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:

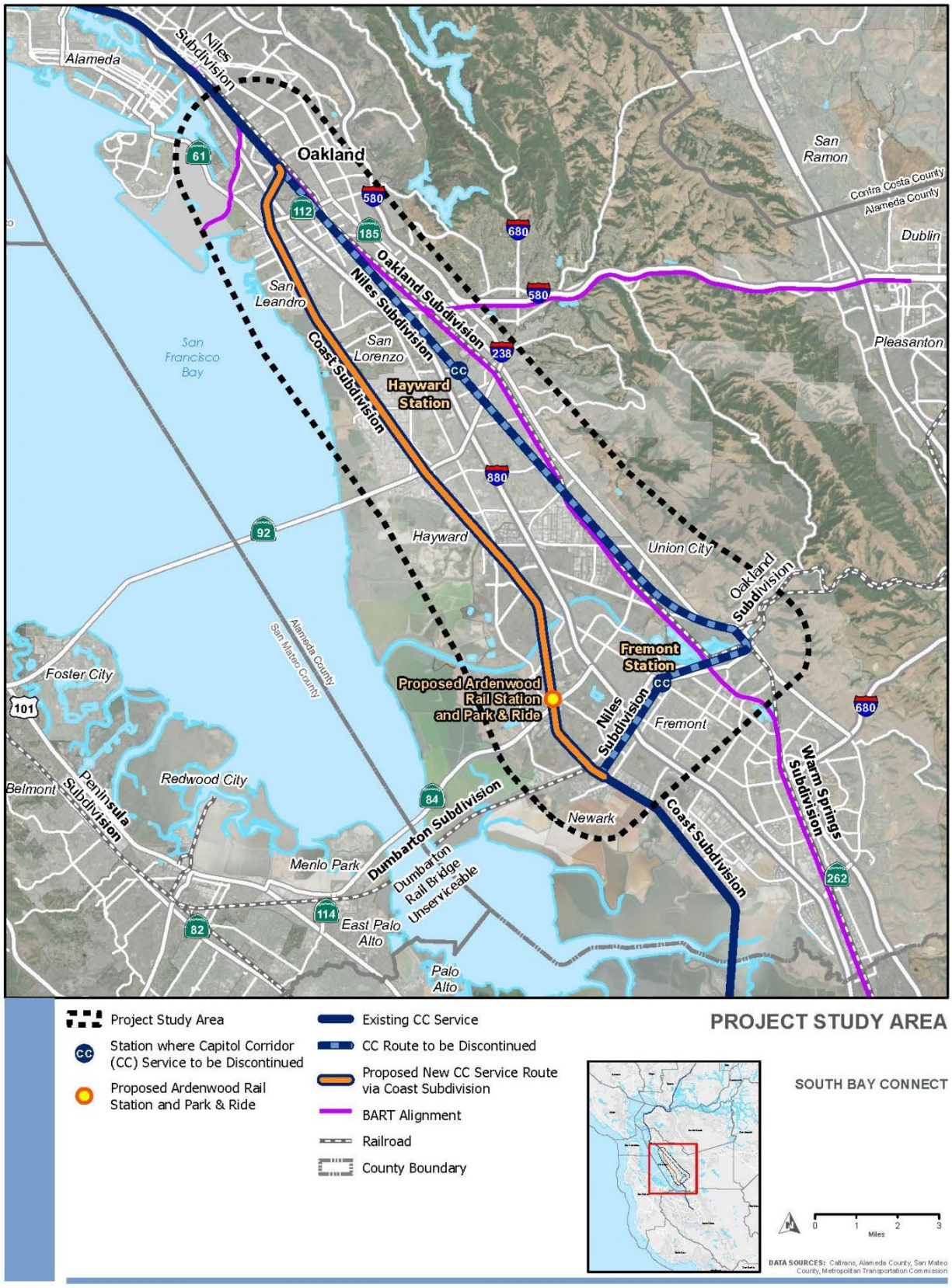
- limit rail conflicts between passenger and freight rail use on the freight-heavy Niles Subdivision,
- increase Capitol Corridor passenger rail reliability and improve operations between Oakland and Newark Junction,
- reduce air quality and greenhouse gas emissions by transitioning commuters from auto 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:

