United States Highway 101 / State Route 84 (Woodside Road) Interchange Improvement Project

SAN MATEO COUNTY, CALIFORNIA
DISTRICT 4 – SM – 101 (PM 4.6/6.5)
4 – SM – 84 (PM 25.3/25.7)
EA 04-235360/ID 0414000032

Initial Study with Proposed Negative Declaration/Environmental Assessment

Prepared by the State of California Department of Transportation

The environmental review, consultation, and any other action required in accordance with applicable federal laws for this project is being, or has been, carried out by Caltrans under its assumption of responsibility pursuant to 23 USC 327.

Caltrans

March 2016

General Information about This Document

What's in this document:

This Initial Study/Environmental Assessment (IS/EA), which examines the potential environmental impacts of the proposed project located in the City of Redwood City, San Mateo County, California, has been prepared by the California Department of Transportation (Department), as assigned by the Federal Highway Administration (FHWA). The Department is the lead agency under the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). The document tells you why the project is being proposed, what alternatives we have considered for the project, how the existing environment could be affected by the project, the potential impacts of each of the alternatives, and the proposed avoidance, minimization, and/or mitigation measures.

What you should do:

- Please read this IS/EA.
- Additional copies of this IS/EA and related technical studies are available for review at the Department of Transportation District 4 Office, 111 Grand Avenue, Oakland, CA (Monday through Friday from 8:00 AM to 5:00 PM); City of Redwood City Public Works, 1400 Broadway, Redwood City, CA 94603; and Redwood City Downtown Library, 1044 Middlefield Road, Redwood City, CA 94063. This IS/EA may be downloaded at the following website: www.dot.ca.gov/dist4/envdocs.htm.
- Attend the public meeting on April 28, 2016, from 6:00 to 8:00 PM at City Hall Council Chamber and Lobby, 1017 Middlefield Road, Redwood City, CA 94603.
- We would like to hear what you think. If you have any comments about the proposed project, please attend the public meeting and/or send your written comments to the Department by the deadline.
  - Send comments via postal mail to :
    Yolanda Rivas, attention Leahnora Romaya
    California Department of Transportation, Office of Environmental Analysis
    P.O. Box 23660
    Oakland, CA, 94623-0660
  - Send comments via e-mail to: yolanda.rivas@dot.ca.gov or leahnora.romaya@dot.ca.gov.
- Be sure to send comments by the deadline: May 26, 2016

What happens next:

After comments are received from the public and reviewing agencies, the Department, as assigned by the Federal Highway Administration, may: (1) give environmental approval to the proposed project, (2) conduct additional environmental studies, or (3) abandon the project. If the project is given environmental approval and funding is obtained, the Department could design and construct all or part of the project.

For individuals with sensory disabilities, this document can be made available in Braille, in large print, on audiocassette, or on computer disk. To obtain a copy in one of these alternate

formats, please call or write to Yolanda Rivas, California Department of Transportation, Office of Environmental Analysis, P.O. Box 23660, Oakland, CA, 94623-0660; (510) 286-6216; e-mail yolanda.rivas@dot.ca.gov; or use the California Relay Service, (510) 286-4454 (TTY), 1-800-735-2929 (Voice) or 711.

SCH: _____
4-SM-101-PM 4.6/6.5
4-SM-84-PM 25.3/25.7
04-235360/EFIS 0414000032

Improve the US 101/SR 84 (Woodside Road) interchange in the City of Redwood City, San Mateo County, California (Post Miles 4.6 to 6.5 on US 101 and Post Miles 25.3 to 25.7 on SR 84)

Initial Study with Proposed Negative Declaration/Environmental Assessment

Submitted Pursuant to: (State) Division 13, California Public Resources Code
(Federal) 42 USC 4332(2)(C) and 49 USC 303

THE STATE OF CALIFORNIA
Department of Transportation

City of Redwood City
San Mateo County Transportation Authority

4-5-16
Date of Approval

Bijan Sartipi
District Director
California Department of Transportation
NEPA and CEQA Lead Agency

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

Yolanda Rivas
District Branch Chief
California Department of Transportation, District 4
111 Grand Avenue
Oakland, CA 94612
(510) 286-6216

Mohammad Suleiman, P.E.
Project Manager
California Department of Transportation, District 4
111 Grand Avenue
Oakland, CA 94612
(510) 622-5943

