ RSA has a smaller share of people of color communities compared to the rest of the EJ RSA. The northern section in the cities of Oakland and San Leandro has a substantially larger percentage of Black or African American populations when compared to the County overall, and the areas in the southern portion of the EJ RSA has a significantly larger share of Asian populations in comparison to the County as a whole. Hispanic or Latino populations are mostly concentrated in the Northern portion (City of Oakland) and Central portion (City of Hayward) of the RSA, with pockets of higher Hispanic populations scattered in the cities of Union City and Newark. Overall, the highest concentration of all people of color communities are located in the City of Oakland near the start of the proposed Project, City of San Leandro on the Coast Subdivision, the proposed Ardenwood station, and the City of Union City north of the proposed Ardenwood station. Figures demonstrating this breakdown are included in Appendix K.

### 5.6.2.2 Low-Income Populations

For purposes of this analysis, low-income communities are defined as block groups where 28 percent or more of households earns 200 percent or less of the federal poverty level. Table 5-2

provides a summary of the percent of the population in each block group who are considered to be low-income while Attachment A of Appendix K provides detailed income information for each geographic location within the EJ RSA.

Based on the data available from the U.S. Census Bureau and as shown on Figure 4 of Appendix K, the northern section of the EJ RSA has a larger share of low-income communities compared to the rest of the EJ RSA. Overall, the highest concentration of low-income communities are clustered in the City of Oakland near the start of the proposed Project. There are pockets of higher low-income communities scattered in the cities of Fremont, Hayward, Newark, San Leandro, and Union City.

### 5.6.2.3 Communities with EJ Concerns

As summarized in Table 5-2, and shown in Figure 3 of Appendix K, the majority of the RSA block groups have been identified as having relatively high concentrations of either people of color communities and/or low-income communities, with a higher potential for these communities to be impacted by the proposed Project.

**Table 5-2: Communities with Environmental Justice Concerns**

| Geographic Location | Population | Low-Income Community[1] | People of Color Community[2] | Community with Environmental Justice Concerns? |
|---|---|---|---|---|
| **Alameda County** | 1,628,997 | No – 20.5% | Yes – 72.1% | N/A[3] |
| **City of Fremont** | 223,859 | No – 13.4% | Yes – 83.1% | N/A[3] |
| *Census Tract 4415.03, Block Group 1* | *144* | Yes – 44.4% | Yes – 100.0% | Yes |
| *Census Tract 4415.03, Block Group 2* | *2,160* | No – 7.3% | Yes – 88.3% | Yes |
| *Census Tract 4415.21, Block Group 3* | *1,415* | No – 7.9% | Yes – 87.0% | Yes |
| *Census Tract 4415.21, Block Group 4* | *539* | No – 13.5% | No – 66.0% | No |
| *Census Tract 4415.23, Block Group 1* | *1,930* | No – 3.5% | Yes – 89.3% | Yes |
| *Census Tract 4415.23, Block Group 2* | *1,184* | No – 5.2% | Yes – 89.6% | Yes |

| Geographic Location | Population | Low-Income Community[1] | People of Color Community[2] | Community with Environmental Justice Concerns? |
|---|---|---|---|---|
| *Census Tract 4415.24, Block Group 1* | *2,492* | No – 2.0% | Yes – 93.5% | Yes |
| *Census Tract 4415.24, Block Group 2* | *1,619* | No – 0.9% | Yes – 96.7% | Yes |
| **City of Hayward** | 156,773 | No – 24.2% | Yes – 88.4% | N/A[3] |
| *Census Tract 4371.01, Block Group 1* | *4,308* | No – 2.9% | Yes – 92.1% | Yes |
| *Census Tract 4371.01, Block Group 2* | *1,415* | Yes – 33.5% | Yes – 88.6% | Yes |
| *Census Tract 4371.01, Block Group 3* | *1,821* | No – 26.6% | Yes – 95.7% | Yes |
| *Census Tract 4371.02, Block Group 1* | *1,210* | Yes – 51.1% | Yes – 84.8% | Yes |
| *Census Tract 4371.02, Block Group 2* | *2,141* | No – 23.2% | Yes – 97.3% | Yes |
| *Census Tract 4372, Block Group 1* | *1,460* | No – 17.6% | Yes – 89.6% | Yes |
| *Census Tract 4372, Block Group 2* | *1,123* | Yes – 28.5% | Yes 92.1% | Yes |
| *Census Tract 4372, Block Group 4* | *2,801* | No – 27.1% | Yes – 88.8% | Yes |
| *Census Tract 4383, Block Group 3* | *1,080* | No – 25.6% | Yes – 87.3% | Yes |
| *Census Tract 4384, Block Group 1* | *1,385* | No – 9.2% | Yes – 92.1% | Yes |
| **City of Newark** | 47,470 | No – 11.9% | Yes – 80.5% | N/A[3] |
| *Census Tract 4441, Block Group 4* | *1,337* | No – 24.8% | No – 67.5% | No |

| Geographic Location | Population | Low-Income Community[1] | People of Color Community[2] | Community with Environmental Justice Concerns? |
|---|---|---|---|---|
| *Census Tract 4442, Block Group 1* | *1,483* | No – 23.2% | Yes – 81.4% | Yes |
| *Census Tract 4442, Block Group 2* | *2,350* | No – 8.6% | Yes – 80.2% | Yes |
| *Census Tract 4442, Block Group 3* | *2,949* | No – 14.2% | Yes – 76.0% | Yes |
| *Census Tract 4443.01, Block Group 1* | *1,899* | No – 8.6% | Yes – 79.2% | Yes |
| *Census Tract 4443.01, Block Group 2* | *1,799* | No – 3.6% | No – 61.6% | No |
| *Census Tract 4443.02, Block Group 1[4]* | *2,356* | Yes – 28.5% | Yes – 88.5% | Yes |
| *Census Tract 4443.02, Block Group 2[4]* | *2,829* | No – 13.6% | Yes – 83.6% | Yes |
| *Census Tract 4444, Block Group 2* | *2,518* | Yes – 29.9% | Yes – 84.2% | Yes |
| *Census Tract 4444, Block Group 3* | *1,794* | No – 9.5% | Yes - 87.8% | Yes |
| *Census Tract 4445, Block Group 3* | *2,027* | No – 14.7% | No – 69.6% | No |
| *Census Tract 4445, Block Group 4* | *2,636* | Yes – 32.8% | Yes – 88.9% | Yes |
| *Census Tract 4446.01, Block Group 1* | *2,684* | No – 6.2% | Yes – 79.6% | Yes |
| *Census Tract 4446.01, Block Group 2* | *3,397* | No – 2.3% | Yes – 86.2% | Yes |
| **City of Oakland** | 430,531 | Yes – 29.7% | Yes – 70.4% | N/A[3] |
| *Census Tract 4090, Block Group 1* | *2,924* | No – 26.2% | Yes – 96.4% | Yes |

| Geographic Location | Population | Low-Income Community[1] | People of Color Community[2] | Community with Environmental Justice Concerns? |
|---|---|---|---|---|
| *Census Tract 4090, Block Group 3* | *2,115* | Yes – 51.3% | Yes – 96.4% | Yes |
| *Census Tract 4091, Block Group 1* | *1,329* | No – 24.5% | Yes – 82.0% | Yes |
| *Census Tract 4091, Block Group 2* | *1,203* | Yes – 42.4% | Yes – 98.6% | Yes |
| *Census Tract 4092, Block Group 1* | *2,062* | Yes – 38.9% | Yes – 98.4% | Yes |
| *Census Tract 4092, Block Group 2* | *1,553* | Yes – 31.9% | Yes – 99.3% | Yes |
| *Census Tract 4093, Block Group 1* | *2,204* | Yes – 54.9% | Yes – 97.7% | Yes |
| *Census Tract 4093, Block Group 2* | *1,014* | Yes – 49.6% | Yes – 98.4% | Yes |
| *Census Tract 4093, Block Group 3* | *1,758* | Yes – 43.2% | Yes – 96.6% | Yes |
| *Census Tract 4093, Block Group 4* | *767* | No – 7.4% | Yes – 99.5% | Yes |
| *Census Tract 4094, Block Group 2* | *2,370* | Yes – 34.4% | Yes – 91.9% | Yes |
| *Census Tract 4095, Block Group 1* | *1,563* | Yes – 53.7% | Yes – 82.3% | Yes |
| **City of San Leandro** | 86,761 | No – 19.7% | Yes – 79.5% | N/A[3] |
| *Census Tract 4323, Block Group 1* | *1,338* | Yes – 28.4% | No – 69.0% | Yes |
| *Census Tract 4323, Block Group 2* | *709* | No – 14.0% | Yes – 83.2% | Yes |
| *Census Tract 4323, Block Group 3* | *2,827* | No – 13.7% | Yes – 75.9% | Yes |
| *Census Tract 4324, Block Group 1* | *2,484* | Yes – 46.1% | Yes – 93.7% | Yes |
| *Census Tract 4324, Block Group 2* | *2,223* | No – 25.2% | Yes – 79.9% | Yes |

| Geographic Location | Population | Low-Income Community[1] | People of Color Community[2] | Community with Environmental Justice Concerns? |
|---|---|---|---|---|
| *Census Tract 4324, Block Group 3* | *1,639* | No – 13.0% | Yes – 87.9% | Yes |
| *Census Tract 4325.01, Block Group 1* | *1,118* | No – 5.8% | Yes – 87.0% | Yes |
| *Census Tract 4325.01, Block Group 3* | *2,160* | No – 8.1% | No – 69.5% | No |
| *Census Tract 4325.02, Block Group 1* | *2,520* | No – 25.5% | Yes – 89.6% | Yes |
| *Census Tract 4325.02, Block Group 2* | *1,002* | No – 9.0% | Yes – 91.2% | Yes |
| *Census Tract 4333, Block Group 2* | *916* | No – 8.8% | Yes – 74.7% | Yes |
| *Census Tract 4333, Block Group 3* | *1,374* | Yes – 30.1% | Yes – 75.1% | Yes |
| *Census Tract 4333, Block Group 4* | *1,162* | Yes – 28.9% | Yes – 78.0% | Yes |
| *Census Tract 4334, Block Group 1* | *1,587* | No – 0.7% | Yes – 96.3% | Yes |
| *Census Tract 4334, Block Group 2* | *984* | No – 5.3% | Yes – 70.5% | Yes |
| *Census Tract 4334, Block Group 3* | *703* | No – 8.0% | Yes – 74.3% | Yes |
| *Census Tract 4334, Block Group 4* | *1,099* | No – 9.7% | Yes – 94.4% | Yes |
| *Census Tract 4334, Block Group 5* | *818* | No – 15.8% | Yes – 92.8% | Yes |
| *Census Tract 4334, Block Group 6* | *849* | No – 12.8% | Yes – 81.2% | Yes |
| *Census Tract 4335, Block Group 1* | *1,240* | No – 17.6% | Yes – 71.9% | Yes |