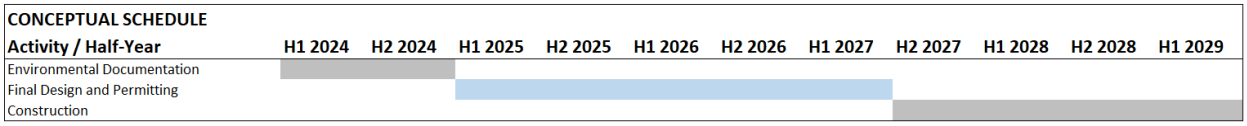
- Installation of low retaining walls or ballast retainers would occur intermittently along most of the corridor on one or both sides of the UPRR ROW to facilitate the proposed additional track and shifts to the existing track. In most areas of the corridor, the existing embankment is 3 feet to 6 feet 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: • All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) will be watered two times per day. • All haul truck loads will be covered when transporting soil, sand, or other loose material off site. • 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. • All vehicle speeds will be limited to 15 miles per hour on unpaved roads. • 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. • All excavation, grading, and/or demolition activities will be suspended when average wind speeds exceed 20 mph. • All trucks and equipment, including their tires, will be washed off prior to leaving the site. • 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. • 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 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: • 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. • 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. • During construction, soil and vegetation disturbance will be minimized to the greatest extent feasible. • 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. • During construction, the construction contractor will ensure that all material stockpiled is sufficiently watered or covered to prevent excessive amounts of dust. • 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. • 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. • 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. • 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. 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: • The types of cultural resources that are likely to be encountered; • The procedures to be taken in the event of an inadvertent cultural resource discovery; and • The penalties for disturbing or destroying cultural resources.	Cultural Resources 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. 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 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. • 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. • Require all diesel-fueled off-road construction equipment to be equipped with U.S. Environmental Protection Agency Tier 4 Final engines or better. • Require all on-road heavy-duty trucks to be zero emissions or meet the most stringent model-year emissions standard where feasible. • 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. • Use California Air Resources Board-approved renewable diesel fuel in off-road construction equipment and on-road trucks where feasible. • Use U.S. Environmental Protection Agency SmartWay-certified trucks for deliveries and equipment transport where feasible. • Require all construction equipment to be maintained and properly tuned in accordance with the manufacturer's specifications. • 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. • 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. • 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. • Minimize energy used during site preparation by deconstructing existing structures to the greatest extent feasible. • 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. • 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). • 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. • Develop a plan to efficiently use water for adequate dust control. • 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: • 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). • Preparedness, prevention, contingency, and emergency procedures, including emergency contact information (29 C.F.R. 1910.38). • 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). • Instructions on keeping Safety Data Sheets on site for each on-site hazardous chemical (29 C.F.R. 1910.1200). • 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). • 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: • General worker health and safety procedures. • Dust control/wind erosion control. • Management of soil stockpiles. • Traffic control. • 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: • Soil testing and soil characterization. • Soil disposal protocols. • Protocols governing the discovery of unknown contaminants. • Soil management on properties within the Project footprint with known hazardous contaminants. 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 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: • 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 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. 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. 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. 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. Other requirements under the SWPPP will include: • Measures to safely use and store hazardous materials. • Contaminated soils or groundwater encountered will be managed, stored, and disposed of in compliance with the NPDES CGP. • 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 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. • 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. • 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: • 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.	Transportation Hazards and Hazardous Materials Land Use and Planning Public Services Recreation 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: • Prior to and during construction, CCJPA will coordinate with service providers to obtain necessary permits and to minimize or avoid interruptions. • 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. • Service interruptions will be minimized to the extent feasible. • 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. • Affected utilities will be relocated in-kind. 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. • CCJPA will observe relevant ACWD Standard Specifications for Water Main Extension. • 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: • 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. • Limit turf to no more than 25 percent of the total planted area on the project. • 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. 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: • No parking or driving on dry grasses. • Smoking is prohibited on vegetated areas. • Generators and gas-powered equipment will have spark arrestors. 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. 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: • Special-Status Plants	S/M	MM BIO-1 MM BIO-2 MM BIO-3 MM BIO-4	LTS
• Crotch's Bumble Bee and Western Bumble Bee	S/M	MM BIO-1 MM BIO-6 MM BIO-7	LTS
• Monarch Butterfly	S/M	MM BIO-1 MM BIO-2 MM BIO-5	LTS
• Special-Status Fish	S/M	MM BIO-1 MM BIO-8 MM BIO-9 MM BIO-10 MM BIO-17 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 MM BIO-11 MM BIO-17	LTS
• Western Snowy Plover	S/M	MM BIO-1 MM BIO-12	LTS
• Bald Eagle, California Ridgway's rail, White-tailed Kite, California Black Rail	S/M	MM BIO-1 MM BIO-12	LTS
• Burrowing Owl	S/M	MM BIO-1 MM BIO-12 MM BIO-13	LTS
• Northern Harrier	S/M	MM BIO-1 MM BIO-12	LTS
• Alameda Song Sparrow and San Francisco Common Yellowthroat	S/M	MM BIO-1 MM BIO-12	LTS
• Salt Marsh Harvest Mouse	S/M	MM BIO-1 MM BIO-14 MM BIO-15	LTS
• Special-Status Bat Species	S/M	MM BIO-1 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 MM BIO-7 MM BIO-8 MM BIO-17 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 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 MM BIO-8 MM BIO-9	LTS