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SCH:_____

Proposed Negative Declaration

Pursuant to: Division 13, Public Resources Code

Project Description

The California Department of Transportation (Department), in conjunction with the City of Redwood City and the San Mateo County Transportation Authority (SMCTA), proposes to improve the United States Highway 101 (US 101)/State Route (SR) 84 (Woodside Road) interchange in the City of Redwood City, County of San Mateo. The project would widen and add lanes to SR 84 (hereafter simply Woodside Road), reconstruct all ramp connections to US 101, and construct direct-connect flyover ramps between US 101 and Veterans Boulevard. The project would also construct additional pedestrian and bicycle facilities throughout the project area and improve the intersections of Woodside Road with Veterans Boulevard, Broadway, and Bay Road to the south of US 101, and Seaport Boulevard/East Bayshore Road/Blomquist Road to the north of US 101. The project extends for 1.9 miles along US 101 and 0.4 mile along SR 84. The total project length is 2.3 miles.

Determination

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

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

The proposed project would have no effect on cultural resources, land use and planning, population and housing, public services and recreation. In addition, the proposed project would have less than significant effects on aesthetics, air quality, biological resources, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, noise, transportation/traffic, and utilities and service systems.

_____ _____

Melanie Brent
Deputy District Director
District 4
California Department of Transportation

Date

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Summary

The California Department of Transportation (Department), in conjunction with the City of Redwood City and the San Mateo County Transportation Authority (SMCTA), proposes to improve the United States Highway 101 (US 101)/State Route (SR) 84 (Woodside Road) interchange in the City of Redwood City, County of San Mateo. The project would widen and add lanes to SR 84 (hereafter simply Woodside Road), reconstruct all ramp connections to US 101, and construct direct-connect flyover ramps between US 101 and Veterans Boulevard. The project would also construct additional pedestrian and bicycle facilities throughout the project area and improve the intersections of Woodside Road with Veterans Boulevard, Broadway, and Bay Road to the south of US 101, and Seaport Boulevard/East Bayshore Road/Blomquist Road to the north of US 101. The project extends for 1.9 miles along US 101 and 0.4 mile along Woodside Road. The total project length is 2.3 miles.

The Department is the National Environmental Policy Act (NEPA) lead agency per assignment of responsibilities by the Federal Highway Administration (FHWA) pursuant to Title 23, USC, Section 327. The Department is also the California Environmental Quality Act (CEQA) lead agency for the project.

The purpose of the project is to alleviate peak-hour congestion at the US 101/Woodside Road interchange; improve traffic operations within the project limits at the local street intersections of Woodside Road with Veterans Boulevard, Broadway, Bay Road, and Seaport Boulevard/Blomquist Street/East Bayshore Road; and improve bicycle and pedestrian access across US 101 within the project limits.

This Draft Initial Study/Environmental Assessment (IS/EA) addresses the proposed project's potential to have adverse impacts on the environment. Potential impacts and avoidance, minimization, and mitigation measures are summarized in Table S-1.

Table S-1: Summary of Impacts and Avoidance, Minimization, and/or Mitigation Measures

Affected Resource	Potential Impact		Avoidance, Minimization, and/or Mitigation Measures
	No Build Alternative	**Build Alternatives** ***(Impacts apply to both Build Alternatives unless otherwise noted)***	
Existing and Future Land Use	None.	The Build Alternatives would affect specific parcels as noted below under Relocations and Real Property, but otherwise no land uses would change. The project would not affect implementation of other proposed projects.	None.
Consistency with State, Regional and Local Plans and Programs	The No Build Alternative would be inconsistent with Plan Bay Area, the SMCTA Strategic Plan, and the New Measure A Program Short-range Highway Plan.	The Build Alternatives provide improvements that are specifically included or consistent with the intent of regional and local plans and programs.	None.
Parks and Recreation Facilities	None.	Neither Build Alternative would affect parks in or near the project area. Temporary closures or detours of a short (150-foot) segment of the Bay Trail would be required for up to approximately two weeks during project construction. Both Build Alternatives would have a permanent impact on up to 1,500 square feet of the Bay Trail and associated landscaping from widening at the Seaport Boulevard/East Bayshore Road intersection. Neither Build Alternative would affect the long-term use of the Bay Trail. Effects to this Section 4(f) resource would be *de minimis.*	During detailed design, the Department and the City of Redwood City will develop a trail closure plan to minimize the number of closure days, provide detour routes, and communicate to the public with a mandatory signage plan and notices posted at Bay Trail access points. A Transportation Management Plan (TMP) will be developed to address impacts to motor vehicle, bicycle, and pedestrian access during project construction. The TMP will document that bicycle and pedestrian access is to be maintained to the maximum extent feasible as part of construction staging. The plan will also include a public outreach plan including public officials, neighborhood groups, special interest groups, and transit agencies.
Relocations and Real Property Acquisition	None.	Both Build Alternatives require the full acquisition of two parcels and partial acquisitions from industrial, commercial/office, and municipal properties. Throughout the project area, temporary construction easements (TCEs) would be needed for construction access and staging. No residential properties would be affected.	The Department's Relocation Assistance Program will be made available to assist in providing relocation benefits or entitlements to property owners.