| Geographic Location | Population | Low-Income Community[1] | People of Color Community[2] | Community with Environmental Justice Concerns? |
|---|---|---|---|---|
| *Census Tract 4335, Block Group 2* | *398* | No – 6.8% | No – 59.8% | No |
| *Census Tract 4335, Block Group 3* | *1,442* | Yes – 39.5% | Yes – 75.5% | Yes |
| *Census Tract 4335, Block Group 4* | *1,231* | No – 24.1% | Yes – 82.5% | Yes |
| *Census Tract 4336, Block Group 3* | *1,217* | Yes – 45.0% | Yes – 72.3% | Yes |
| *Census Tract 4336, Block Group 4* | *1,688* | Yes – 34.1% | No – 69.8% | Yes |
| **San Lorenzo CDP** | 29,759 | No – 19.0% | Yes – 78.6% | N/A[3] |
| *Census Tract 4359, Block Group 1* | *2,147* | No – 14.5% | No – 64.9% | No |
| *Census Tract 4359, Block Group 2* | *1,033* | No – 16.0% | No – 67.3% | No |
| *Census Tract 4359, Block Group 3* | *1,519* | No – 14.7% | Yes – 89.6% | Yes |
| *Census Tract 4359, Block Group 4* | *591* | No – 12.4% | No – 53.3% | No |
| *Census Tract 4360, Block Group 2* | *2,221* | No – 11.7% | Yes – 78.4% | Yes |
| **City of Union City** | 67,049 | No – 15.1% | Yes – 86.5% | N/A[3] |
| *Census Tract 4380, Block Group 2* | *1,497* | No – 18.3% | Yes – 87.1% | Yes |
| *Census Tract 4403.04, Block Group 1* | *1,183* | No – 18.6% | Yes – 79.2% | Yes |
| *Census Tract 4403.04, Block Group 2* | *1,898* | No – 7.6% | Yes – 92.8% | Yes |
| *Census Tract 4403.04, Block Group 3* | *1,581* | No – 3.9% | Yes – 93.7% | Yes |

| Geographic Location | Population | Low-Income Community[1] | People of Color Community[2] | Community with Environmental Justice Concerns? |
|---|---|---|---|---|
| *Census Tract 4403.05, Block Group 1* | *1,238* | No – 10.6% | Yes – 76.3% | Yes |
| *Census Tract 4403.05, Block Group 2* | *842* | No – 7.0% | Yes – 82.7% | Yes |
| *Census Tract 4403.06, Block Group 1* | *2,171* | No – 11.2% | Yes – 91.3% | Yes |
| *Census Tract 4403.06, Block Group 2* | *1,616* | No – 22.2% | Yes – 90.2% | Yes |
| *Census Tract 4403.07, Block Group 1* | *1,881* | No – 20.5% | Yes – 79.8% | Yes |
| *Census Tract 4403.31, Block Group 1* | *2,017* | No – 20.6% | Yes – 86.6% | Yes |
| *Census Tract 4403.31, Block Group 2* | *1,259* | No – 14.4% | Yes - 91.5% | Yes |
| *Census Tract 4403.32, Block Group 1* | *1,669* | No – 9.5% | Yes – 93.3% | Yes |
| *Census Tract 4403.33, Block Group 1* | *1,213* | No – 2.7% | Yes – 85.7% | Yes |
| *Census Tract 4403.33, Block Group 2* | *1,519* | No – 11.8% | Yes – 98.7% | Yes |
| *Census Tract 4403.34, Block Group 1* | *2,226* | No – 12.5% | Yes – 88.5% | Yes |
| *Census Tract 4403.34, Block Group 2* | *1,815* | No – 7.5% | Yes – 90.4% | Yes |

| Geographic Location | Population | Low-Income Community[1] | People of Color Community[2] | Community with Environmental Justice Concerns? |
|---|---|---|---|---|
| *Census Tract 4415.01, Block Group 1* | *1,149* | No – 4.1% | Yes – 96.3% | Yes |
| *Census Tract 4415.22, Block Group 1* | *1,254* | No – 5.7% | Yes – 73.9% | Yes |
| *Census Tract 4415.22, Block Group 2* | *1,950* | No – 7.3% | Yes – 84.0% | Yes |
| *Census Tract 4415.22, Block Group 3* | *2,071* | No – 7.6% | Yes – 84.6% | Yes |

1 Low-income Community = 28 percent or more of the population in geographic location earns 200 percent or less of the federal poverty level

2 People of Color Community = 70 percent or more of the population that identify as non-white and/or Hispanic

3 N/A = Not Applicable, geographic location is included as reference community or community of comparison.

4 Data is from the 2019 ACS 5 Year Estimates.

Source: U.S. Census Bureau, 2019 and 2022

## 5.6.3 Environmental Analysis

As noted earlier, currently there are no formal requirements or procedures to evaluate potential environmental justice impacts under CEQA. CEQA is an informational statutory process that addresses impacts of a project that can or will potentially cause a physical change to the environment. However, the following assessment of potential disproportionate environmental effects to communities with EJ concerns is consistent with FTA EJ methodology guidelines. The criterion below is used to determine if the proposed Project would result in a potentially adverse effect to communities with EJ concerns:

> *Would the Project result in adverse impacts being predominately borne by communities with EJ concerns and would those impacts be appreciably more severe or greater in magnitude than adverse impacts borne by communities without EJ concerns in the affected area?*

Table 5-3 provides a summary of whether the effects from applicable environmental resource topic areas are potentially adverse and whether the impact is carried forward for EJ analysis.

**Table 5-3: Summary of Environmental Resource Topic Areas Considered for Environmental Justice Analysis**

| Resource Topic Area | Summary of Impacts | Carried Forward for EJ Analysis? |
|---|---|---|
| **Air Quality (Construction)** | Construction of the proposed Project has the potential to create air quality impacts through the use of heavy-duty construction equipment, worker vehicle trips, truck hauling trips, and locomotive trips. Unmitigated construction emissions would exceed BAAQMD's daily NOx threshold in multiple years of construction. MM AQ-1 reduces emissions from off-road equipment and requires engines greater than 25 horsepower to meet Tier 4 emission standards. MM AQ-2 would reduce emissions from locomotives that would be used during construction to deliver materials, because it requires advanced emissions controls for locomotives used to deliver materials to the proposed Project site. BMP AQ-1 would require implementation of BAAQMD Basic Construction measures/practices. With these mitigation measures and best management practices, the emissions to construct the proposed Project would be less than the pollutant thresholds for all years of construction. | No.<br><br>Potentially significant impacts are reduced to a less than significant level after application of identified mitigation measures. |
| **Air Quality (Operation)** | Operation of proposed Project has the potential to create air quality impacts through operation of the new Ardenwood Station. However, proposed Project operations would also improve existing passenger rail, which would reduce single-occupancy VMT and related air quality impacts in the region. The overall net effect in 2025 would be an emissions decrease, or benefit, for all pollutants. Overall, the net effect in 2040 would be a reduction in all pollutants except for ROG, which would be a minor increase. In both years and for all pollutants, the net operational emissions do not exceed the BAAQMD thresholds, because emissions would be net negative except for one pollutant (ROG) in 2040. | No.<br><br>Impacts are less than significant. |
| **Displacements – Residential and Business** | The majority of the improvements proposed would occur within or adjacent to the existing UPRR right-of-way. However, residential and business displacements have been identified as follows:<br><br>The proposed Project would not require any parcel acquisitions of residential-zoned property. However, the proposed Project would require a | No.<br><br>Impacts are less than significant. |

| Resource Topic Area | Summary of Impacts | Carried Forward for EJ Analysis? |
|---|---|---|
| | partial parcel acquisition of industrial zoned land adjacent to the Coast Subdivision, which may impact an existing building on site. | |
| **Hazardous Waste (Construction)** | During construction, the use of hazardous materials and substances would be required, and hazardous wastes would be generated during operation of construction equipment including but not limited to, vehicle fuels, asphalt/concrete, lubricants, drilling fluids, and paints. The handling of such materials during short-term construction activities would be subject to federal and state regulations and local health and safety requirements. The potential hazards generated by the routine transport, use, and disposal of hazardous materials, contaminated soils, and/or contaminated groundwater during construction are not anticipated to have a significant impact, if adequately managed according to applicable laws, regulations, and industry BMPs. With the implementation of BMP HAZ-1, which specifies the preparation of a Hazardous Materials Management Plan (HMMP) and BMP HYD-1 Stormwater Management and Treatment Plan, construction impacts would be considered less than significant. | No.<br>Impacts are less than significant. |
| **Hazardous Waste (Operation)** | Long-term operational activities and practices involving routine transport, use, and storage of potentially hazardous materials for railroad maintenance, including shipments in tankers on the railroads, would remain similar to existing conditions. The proposed Project would comply with standard regulations and policies regarding the routine transport, use, storage, handling, and disposal of potentially hazardous materials during operations in order to protect human health and the environment. Therefore, long-term impacts would be considered less than significant. | No.<br>Impacts are less than significant. |
| **Light and Glare (Construction)** | The proposed Project would create new sources of both temporary light and glare. Temporary sources of light and glare would include construction vehicles and lighting for nighttime construction. Mitigation Measure AES-2 would be implemented during construction to minimize fugitive light from portable sources used for construction. | No.<br>Potentially significant impacts are reduced to a less than significant level after application of identified mitigation measures. |