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		MM BIO-10 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 MM BIO-2 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 MM CUL-2 MM CUL-3 MM CUL-4 MM CUL-5 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 MM CUL-2 MM CUL-3 MM CUL -4 MM CUL-5 MM CUL-6	LTS
Disturb any human remains, including those interred outside of formal cemeteries	S/M	MM CUL-1 MM CUL-2 MM CUL-3 MM CUL-4 MM CUL-5 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: • 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: • 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 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: • 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 MM-CUL-2 MM-CUL-3 MM-CUL-4 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 MM-CUL-2 MM-CUL-3 MM-CUL-4 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: • Fence with vinyl or mesh banners; • Fence with privacy screens; and • 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 policies/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: • Minimizing size of area for clearing and grubbing; • Requiring 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;

<table>
<tr><th>Mitigation Measure</th><th>Mitigation Measure Description</th></tr>
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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 the selected plant species and minimize potential for takeover by local invasive species.

<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>
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<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>
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<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:
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</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>
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<tr><th>Mitigation Measure</th><th>Mitigation Measure Description</th></tr>
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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;
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;
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;
Cable railing to be used to maintain corridor-wide railing design consistency and not to block scenic vistas where applicable.

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<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:

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;
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 UP requirements for railroad structures related to structural design and post-construction access to all facilities for inspections 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 rail standards.

<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

Incorporate Crime Prevention Through Environmental Design principles in the design</td></tr>
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</table>

Mitigation Measure	Mitigation Measure Description	
		Incorporate design elements and/or public art reflective of community aesthetics in coordination with the City of Fremont Select structure color and texture to be consistent with the surrounding built environment 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 Select structure color and texture to be consistent with the surrounding built environment 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 Select structure color and texture to be consistent with the surrounding built environment 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
	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 Associations' 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 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.
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. • 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

Mitigation Measure	Mitigation Measure Description
	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. • 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. • 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. • 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

Mitigation Measure	Mitigation Measure Description
	vegetation communities and species. At a minimum, the training will include the following topics: • occurrences of special-status species and special-status vegetation communities in the Project area (including vegetation communities subject to USACE, CDFW, and RWQCB jurisdiction) • the purpose for resource protection • sensitivity of special-status species to human activities • 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) • environmentally responsible construction practices • the protocol to resolve conflicts that may arise at any time during the construction process. • reporting requirements and procedures to follow should a special-status species be encountered during construction; and, • avoidance and minimization measures designed to reduce the impacts on special-status species. • 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. • 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. • 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. • 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

Mitigation Measure	Mitigation Measure Description
	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. • 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. • 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. • 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. • 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. • 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). • 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. • 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. • 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. • 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. • 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. • 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. • 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. • 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. • 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. • 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. • 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. • 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. • 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. • 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. • 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/

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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. • 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. 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, 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 • 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 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: • 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 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 description and map of the survey area, focusing on areas that could provide suitable habitat for Crotch's and/or western bumble bee; • 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, • 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 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. 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: • Detailed qualifications for 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 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: • A barrier will be installed at limits of the construction work area to exclude SMHM from the construction area: 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; ii. A qualified biologist will conduct a preconstruction survey of the area every morning, prior to construction activities commencing for the day;

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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; 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; 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. 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: • 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

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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. 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 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: • Recommended avoidance and impact minimization measures, replacement value, and feasibility of relocation for protected trees subject to removal. • Methods and measure for relocation of protected trees to appropriate suitable habitat.

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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: • 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. • 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. • During construction, soil and vegetation disturbance will be minimized to the greatest extent feasible. • 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. • 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
	• 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. 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. 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

Mitigation Measure	Mitigation Measure Description
	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. 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 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). 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
	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. 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: • 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.

Mitigation Measure	Mitigation Measure Description
	• 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 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: • 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 travelling 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.

Mitigation Measure	Mitigation Measure Description
	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. 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 exiting 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.

Mitigation Measure	Mitigation Measure Description
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: • 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.
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.