| Resource Topic Area | Summary of Impacts | Carried Forward for EJ Analysis? |
|---|---|---|
| **Light and Glare (Operation)** | Permanent sources of light and glare would include lights at the new Ardenwood Station and pedestrian overcrossing, new rail crossing signals, and train lights during nighttime operating schedules. However, the existing visual environment in urbanized areas of the proposed Project already contains many sources of light and glare including vehicle headlights, streetlights, traffic signals, parking lot lighting, storefront and signage lighting, and other lighting on buildings. In both urbanized and non-urbanized areas of the proposed Project, Mitigation Measure AES-8 would be applied to further minimize light trespassing and glare, resulting in a less than significant impact. | No.<br><br>Potentially significant impacts are reduced to a less than significant level after application of identified mitigation measures. |
| **Noise (Construction)** | There are multiple areas along the rail corridor where construction activities would generate noise levels in excess of FTA noise criteria at adjacent residential receptors located within 135 to 270 feet from the construction site. This is a significant impact that would require mitigation. Mitigation Measure NOI-1 requires the preparation and implementation of a construction noise control plan to reduce the impacts of construction noise on nearby noise-sensitive receptors that could be exposed to noise in excess of FTA thresholds. With implementation of Mitigation Measure NOI-1, temporary construction-related noise impacts on nearby noise-sensitive receptors would be reduced to a less than significant impact. | No.<br><br>Potentially significant impacts are reduced to a less than significant level after application of identified mitigation measures. |
| **Noise (Operation)** | There are multiple Category 2 noise receptors (consisting of single-family and multi-family residents) located adjacent to the existing railroad ROW along the Coast Subdivision that would be subject to increases in noise levels above FTA noise criteria. Mitigation Measure NOI-2 requires implementation of a phased program to establish noise quiet zones along certain portions of the rail corridor. The establishment of noise quiet zones would result in the elimination of many of the noise impacts identified within the rail corridor. If noise quiet zones are not feasible, Mitigation Measure NOI-2 would implement building sound insulation at the affected severely impacted residences. The application of either noise quiet zones or the implementation of building sound insultation would | Yes.<br><br>Potentially significant impacts are reduced to a less than significant level after application of identified mitigation measures. Although impacts are identified as less than significant, analysis has been carried forward for comparison to determine if impacts would disproportionately affect or be predominately borne by communities with EJ concerns. |

| Resource Topic Area | Summary of Impacts | Carried Forward for EJ Analysis? |
|---|---|---|
| | result in noise levels at severely impacted residences to be reduced below FTA noise criteria level. Implementation of Mitigation Measure NOI-02 would reduce operational noise impacts to a less than significant impact. | |
| **Public Services – Police and Fire Response Time** | For the proposed Project, no areas within the RSA would result in an increase of emergency vehicle response time by a significant amount (30 seconds or more). Impacts are considered to be less than significant. | No.<br>Impacts are less than significant. |
| **Transportation – Access Effects (Construction)** | Although construction staging areas would be located primarily within UPRR right-of-way and within identified construction limits throughout the RSA, construction activities may result in temporary traffic delays for local residents, businesses, and commuters due to temporary lane closures, road detours, and access restrictions. BMP TR-1 involves the preparation and adoption of a transportation management plan, which would include strategies to reduce potential impacts from street or lane closures and detours during construction activities. It would also include strategies that would maintain local circulation and traffic flow and limit any pedestrian and bicycle transit access closures. With the implementation of BMP TR-1, the proposed Project would not result in permanent or temporary impacts to public access that would create a barrier or permanent disruption in connectivity within the RSA. Impacts would be considered less than significant and no mitigation is required. | No.<br>Impacts are less than significant. |
| **Transit – Access Effects** | The proposed Project proposes to shift Capitol Corridor passenger rail service from the Niles Subdivision (between Elmhurst Junction and Newark Junction) to the Coast Subdivision. With the shift in the Capitol Corridor route, the existing Hayward and Fremont-Centerville stations on the Niles Subdivision would no longer be served by Capitol Corridor passenger trains; instead, a new station in the Coast Subdivision at the Ardenwood Park-and-Ride in western Fremont would be constructed to accommodate riders in southwestern Alameda County. | Yes.<br>Analysis has been carried forward for comparison to determine if the discontinuation of rail service at the Hayward and Fremont-Centerville stations would disproportionately affect or be predominantly borne by impact communities with EJ concerns. |
| **Vibration (Construction)** | It is expected that ground-borne vibration from construction activities would cause only intermittent localized disturbance along the rail | No. |

| Resource Topic Area | Summary of Impacts | Carried Forward for EJ Analysis? |
|---|---|---|
| | corridor. Although processes such as earthmoving with bulldozers or the use of vibratory compaction rollers can create annoying vibration, there should be only isolated cases where it is necessary to use this type of equipment in close proximity to residential buildings. It is possible that construction activities involving pile drivers occurring at the edge of or slightly outside of the current rail ROW could result in vibration damage, and damage from construction vibration would be a potentially significant impact. To mitigate for these potential impacts, Mitigation Measure NOI-3 would require the preparation and implementation of a construction vibration control plan to reduce the impacts of construction vibration on nearby vibration-sensitive land uses that could be exposed to vibration levels in excess of thresholds. With implementation of Mitigation Measure NOI-3, impacts would be reduced to a less than significant level. | Potentially significant impacts are reduced to a less than significant level after application of identified mitigation measures. |
| **Vibration (Operation)** | Existing conditions in the rail corridor include vibration generated by the current volume of passenger and freight trains passing through the RSA. As a result, there are no new vibration impacts that would be generated as a result of proposed Project implementation for the identified sensitive receptors along the rail subdivisions. Therefore, operational vibration impacts are anticipated to be less than significant. | No.<br>Impacts are less than significant. |
| **Visual (Construction)** | Construction activities would introduce heavy equipment, associated vehicles, soil and material transport, and land clearing within and outside of UPRR right-of-way into the viewshed of all user groups. Visual impacts resulting from these construction activities and equipment would be temporary, and with implementation of Mitigation Measures AES-1 and AES-2, construction impacts are anticipated to be less than significant. | No.<br>Potentially significant impacts are reduced to a less than significant level after application of identified mitigation measures. |
| **Visual (Operation)** | The proposed Project includes track improvements, at-grade crossings, grade-separated crossings, water crossings, a new siding, and the proposed Ardenwood Station, all of which would be visible from one or more visual receptors. Because passenger and freight trains already run on both the Niles and Coast Subdivision, and the proposed Project does | No.<br>Potentially significant impacts are reduced to a less than significant level after application of identified mitigation measures. |

| Resource Topic Area | Summary of Impacts | Carried Forward for EJ Analysis? |
|---|---|---|
| | not include any increase in the number of daily Capitol Corridor passenger trains, the quality of views for pedestrians, bicyclists, and recreational viewers would not greatly change from existing conditions. There are certain infrastructure features (such as grade-separated crossings and water crossings) where Mitigation Measure AES-5 and AES-6 would be implemented to ensure that scenic vista viewsheds would not be significantly impacted. Implementation of Mitigation Measure AES-3 and AES-7 would also soften the mass of these structures through vegetation screening and aesthetic design treatments and aid in blending these structures with their surroundings. | |

Source: CSA 2024, HDR 2023a, HDR 2024a, HNTB 2024a, HNTB 2024b, ICF 2024

### 5.6.3.1 No Build Alternative

Under the No Build Alternative, the Capitol Corridor passenger rail service between Oakland and San Jose would not be relocated from the Niles Subdivision to the Coast Subdivision as proposed with the proposed Project. Improvements proposed for the Coast Subdivision would not occur. Capitol Corridor passenger trains would continue to operate based on current routes with no changes. There would be no changes to rail connectivity or operational efficiency. Therefore, the No Build Alternative would not result in impacts to communities with EJ concerns within the RSA.

### 5.6.3.2 Proposed Project

As identified in Table 3, two resource topic areas, Noise (Operation) and Transportation – Access Effects, were carried forward for EJ analysis to determine if implementation of the proposed Project would disproportionately affect or be predominantly borne by communities with EJ concerns compared to communities without EJ concerns within the RSA.

#### Noise - Operation

Category 2 noise receptors, consisting of single-family and multi-family residences, are located adjacent to the existing railroad ROW along the Coast Subdivision. Implementation of the proposed Project would result in moderate noise impacts to 451 Category 2 noise receptors and severe noise impacts to 21 Category 2 noise receptors. Noise impacts are projected to occur at these noise receptors due to the proximity to the existing rail corridor as well as the continuation of train horn use in the area. At the majority of these receptors, proposed Project noise levels would be lower than or equal to existing noise levels in area but would still exceed the FTA impact criteria. Therefore, mitigation measures are required at these locations where FTA impact criteria is exceeded. Noise impacts to Category 2 noise receptors occur throughout the rail corridor block groups regardless of being identified as communities with EJ concerns.

Noise abatement is considered where noise impacts are predicted in areas of frequent human use that would benefit from a lowered noise level. The final decision to pursue noise quiet zones would consider reasonableness factors, such as cost-effectiveness, as well as other feasibility considerations including topography, access requirements, other noise sources, safety, and information developed during the design and public review process. Mitigation Measure NOI-2 requires implementation of a phased program to establish quiet zones along certain portions of the rail corridor. The establishment of quiets zones would eliminate horn sounding for operating trains crossing the at-grade crossings, which would result in a net noise benefit near grade crossings for all noise receptors. The implementation of Mitigation Measure NOI-2 would apply to all Category 2 noise receptors regardless of where these impacts within the corridor would occur. Therefore, the proposed Project would not result in disproportionately high, adverse effects on communities with EJ concerns.

#### Transportation – Access Effects

EJ in transportation encompasses the equitable distribution of transportation infrastructure, services, and benefits, regardless of socioeconomic status, race, or ethnicity. Many low-income communities, especially those in suburban and rural areas, face limited access to affordable and reliable transportation options. This lack of access can hinder individuals from accessing

employment opportunities, education, healthcare services, and other essential resources, perpetuating economic and social inequities.

The Project proposes to shift existing Capitol Corridor passenger rail service from the Niles Subdivision (between Elmhurst Junction and Newark Junction) to the Coast Subdivision. With the shift in the Capitol Corridor route, the existing Hayward and Fremont-Centerville Stations would no longer be serviced by Capitol Corridor passenger trains. Figure 5-6 through Figure 5-8 provide an overview of the existing CCJPA Capitol Corridor, BART, and Altamont Corridor Express (ACE) commuter rail routes. As the figures illustrate, BART currently serves the Hayward area and ACE currently serves Fremont-Centerville area, providing opportunities for redundancy in enhanced transit services for those that rely on Capitol Corridor in these locations.

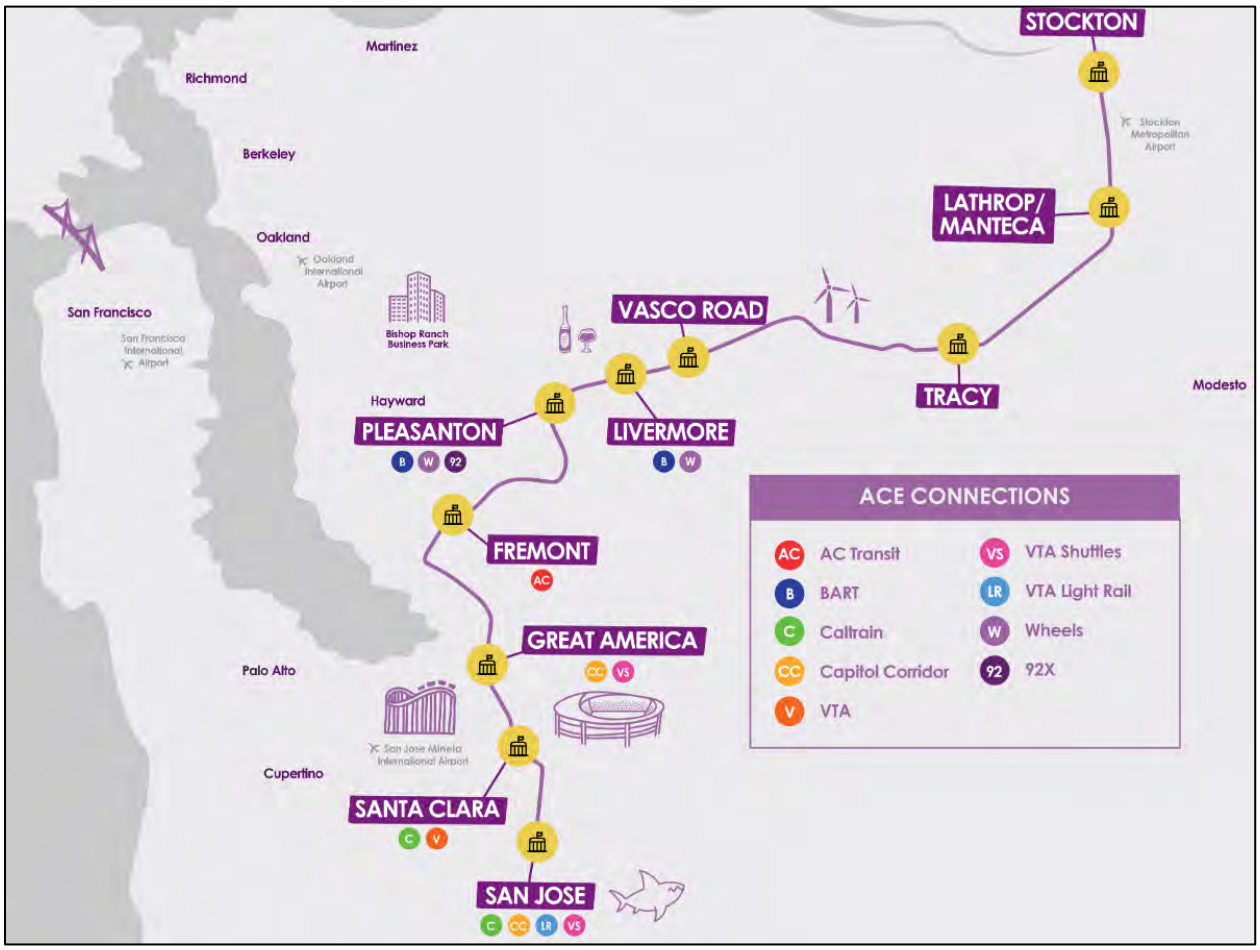
**Figure 5-6: Existing Capitol Corridor Route Map**


Source: CCJPA, 2024

**Figure 5-7: Existing BART Routes**


Source: Bay Area Rapid Transit, 2024

**Figure 5-8: Existing ACE Routes**




Source: Altamont Corridor Express, 2024

The discontinuation of Capitol Corridor services within this portion of the corridor has been disclosed and is part of the on-going public outreach program for the proposed Project. Since 2014, CCJPA has provided the public and stakeholders multiple engagement opportunities associated with the proposed Project with over 50 meetings including large public forums, city council/elected official briefings, community presentations, community working group meetings, and partner agency meetings. In addition to these meetings, an extensive virtual engagement program for the proposed Project has been implemented and includes the implementation of a Project website, social media and email campaigns and various press releases. Additional public and stakeholder engagement opportunities will continue through the CEQA process (Chapter 6, Public Outreach).

As previously identified, a 0.5-mile radius was utilized in determining transit access impacts associated with the discontinuation of rail service at the Hayward and Fremont-Centerville Stations. The 0.5-mile radius is in alignment with the service availability standard in FTA Circular 4702.1B, which denotes that passengers will generally walk up to 0.5 mile to a light or heavy rail station.

### Hayward Station

As shown in Figure 9 in Appendix K, the 0.5-mile radius around the Hayward Station encompasses portions of following census block groups:

- Census Tract 4356.01 Block Group 2
- Census Tract 4356.06 Block Group 1
- Census Tract 4357 Block Group 4
- Census Tract 4362 Block Group 1
- Census Tract 4362 Block Group 2
- Census Tract 4363 Block Group 1
- Census Tract 4363 Block Group 2
- Census Tract 4363 Block Group 4
- Census Tract 4367 Block Group 1
- Census Tract 4367 Block Group 2
- Census Tract 4369 Block Group 2
- Census Tract 4369 Block Group 1

Based on U.S. Census data, all of the block groups within the 0.5-mile radius for the Hayward Station are identified as a person of color community, while 5 block groups are identified as a low-income community.

Although implementation of the proposed Project would result in the removal of passenger rail service through this portion of the Capitol Corridor route, other existing transit options in the area would still be available to those looking to travel northward towards Oakland or southward towards San Jose. The Hayward station could remain in place to support potential future transit or shuttle opportunities on site, however, what happens to the station is not under CCJPA's control. There are currently no other transit connections at the Hayward Station; however, the area surrounding the Hayward Station is serviced by the Alameda-Contra Costa Transit District (AC Transit), BART, and Greyhound.

As shown on Figure 9 in Appendix K, existing AC Transit bus service is available throughout the area surrounding the existing Hayward Station. The nearest transit option available to the Hayward Station is an existing bus stop located at Meekland Avenue and A Street which is part of AC Transit Route 34. AC Transit Route 34 operates 7 days a week from 6:00 a.m. to 10:00 p.m. with a service frequency of 60 minutes at 57 stops. This bus route connects riders from Estudillo to Davis to Meekland with the route covering Foothill Square to Hayward BART. Other AC Transit bus routes within the area include Route 56 (Santa Clara-Weekes-Huntwood) and 93 (Ashland - San Lorenzo - A Street) which also connect to the Hayward BART Station. The Hayward BART station (located 0.8 mile from the Hayward Station) provides additional AC Transit bus connections through local bus lines, all night bus lines (which operate 1 a.m. to 5 a.m.), and transbay bus lines as well as BART connections to Richmond, San Jose, and Daly City. Figure 9 in Appendix K provides a map of existing transit services in proximity to Hayward Station.

As shown on Figure 5-6 above, transit riders traveling on the current Capitol Corridor route are able to reach destinations to the north (e.g., Oakland, Emeryville, Berkeley, Richmond, Martinez, Fairfield, Davis, Sacramento, Roseville, Rocklin, and Auburn) and destinations to the south (e.g., Fremont, Santa Clara, and San Jose) from the Hayward Station. While implementation of the proposed Project would result in the elimination of Capitol Corridor service at the Hayward Station, Figure 5-7 shows

that transit riders would still be able to make regional northward and southward destination connections via existing BART services at the Hayward BART Station.

Transit riders looking to reach northward destination connections could embark at the Hayward BART Station and continue northward with the option to disembark at the Oakland Coliseum Station or Richmond Station. The Oakland Coliseum Station and Richmond Station are transfer stations for Capitol Corridor and BART riders. Transit riders looking to reach southward destination connections could embark at the Hayward BART Station and continue southward with the option to disembark at the Berryessa/North San Jose Station and then transfer to VTA Route Rapid 500 to the San Jose-Diridon Station. The San Jose-Diridon Station is a transfer station for Capitol Corridor, BART, ACE, and Caltrain rider services.

The proposed Project would not change the existing bus routes that currently serve the area and access to regional transportation options would still be available at the Hayward BART Station. Therefore, the removal of Capitol Corridor rail services at the Hayward Station is not anticipated to result in adverse effects on the provision of affordable and reliable transportation options within the area on communities with EJ concerns.

**Fremont-Centerville Station**

As shown in Figure 10 in Appendix K, the 0.5-mile radius around the Fremont-Centerville Station encompasses portions of following census block groups:

- Census Tract 4413.01 Block Group 2
- Census Tract 4413.02 Block Group 3
- Census Tract 4416 Block Group 2
- Census Tract 4416.02 Block Group 2
- Census Tract 4417 Block Group 1
- Census Tract 4417 Block Group 4
- Census Tract 4418 Block Group 1
- Census Tract 4426.02 Block Group 1
- Census Tract 4426.02 Block Group 2

Based on U.S. Census data, 4 block groups within the 0.5-mile radius for the Fremont-Centerville Station are identified as a person of color community while 1 block group is identified as a low-income community.

Although implementation of the proposed Project would result in the removal of passenger rail service through this portion of the Capitol Corridor route, other existing transit options would still be available to those looking to travel northward towards Oakland or southward towards San Jose. At the Fremont-Centerville Station, ACE commuter rail service would continue to serve the station, with ACE services connecting riders from the Tri-Valley and Central Valley to San Jose.

As shown on Figure 5-6, transit riders traveling on the current Capitol Corridor route are able to reach destinations to the north (e.g., Oakland, Emeryville, Berkeley, Richmond, Martinez, Fairfield, Davis, Sacramento, Roseville, Rocklin, and Auburn) and destinations to the south (e.g., Santa Clara and San Jose) from the Fremont-Centerville Station. While implementation of the proposed Project

would result in the elimination of Capitol Corridor service at the Fremont-Centerville Station, Figure 5-8 shows that transit riders utilizing the Fremont-Centerville Station would still be able to make regional southward destination connections via existing ACE service, which stops at the same stations south of the Fremont-Centerville Station as Capitol Corridor currently does.

Transit riders looking to reach northward destinations have options to utilize BART service, at the Fremont BART Station located approximately 2 miles east of the Fremont-Centerville Station. BART riders would be able to access all BART destinations and connect to Capitol Corridor trains at the Oakland Coliseum Station or Richmond Station, which are transfer stations for BART and Capitol Corridor riders. Alternatively, these travelers could utilize bus service connections to the new Ardenwood Station that would be constructed as part of the Build Alternative.

Other transit options at the Fremont-Centerville Station include bus services. As shown on Figure 10 in Appendix K, the nearest bus transit option available to the Fremont-Centerville Station are existing bus stops located along Fremont Boulevard at Bonde Way and Peralta Court. These bus stops are part of AC Transit Routes 99, 210, and 801.

AC Transit Route 99 provides connections to the Fremont-Centerville Station and BART stations located in Fremont, Hayward, South Hayward, and Union City. The route operates 7 days a week from 5:00 a.m. to midnight on weekdays and 6:00 a.m. to midnight on weekends with a service frequency of 20 to 30 minutes at 10 stops. AC Transit Route 210 provides connects between Ohlone College and Union Landing Transit Center and operates 7 days a week from 5:00 a.m. to 10:30 p.m. on weekdays and 7:00 a.m. to 8:00 p.m. on weekends with a service frequency of 30 minutes at 7 stops. AC Transit Route 801 provides connections to BART stations located in Fremont, Union City, Hayward, South Hayward, Bay Fair, and San Leandro. The route is an all-nighter route that operates 7 days a week from midnight to 6:00 a.m. with a service frequency of 30 minutes at 10 stops.

The removal of Capitol Corridor rail services at the Fremont-Centerville Station is not anticipated to result in adverse effects on the provision of affordable and reliable transportation options within the area on communities with EJ concerns. The proposed Project would not change the existing bus routes that currently serve the area and access to regional transportation options would still be available at the Fremont-Centerville Station through ACE commuter rail services.

## 5.6.4 Cumulative Impact Assessment

Cumulative impacts can result from individually minor but collectively substantial impacts from past, present, and reasonably foreseeable future projects. A cumulatively considerable impact to communities with EJ concerns would occur if the proposed Project when combined with past, present, and reasonably foreseeable projects, results in cumulatively considerable impact to communities with EJ concerns in the project area. The cumulative impact study area for EJ is defined by the proposed Project's EJ RSA. The cumulative study area would capture impacts generated from the proposed Project's construction and potential regional impacts on communities with EJ concerns.

As provided in Attachment B of Appendix K, multiple past, present, and reasonably foreseeable projects were considered for the purpose of this cumulative impact analysis. These cumulative projects include infrastructure projects, transportation and transit projects, recreational and community facility projects, and other private development projects within the proposed Project's EJ RSA. Based on a review of environmental documents available for these cumulative projects, none of the projects identifies an impact on communities with EJ concerns.

## 5.6.5 Environmental Justice Determination

Based on the discussion above, the proposed Project would not contribute to cumulative impacts to communities with EJ concerns. The overall benefits of the proposed Project would enhance ridership and mobility, strengthen economic vitality, support sustainability, integrate transit services, and improve safety and accessibility within the region. These benefits would be experienced by all communities within the EJ RSA, including communities with EJ concerns. Therefore, the proposed Project would not cause cumulative disproportionately high and adverse effects on any communities with EJ concerns in accordance with the provisions of Executive Order 12898.

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# Chapter 6. **Public Outreach and Agency Consultation**

Pursuant to CEQA requirements, the CCJPA, as the lead agency under CEQA, has been implementing a public outreach program as part of the environmental review process for the proposed Project. This chapter describes the public outreach and involvement activities previously conducted, as well as those planned for future action. Coordination and outreach are fundamental components of effective transportation planning and the CEQA process. This process promotes informed decision-making by considering potential social, economic, and environmental impacts. Throughout the development of this draft EIR, CCJPA has engaged state, regional, county, and local governments as well as the general public and tribal representatives.

## 6.1 Project Public Involvement Plan

A multi-faceted Public Involvement Plan (PIP) was developed at the Project onset and has been consistently implemented throughout the proposed Project public outreach process. The PIP focuses on delivering a robust communications program to reach and engage diverse audiences primarily through virtual tactics. The PIP includes policy briefings, regular Project development team meetings, community presentations, stakeholder focus group meetings, and responses to inquiries. Additionally, the PIP employs digital tools such as an interactive Project website, online chats, virtual forums, electronic notices, social media, informational videos, and distribution of educational materials.

Per the PIP, ongoing communication has occurred and will continue throughout the proposed Project planning efforts to build awareness, educate, and obtain input on the purpose, needs, and potential impacts of this rail improvement Project. The Project team collaborates with decision makers and conducts meetings with various community stakeholders to set expectations and address concerns prior to engaging the public. CCJPA is collaborating with community leaders, representatives, and stakeholders to share timely and effective information through established communication tools to build trust with the community and create transparency throughout the Project process. Agency consultation and public participation for the proposed Project were accomplished through several formal and informal methods, including regular Project team meetings, agency coordination meetings, public meetings, online tools made available to the public, and informational meetings with community organizations, public agencies, private groups, and affected residents and business owners.

### 6.1.1 Notice of Preparation and Public Information Materials

#### 6.1.1.1 Notice of Preparation

The Project's scoping process was initiated with the preparation and distribution of a Notice of Preparation (NOP). The NOP was posted at the State Clearinghouse (SCH#2020060655) on June 29, 2020, and circulated to public agencies and other interested parties in compliance with Section 15082(a) of the CEQA Guidelines. The NOP notified the public of the EIR being prepared along with public scoping meeting information and how to provide comments on the proposed Project during the formal 45-day public comment period. The NOP package, including the NOP, the Notice of

Completion (NOC), and the Environmental Document Transmittal, can be found in Attachment A of the Scoping Report included in Appendix L.

#### 6.1.1.2 Public Information Materials

Several promotional tactics were deployed to build awareness about the proposed Project during the NOP release and subsequent public comment period and scoping meetings. Utilizing Capitol Corridor's established website and social media following, the Project team posted key information on the site to drive viewers to the proposed Project website and launched a social media campaign to promote the initial Project activities and environmental milestones. The Project team also released information in local and regional media publications, mailed postal notices to a large corridor-wide property owner/stakeholder database, and sent several electronic notices, as detailed below.

##### Public Notice Newspaper Advertisements

Public notices for the scoping comment period were published in *East Bay Times* and *Mercury News* (in English, Spanish, and Mandarin) on June 29, 2020, and in *Vision Hispana* (Spanish) on June 27, 2020. Copies of the public notice advertisements are included in Attachment B of the Scoping Report included in Appendix L.

##### Newsletter Mailer

A newsletter mailer announcing the environmental scoping information and online public meeting logistics was mailed on June 23, 2020, to 15,095 homeowners within 1,000 feet of the Project corridor and to regional stakeholders. Copies of the mailer and database methodology are included in Attachment C of the Scoping Report included in Appendix L.

##### News Release

One news release and two media advisories were sent to over 200 media contacts in the surrounding area. Copies of the media releases are included in Attachment D of the Scoping Report included in Appendix L.

##### Stakeholder E-Blasts

Four e-blasts were sent to the Project's stakeholder database list providing a brief proposed Project update and notification of the public meetings and 45-day public comment period. Copies of the e-blasts are included in Attachment E of the Scoping Report included in Appendix L.

##### Social Media

Throughout the 45-day scoping comment period, an extensive social media strategy was implemented to educate the public about the proposed Project. The campaign included use of Facebook, X (formerly Twitter), and LinkedIn.

A copy of the social media schedule with post graphics can be found in Attachment F of the Scoping Report included in Appendix L.

Social media analytics refer to the collection and analysis of data that help to measure overall social media performance. Social media analytics captured during the 45-day scoping period include:

- 9,130 total impressions.[1]
- 525 total engagements (includes "likes", comments, and shares).
- Facebook postings:
    - 16 total posts (including 3 boosted posts).
    - 1 paid advertisement:
        - 5,996 individual Facebook accounts reached.
        - 7,582 total impressions.
        - 34 total clicks by public.
- X (formerly Twitter) postings:
    - 16 total tweets.
- LinkedIn postings:
    - 16 total posts.

### 6.1.2 Public and Agency Scoping Meetings

For public convenience, and to allow participation in a safe environment while social distancing, an online public meeting, which consisted of prerecorded audio and a series of presentation slides that the public could review on own, was available during the 45-day public comment period from June 29 to August 13, 2020, at SouthBayConnect.com. The online public meeting provided an overview of the proposed Project and hosted important Project information including the scope of environmental resource areas to be studied during this phase of Project development, and to receive input regarding the proposed Project's goal and objectives, proposed passenger route relocation and new station, environmental issues, and the suggested scope and content of the EIR. The Project website is ADA accessible. Screenshots of the online public meeting presentation slides are included in Attachment G of the Scoping Report included in Appendix L.

The prerecorded online public meeting was created as a separate page on the Project's website and served as its own microsite that held a series of presentation slides that incorporated content with visuals and audio for ease of understanding for participants. Attendees were able to visit the prerecorded online public meeting at any time during the 45-day public comment period (24 hours a day/7 days a week) and walk through the information at their own pace, while also having the opportunity to provide comments at any time via electronic submittal.

Along with the prerecorded online public meeting, further effort was made to reach diverse target audiences through interactive engagement via two telephone town hall events and an online live chat event. The goals for each of these engagement platforms were to provide attendees with proposed Project information and seek valuable input for the scope of the proposed Project and environmental review.

[1] Impressions are the total number of times content is displayed; it does not require interaction (for example, clicking on ad) from users. This is also the total number of unique users that see the content.

The following provides a summary of analytics from the online public meeting and Project website from June 29 to August 13, 2020.

- South Bay Connect Website:
    - Total Users (visitors): 5,039.
    - Total Sessions (visits to website): 7,064 sessions.
    - Average time of individual user on page: 1:53.
    - 2,279 sessions from desktops.
    - 1,891 sessions from social media platforms.
    - 167 sessions from tablets.
- South Bay Connect Online Public Meeting:
    - Total Sessions (visits): 1,906 sessions.
    - Average time of individual user on page: 3:29.

## 6.1.3 Live Interactive Sessions

### 6.1.3.1 Telephone Town Hall

Two telephone town halls were hosted where members of the public could hear about the Project, speak with Project team members, ask questions, and submit formal comments. Both telephone town halls were held in English, Spanish, and Mandarin. All questions and comments received during the telephone town hall events were included as official scoping comments. A copy of the final *All Comment Report* can be found in Attachment H of the Scoping Report included in Appendix L.

- July 15, 2020, Telephone Town Hall | 6–7:30 p.m.
    - 140 callers dialed in.
    - 40 callers entered the queue with questions.
    - 19 callers spoke live on the phone.
- August 5, 2020, Telephone Town Hall | 5:30–7 p.m.
    - 87 callers dialed in.
    - 32 callers entered the queue with questions.
    - 18 callers spoke live on the phone.

### 6.1.3.2 Live Chat Session

A live chat session was established on the Project website where members of the public could interact with Project team members in a one-on-one setting. All chat conversations received were

logged and included as official comments during scoping. As noted previously, a copy of the final *All Comment Report* can be found in Attachment H of the Scoping Report included in Appendix L.

- July 15, 2020, Live Chat Session | 12–1:30 p.m.
    - 122 visitors on Project website during live chat.
    - 40 chats were established and responded to from the Project team.

## 6.1.4 NOP Scoping Comments

During the 45-day public comment period, comments could be submitted through several media to provide convenience to participants. Methods to provide comment were established electronically through the website, email, online meetings, and interactive live chat sessions. Comments could also be submitted via hard copy mail, telephone town hall sessions, and by leaving a voicemail on the Project information line. The goal was to provide feasible methods for all interested audiences to submit proposed Project comments. In total, 465 comments were collected during the Project's scoping period. A copy of the final *All Comment Report* can be found in Attachment H of the Scoping Report included in Appendix L.

Some analytics captured during public scoping period include:

- Received 3 comment letters regarding the NOP from State agencies (that is, California Department of Transportation, California Department of Fish and Wildlife, and California Native American Heritage Commission).
- Received 127 emails sent to info@southbayconnect.com.
- Recorded 13 hotline calls.
- Scoping comments included 7 postal letters.
- Captured 137 individual online meeting comments.
- Submittal of 83 comments via the website.
- Received 65 "live" telephone town hall questions.
- Communicated with public during 32 live chat sessions.

### 6.1.4.1 Comments Documentation/Review

A final step during the formal solicitation of comments during the scoping period was the collection, categorization, and review of all public input. The Project team documented all comment letters (often including multiple individual comments) and tracked individual comments submitted during the 45-day period. Individual comments were organized by resource category. A "By the Numbers" one-page fact sheet that documents all promotional, engagement, and comments analytics captured during the scoping period can be found in **Attachment I** of the Scoping Report included in Appendix L**.**

After organizing and categorizing the comments, they were distributed to the Project team, including management, planning, and engineering leads, to facilitate consideration during further design and planning, and to guide resource-specific environmental analysis.

### 6.1.4.2 Comment Themes

Four hundred and sixty-five (465) comments were submitted to CCJPA during the proposed Project's 45-day scoping period of June 29 to August 13, 2020. Table 6.1-1 provides comment themes identified during the Project's scoping and public comment period.

**Table 6.1-1. Comment Themes**

| Comment Theme | Specific Comments |
|---|---|
| ***Primary Concerns:*** | |
| Project Cost vs. Community Benefit Ratio | • Large financial costs and potential negative environmental impacts for relocation of passenger rail service with minimal passenger travel time improvement. |
| Increased Rail Traffic at Adjacent Communities | • Noise, vibration, property value, and safety concerns for rail corridor residents. |
| COVID-19 Pandemic Impacts to Commute Needs | • Pandemic resulted in reduced ridership, less freeway congestion, and more businesses migrating to telecommuting.<br>• Is there still a need for improved passenger rail operations and an increase in ridership in a post-COVID-19 environment? |
| Loss of Current Stations | • Loss of current Capitol Corridor access in Hayward and Fremont downtown areas. |
| ***Geographic-Specific Concerns:*** | |
| **Ardenwood Area: 134 comments** | |
| Noise/Vibration | • Quiet, multi-generational communities adjacent to Coast Subdivision/ proposed new Ardenwood Station.<br>• Train traffic already an issue and relocation of passenger rail service will increase number of trains along subdivision.<br>• Vibration impacts to residents and property values.<br>• Diminished quality of life for residents. |
| Health/Safety | • Poor air quality impacts to school-age children and seniors within proximity to rail corridor.<br>• New Ardenwood Station would attract transient population, resulting in increased vandalism and crime.<br>• Rail crossing safety issues. |
| Traffic/Access | • Increased traffic adjacent to and surrounding new Ardenwood Station.<br>• Challenges to traffic circulation and delays at rail crossings due to increased train traffic.<br>• Lack of parking availability. |
| Habitat | • Concern for protection of local habitat, sanctuaries and Coyote Hills. |

**Table 6.1-1. Comment Themes**

| Comment Theme | Specific Comments |
|---|---|
| Regional Planning Coordination | • Lack of agency collaboration/coordination amongst many corridor transportation projects (Dumbarton Corridor, Bay Area Rapid Transit [BART] Extension, South Alameda County Railway Project, etc.). |
| Property Value Concerns | • Potential for reduced property values. |
| **City of Fremont: 98 comments** | |
| Noise/Vibration | • Changes to train traffic within Niles Canyon.<br>• Increased vibration impacts to residents and effects on property values.<br>• Diminished quality of life for residents. |
| Health/Safety | • Poor air quality impacts to school-age children and seniors within corridor.<br>• New proposed Ardenwood Station attracting transient population, or resulting in increased vandalism and crime.<br>• Rail crossing safety issues. |
| Station Location Concerns | • Concern over moving rail station from high-density to low-density areas.<br>• Negative impact of removing widely used stations that residents and businesses depend on. |
| Congestion Concerns | • Related to an already-growing community.<br>• Lack of parking/increased parking in residential areas. |
| Property Value Concerns | • Residents who bought homes before knowing about proposed stations. |
| **Oakland: 86 comments** | |
| Noise/Vibration | • Increased train traffic would result more noise and vibration. |
| Health/Safety | • Low income, disadvantaged communities along rail corridor. |
| **Newark: 47 comments** | |
| Noise/Vibration | • Increased train traffic would result in more noise and vibration. |
| Health/Safety | • Air quality impacts to residents in proximity to the corridor. |
| **Hayward: 44 comments** | |
| Noise/Vibration | • Increased train traffic would result in more noise and vibration. |
| Health/Safety | • Rail corridors attracting transient population, or resulting in increased vandalism and crime. |
| Station Location | • Loss of Capitol Corridor Hayward Station.<br>• Consideration of Hayward Station (Route 92).<br>• Loss of existing BART connection. |

**Table 6.1-1. Comment Themes**

| Comment Theme | Specific Comments |
|---|---|
| Sea Level Rise | • Effects on transportation infrastructure. |
| Regional Planning Coordination | • Concern for synergy with Planning and Development. |
| Project Cost/Community Benefit | • Concerned with level of benefits to Alameda County as relates to $40 million Measure BB funding. |
| **Union City: 34 comments** | |
| Noise/Vibration | • Increased train traffic results in more noise and vibration.<br>• Impacts to property values. |
| Health/Safety | • Concern for rail crossing safety with nearby schools. |
| Station Location | • Would result in no station within Union City.<br>• Inconvenient transfer/connections to multi-model transit services. |
| Rail Infrastructure (Industrial Parkway/Shinn Connection) | • Negative impacts within Union City resulting from increased rail traffic. |
| Regional Planning Coordination | • Concern for synergy with existing Planning and Development. |
| Property Value Concerns | • Potential for reduced property values. |
| **San Leandro: 22 comments** | |
| Health/Safety | • Concern for rail crossing safety near South San Francisco Bay. |
| Regional Planning Coordination | • Concern for synergy with existing Planning and Development. |
| Habitat | • Negative impacts to Lisjan Creek. |

# 6.2 Outreach During Development of Draft EIR

## 6.2.1 Outreach During Early Development of Draft EIR with Project Development Team

The Project Development Team (PDT) consists of representatives from CCJPA, HDR, HNTB, Convey, Caltrans (HQ and District 4), Alameda County Transportation Commission, Metropolitan Transportation Commission, AC Transit, City of Fremont, City of Newark, and City of Union City. Concurrent with the initial concept development and screening process, the Project team hosted several focus meetings to address specific issues or topics with the PDT Since then, CCJPA has continued meeting with team stakeholders individually as shown in Table 6.2-1.

**Table 6.2-1. PDT Meetings**

| Date | Type of Engagement | Primary Topics |
|---|---|---|
| June 20, 2019 | Meeting at BART Headquarters | • Project Overview<br>• Project Status and Project Elements<br>• Project Definition Report<br>• Funding Sources<br>• Proposed Ardenwood Station |
| August 22, 2019 | Meeting at BART Headquarters | • Station Identification Criteria<br>• Station Layout and Environmental Footprint for Multiple Potential Locations<br>• Project Schedule |
| October 31, 2019 | Meeting at BART Headquarters | • Project Purpose and Need<br>• Project Definition Report Findings<br>• Potential Station Conceptual Plans<br>• Project Schedule |

## 6.2.2 Community Working Group (CWG)

CCJPA established two CWGs—one specific to the City of Fremont and the second with the broader Project Corridor stakeholders. As-needed meetings with both CWGs have occurred since Project initiation. The CWGs assisted CCJPA in the distribution of Project information as community liaisons. The goal of a CWG is to build connection and partnerships with community leaders and to share information and address concerns as the Project planning progresses. The Fremont CWG includes representatives from the Niles, Centerville, and Ardenwood neighborhoods. The Corridor CWG includes community members from the Cities of Hayward, Union City, Newark, and San Leandro that represent neighborhoods along the rail corridor, as well as interested stakeholder groups like the local bicycle coalition, and business organizations. The CWGs met at key Project milestones and prior to the release of the draft EIR on May 29, 2024. Six meetings occurred between 2020 and 2024:

- Corridor CWG Meeting #1 on February 23, 2021: Virtual meeting to discuss project goals and objectives, development of proposed Project elements, including rail station location

alternatives and considerations, and early Project schedule. Input was solicited from the CWG on all potential Project elements. Meeting attendees included:

  - Alameda Creek Alliance.
  - Cherryland Neighborhood Association.
  - Centro de Servicios.
  - Community Resources for Independent Living.
  - East Bay Regional Parks District.
  - Eden Shores Community.
  - Marina Vista of San Leandro Owners Association.

- Fremont CWG Meeting #1 on February 24, 2021: Virtual meeting to discuss Project goals and objectives, development of proposed Project elements, including rail station location alternatives and considerations, and early Project schedule. Input was solicited from the CWG on all potential Project elements. Meeting attendees included:
  - Ardenwood Business Representative.
  - Ardenwood Forest Homeowners Association.
  - Ardenwood Neighborhood Representative.
  - Centerville Neighborhood Representative.
  - Fremont Mobility Task Force.
  - Niles for Environmentally Safe Trains.
  - Save Niles Canyon.
- Corridor CWG Meeting #2 on May 24, 2021: Virtual meeting to discuss updates to proposed Project elements, including rail station alternatives, and Project schedule. Input was solicited from the CWG on all potential Project elements. Meeting attendees included:
  - Bike East Bay.
  - Cherryland Community Association.
  - Centro de Servicios.
  - East Bay Regional Parks District.
  - Marina Vista of San Leandro Owners Association.
  - Oakland African Chamber of Commerce.
- Fremont CWG Meeting #2 on May 25, 2021: Virtual meeting to discuss updates to proposed Project elements, including rail station alternatives, and Project schedule. Input was solicited from the CWG on all potential Project elements. Meeting attendees included:
  - Ardenwood Business Representative.

  - Centerville Business and Community Association.
  - City of Fremont.
  - Fremont Mobility Task Force.
  - Niles for Environmentally Safe Trains.
  - Save Niles Canyon.
  - Niles Neighborhood representative.
- Joint Corridor and Fremont CWG Meeting #3 on August 24, 2021: Virtual meeting to discuss Project updates, status and proposed Ardenwood Station layout. Meeting attendees included:
  - Altamont Corridor Express.
  - City of Fremont.
  - Fremont Mobility Task Force.
  - Bike East Bay.
  - BART.
  - Cherryland Community Association.
  - Bicycle Pedestrian Advisory Committee of Union City.
  - East Bay Regional Park District.
- Joint Corridor and Fremont CWG Meeting #4 on May 16, 2024: Virtual meeting to discuss X. Meeting attendees included:
  - (Upcoming)

## 6.3 Tribal Consultation

Pursuant to CEQA requirements, CCJPA coordinated with Native American tribal representatives during the preparation of this draft EIR as listed and described below. Between 2019 and 2024, multiple consultation requests via letter and follow-up phone calls were sent to the following tribal representatives:

- Irenne Zwierlein, Amah Mutsun Tribal Band of Mission San Juan Bautista.
- Tony Cerda, Costanoan Rumsen Carmel Tribe.
- Donald Duncan, Guidiville Indian Rancheria.
- Ann Marie Sayers, Indian Canyon Mutsun Band of Costanoan.
- Charlene Nijmeh, Muwekma Ohlone Indian Tribe of the San Francisco Bay Area.
- Monica Arellano, Muwekma Ohlone Indian Tribe of the San Francisco Bay Area.
- Katherine Perez, North Valley Yokuts Tribe.

- Quirina Luna Geary, Tamien Nation.
- Timothy Perez, North Valley Yokuts Tribe.
- Andrew Galvan, The Ohlone Indian Tribe.
- Corrina Gould, The Confederated Villages of Lisjan.
- Neil Peyron, Tule River Indian Tribe.
- Jesus G. Tarango Jr., Wilton Rancheria.
- Kenneth Woodrow, Wuksache Indian Tribe/Eshom Valley Band.

In 2020 and 2021, the Project team received email responses from Katherine Perez (Chairperson, North Valley Yokuts Tribe) and Corrina Gould (Chairperson, the Confederated Villages of Lisjan). Ms. Perez and Ms. Gould requested and were sent information on the record search and Sacred Land File results via email.

The Project team met virtually with Chairperson Gould from the Confederated Villages of Lisjan as part of a requested AB 52 consultation meeting on August 18, 2022. Chairperson Gould requested a survey be performed at a specific location on the alignment and also requested an update if the Project changed.

Additional consultation letters were sent to the same tribal representatives in December 2023 regarding the addition of Alternative E. AB 52 consultation meetings were held with Andrew Galvan from the Ohlone Tribe on January 11, 2024, and a Project update meeting to specifically discuss Alternative E with Chairperson Gould from the Confederated Villages of Lisjan on March 20, 2024. A copy of the confidential archaeological report was sent to Ms. Gould per her request following the meeting. Tribal outreach is ongoing throughout the Project.

## 6.4 Regulatory, Local Government, and Other Stakeholder Consultation and Coordination

Prior to and throughout the development of this draft EIR, CCJPA engaged state, federal, regional, county, and local governments, as well as other stakeholders. See Table 6.4-1.

**Table 6.4-1. Summary of Consultation and Coordination with Non-Tribal Stakeholders**

| Stakeholder | Dates/ Frequency of Engagement | Types of Engagement | Primary Topics |
|---|---|---|---|
| Alameda County Transportation | October 12, 2020 | Presentation and feedback solicitation | • Project Overview<br>• Station planning<br>• Environmental review process<br>• Communications and engagement |

**Table 6.4-1. Summary of Consultation and Coordination with Non-Tribal Stakeholders**

| Stakeholder | Dates/ Frequency of Engagement | Types of Engagement | Primary Topics |
|---|---|---|---|
| Commission (ACTC) | October 22, 2020 | Virtual meeting and feedback solicitation | • Project updates and status<br>• Proposed Project schedule |
| | April 17, 2021 | Virtual meeting and feedback solicitation | • Project updates and status<br>• Proposed Project schedule |
| | April 12, 2021 | Virtual meeting and feedback solicitation | • Project Overview<br>• Station planning<br>• Environmental review process<br>• Communications and engagement |
| Alameda County Flood Control and Water Conservation District | | | • Project Overview<br>• Station planning<br>• Environmental review process<br>• Communications and engagement |
| Bay Area Rapid Transit (BART) | August 28, 2020 | Virtual meeting and feedback solicitation | • Project overview<br>• Station planning<br>• Environmental review process<br>• Infrastructure overview |
| Bay Area Transportation Working Group (BATWG) | July 20, 2023 | Virtual meeting and feedback solicitation | • Capitol Corridor Update<br>• Project overview<br>• Station planning<br>• Environmental review process |
| California Department of Transportation (Caltrans) | October 12, 2020 | Virtual meeting and feedback solicitation | • Project overview<br>• Draft Purpose and Need<br>• Draft Schedules<br>• Design Exceptions Matrices<br>• Stormwater Data<br>• Utility Matrix<br>• Other Planning Materials |
| | October 2020 to July 2022 | Submittal of Draft Materials | |
| Castro Valley Municipal Advisory Council | November 19, 2020 | Virtual meeting and feedback solicitation | • Project Overview<br>• Station planning<br>• Environmental review process<br>• Communications and engagement |

**Table 6.4-1. Summary of Consultation and Coordination with Non-Tribal Stakeholders**

| Stakeholder | Dates/ Frequency of Engagement | Types of Engagement | Primary Topics |
|---|---|---|---|
| | November 15, 2021 | Virtual meeting and feedback solicitation | • Project updates and status<br>• Proposed Project schedule |
| Cherryland Community Association Presentation | October 26, 2020 | Virtual meeting and feedback solicitation | • Project overview<br>• Environmental review process<br>• Communications and engagement plan |
| | October 22, 2021 | Virtual meeting and feedback solicitation | • Project updates and status<br>• Proposed Project schedule |
| Citizen's Committee to Complete the Refuge | February 16, 2021 | Presentation and feedback solicitation | • Project overview<br>• Environmental review process |
| City of Alameda | December 1, 2020 | Vice Mayor briefing | • Project overview<br>• Environmental review process<br>• Communications and engagement plan |
| City of Fremont | September 2020 | Virtual meeting and feedback solicitation | • Project overview<br>• Environmental review process<br>• Communications and engagement plan |
| | October 6, 2020 | City Council presentation and feedback solicitation | • Project overview<br>• Environmental review process<br>• Communications and engagement plan |
| | November 11, 2020 | Virtual meeting and feedback solicitation | • Project updates and status<br>• Proposed Project schedule |
| | December 5, 2023 | Virtual meeting and feedback solicitation | • Project updates and status<br>• Ardenwood Station meeting |
| City of Hayward | January 16, 2019 | Presentation and feedback solicitation | • Project overview<br>• Environmental review process<br>• Communications and engagement plan<br>• Potential Hayward Station |

**Table 6.4-1. Summary of Consultation and Coordination with Non-Tribal Stakeholders**

| Stakeholder | Dates/ Frequency of Engagement | Types of Engagement | Primary Topics |
|---|---|---|---|
| | March 26, 2020 | Virtual meeting and feedback solicitation | • Project updates and status<br>• Proposed Project schedule<br>• Hayward/Union City station sites discussion |
| | June 3, 2020 | Virtual meeting and feedback solicitation | • Project updates and status<br>• Potential station locations |
| | September 14, 2020 | Mayor briefing | • Project updates and status<br>• Communications and engagement plan<br>• Updated Project schedule |
| | February 20, 2024 | Mayor briefing | • Project updates and status<br>• Updated Project schedule |
| City of Newark | December 14, 2023 | Virtual meeting | • Project overview<br>• Environmental review process<br>• Communications and engagement plan<br>• Ardenwood Station meeting |
| City of San Leandro | September 10, 2020 | Mayor briefing | • Project overview<br>• Environmental review process<br>• Communications and engagement plan |
| | June 15, 2021 | Presentation | • Project updates and status<br>• Proposed Project schedule |
| City of Union City | January 16, 2019 | Presentation and feedback solicitation | • Project overview<br>• Environmental review process<br>• Communications and engagement plan<br>• Hayward/Union City Station Sites<br>• Potential Station Locations<br>• Project updates and status<br>• Proposed Project schedule<br>• Communications and Engagement |
| | March 26, 2020 | Virtual meeting and feedback solicitation | • Potential Station Locations<br>• Project updates and status<br>• Proposed Project schedule<br>• Communications and Engagement |
| | June 3, 2020 | Virtual meeting and feedback solicitation | • Project updates and status<br>• Proposed Project schedule<br>• Communications and Engagement |

**Table 6.4-1. Summary of Consultation and Coordination with Non-Tribal Stakeholders**

| Stakeholder | Dates/ Frequency of Engagement | Types of Engagement | Primary Topics |
|---|---|---|---|
| | September 15, 2020 | Mayor briefing | • Project updates and status<br>• Proposed Project schedule<br>• Communications and Engagement |
| | November 11, 2020 | Virtual meeting and feedback solicitation | • Project updates and status<br>• Proposed Project schedule<br>• Communications and Engagement |
| Eden Area Municipal Advisory Council | December 8, 2020 | Virtual meeting and feedback solicitation | • Project overview<br>• Environmental review process<br>• Communications and engagement plan |
| | November 9, 2021 | Virtual meeting and feedback solicitation | • Project updates and status<br>• Proposed Project schedule |
| Metropolitan Transportation Commission (MTC) | January to September 2021 | Submittal of Draft Materials | • Draft Purpose and Need<br>• Draft Schedules<br>• Design Exceptions Matrices<br>• Stormwater Data<br>• Design Scoping Indices<br>• Other Planning Materials |
| Oakland African American Chamber of Commerce | August 18, 2021 | Virtual meeting and feedback solicitation | • Project overview<br>• Environmental review process<br>• Communications and engagement plan |
| | August 26, 2021 | Virtual meeting and feedback solicitation | • Project updates and status<br>• Proposed Project schedule |
| Newark Rotary Club | March 1, 2022 | Presentation | • Project overview<br>• Environmental review process<br>• Communications and engagement plan |
| | April 29, 2022 | Presentation | • Project updates and status<br>• Proposed Project schedule |
| | August 8, 2023 | Virtual meeting w/presentation | • Project updates and status<br>• Proposed Project schedule |

**Table 6.4-1. Summary of Consultation and Coordination with Non-Tribal Stakeholders**

| Stakeholder | Dates/ Frequency of Engagement | Types of Engagement | Primary Topics |
|---|---|---|---|
| Union City Bicycle Pedestrian Advisory Committee | March 16, 2021 | Virtual meeting and feedback solicitation | • Project overview<br>• Environmental review process<br>• Communications and engagement plan |
| Union Pacific Railroad (UPRR) | Monthly since October 2020 | Virtual meetings to discuss multiple projects | • General feedback from UPRR on infrastructure requirements is to preserve capacity for its existing freight service along the Coast, Niles, and Oakland Subdivisions while ensuring satisfactory on-time performance for Capitol Corridor passenger service. |
| | September 22, 2021 | Submittal of 10% Designs | • 10% Designs for SBC Project to UPRR with Ops Notes |
| | November 1, 2021 | Submittal of 10% Designs | • 10% Designs for SBC Project |

# 6.5 Notification and Circulation of Draft EIR

This draft EIR was released for public review on Wednesday, May 29, 2024, which initiated a 45-day public review period from May 29 to July 15, 2024. It was posted to the State Clearinghouse (CEQANet) and the CCJPA website, along with the corresponding Notice of Availability (NOA) and NOC. Planned outreach engagement activities for the draft EIR are described below.

CCJPA is using a number of outreach methods to allow for multiple ways for stakeholders and the public to understand the Project and provide comments. The communications notices provide the public with information on how to review the draft EIR, the time and location of multilingual virtual public meetings, and information on how to provide comments during the 45-day public comment period. The Project team's efforts to build awareness of the availability of the draft EIR for review and comment were coupled with CCJPA communications through their established (multilingual) website and social media. Materials related to the draft EIR circulation are provided in Appendix L.

To reach interested stakeholders and potentially impacted members of the public during the circulation period for the draft EIR, the Project team conducted engagement and promotional outreach including:

- Direct mailer.
- Newspaper advertisements (NOAs).

- Electronic notifications (e-blasts).
- Media advisory.
- Project website updates.
- Draft EIR repository placement (hard copies or electronic copies).
- Posters at repositories and key community gathering locations.
- Partner agency coordination.
- Virtual public meetings (Zoom), including language options in English, Spanish, and Mandarin Chinese scheduled on June 12 and 20, 2024.
- Project website (with the option to translate into multiple languages).
- Social media posts and advertisements (Facebook, Instagram, X, and LinkedIn).
- Joint CWG meeting scheduled on May 16, 2024.
- Virtual interagency meeting scheduled for June 6, 2024.
- Presentation and public comment opportunity at the CCJPA Board Meeting scheduled on June 26, 2024.

Hardcopy and/or electronic copies of the draft EIR and posters will be available for review at the following public locations:

- Printed Copies:
    - Capitol Corridor Joint Powers Authority Office (BART Headquarters) – 2150 Webster Street, 3rd Floor, Oakland, CA 94612.
    - Oakland Public Library (Main) – 125 14th Street, Oakland, CA 94612.
    - Alameda County Public Library (Main) – 2400 Stevenson Boulevard, Fremont, CA 94538 .
- Digital copies on USB drive:
    - Oakland Public Library (Elmhurst) – 1427 88th Avenue, Oakland, CA 94621.
    - Alameda County Public Library (Union City) – 34007 Alvarado-Niles Road, Union City, CA 94587.
    - Alameda County Public Library (Newark) – 37055 Newark Boulevard, Newark, CA 94560.
    - San Leandro Public Library (Main) – 300 Estudillo Avenue, San Leandro, CA 94577.
    - San Leandro Public Library (Manor) – 1241 Manor Boulevard, San Leandro, CA 94579.
    - San Leandro Public Library (Mulford-Marina) – 13699 Aurora Drive, San Leandro, CA 94577.
    - Hayward Public Library (Main) – 888 C Street, Hayward, CA 94541.
    - Hayward Public Library (Weekes) – 27300 Patrick Avenue, Hayward, CA 94544.

It is anticipated that the final EIR will be considered by the CCJPA Board for certification and approval of proposed Project by end of 2024.

# Chapter 7. **List of Preparers**

**Table 7-1. List of Preparers**

| Name, Credentials | Project Role |
|---|---|
| ***HNTB*** | |
| Ben Tripousis | Project Manager |
| Brett Faust | Engineering |
| Carie Montero, RPA | Environmental Manager and Cultural and Tribal Resources Advisor |
| Fatemeh Mohammadshirazi | Transportation, GIS mapping |
| John Trautman | Station Architect |
| Kathryn Magee | Engineering |
| Kieran Kelly-Sneed | Quality Control/Quality Assurance |
| Laurel Cheng | Document Controls |
| Michael Brown | Deputy Project Manager |
| Minako McWreath | Aesthetics |
| Neil Nance | Engineering |
| Pierre Abi-hanna | Engineering |
| Rosanna McGuire | Utilities and Service Systems and Wildfire |
| Serge Stanich | Environmental Manager and EIR Reviewer |
| Tammi Podesta | Transportation |
| Thomas Warrner | Energy and Mineral Resources |

**Table 7-1. List of Preparers**

| Name, Credentials | Project Role |
|---|---|
| ***HDR*** | |
| Adam McCune | Engineering |
| Aivy Le | EIR Support |
| Analette Ochoa, PE | Sea Level Rise, Hydrology, and Water Quality |
| Andy Arnold | GIS/Mapping Lead for EIR |
| Ariel Cohen | EIR Support |
| Steven Dong | EIR Editor |
| Brian Fedrow | EIR Editor |
| Benjamin Granberry | Utilities |
| Buzz Berger | Engineering and Project Description |
| Chris O'Gara | Utilities |
| Dawn Edwards | EIR Lead |
| Jelica Arsenijevic | Sr. Environmental Project Manager and Agriculture and Forestry Resources |
| Joyce Cheng | Sea Level Rise, Hydrology, and Water Quality |
| June Lai | Environmental Justice, Transit, and Project Maps |
| Kelly Czechowski | Environmental Lead and Environmental Justice |
| Natalie Bogan | Hazards and Hazardous Materials |
| Nathan Norris | Engineering |
| Maxwell Savage | EIR Lead Support and Document Lead |

**Table 7-1. List of Preparers**

| Name, Credentials | Project Role |
|---|---|
| ***ICF*** | |
| Cory Matsui | Air Quality and Greenhouse Gas Emissions |
| Christine Cruiess | Historic Built Environment Lead |
| Jaqueline Mansoor | Greenhouse Gas Emissions |
| Josh Steven | Historic Built Environment |
| Lora Holland | Archaeology Lead Author |
| Megan Watson | Archaeology Support |
| Susan Lassell | Archaeology Manager |
| ***Cross-Spectrum Acoustics*** | |
| Lance Meister | Noise and Vibration |
| ***Parikh*** | |
| David Wang | |
| Craig Langbein | Geology and Soils |
| ***Fehr and Peers*** | |
| Ian Barnes | Traffic Impact Analysis |

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## 8.6 Public Outreach and Agency Coordination

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