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Environmental Justice	None.	Project construction would affect all communities near the project area at similar levels. No low-income or minority communities would experience disproportionate temporary or permanent impacts.	None.
Utilities/ Emergency Services	None.	Both Build Alternatives would relocate utilities and require temporary lane closures during construction.	The TMP prepared during the design phase of the project will minimize traffic disruptions from project construction and will provide for public outreach to inform local agencies and the public of the times and locations of upcoming construction, construction signs in and approaching the project area, and incident management for traffic control in the vicinity of construction activities. Access will be maintained for emergency response vehicles.
Traffic and Transportation / Pedestrian and Bicycle Facilities	Without the project, traffic will continue to worsen. In 2022 and 2042, 11 of the 12 existing study intersections are projected to operate at level of service (LOS) E or F. The Redwood City General Plan calls for maintaining LOS D or better. Traffic queues from the northbound and southbound off-ramps to Woodside Road would extend beyond the exit ramps and into the mainline of US 101. The No Build Alternative would not provide additional pedestrian or bicycle access in the project area.	In 2022, both Build Alternatives would improve levels of service at 10 existing intersections (in either the AM or PM peak hour). The Build Alternatives would reduce delays at all but 4 intersections. Delay times would increase by 30 seconds or more at 4 intersections. Notably, for Alternative 8B, the delay at one intersection in the PM peak hour would increase by more than 4 minutes. Both Alternatives 3 and 8B would provide adequate vehicle storage to avoid queuing from the northbound and southbound off-ramps onto the mainline of US 101. In 2042, with Alternative 3, 10 of the 13 study intersections would operate at LOS E or F in the AM and/or PM peak hours and with Alternative 8B, 11 of the 13 intersections. Delay times would increase by 30 seconds or more at 4 intersections for either of the Build Alternatives. Notably, for Alternative 8B, at 3 of the 4 delayed intersections, the delay would increase by 2 minutes or more in either the AM or PM peak hour. Both Build Alternatives would provide adequate vehicle storage to	The TMP will address impacts to motor vehicle, transit, bicycle, and pedestrian access during project construction. Various TMP elements such as portable Changeable Message Signs and the Construction Zone Enhance Enforcement Program may be used to alleviate and minimize delay to the traveling public.

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		avoid queuing from the northbound and southbound off-ramps onto the mainline of US 101. With Alternative 8B, queue spillback from the northbound US 101 ramp meters would worsen PM peak hour LOS and delay at Blomquist Street/Seaport Boulevard and US 101 northbound ramps/Woodside Road compared with Alternative 3. Both Build Alternatives would provide similar new pedestrian and bicycle facilities in the project area. Alternative 3 would also provide a new Class I bikeway along the west side of the relocated segment of Veterans Boulevard, between Charter Street and Chestnut Street.	
Visual/ Aesthetics	None.	Both Build Alternatives would change the visual setting of the interchange area by adding Veterans Boulevard flyover ramps, acquiring properties, and removing trees and other landscaping, Neither Build Alternative would affect a state scenic highway or scenic vista or have an adverse impact on visual resources.	The project design will incorporate architectural treatment to all walls, bridges, and barriers. The City of Redwood City will be included in the design and selection of any aesthetic treatment for the project. Replacement highway planting will be provided in unpaved areas within the project limits for the selected alternative. Replacement planting, including trees, shrubs and groundcover, will meet the Department's current setback and sight distance requirements.
Cultural Resources	None.	Cultural resources were identified within the Area of Potential Effects but were determined ineligible for listing in the National Register of Historic Places. Neither Build Alternative would affect a historical or archaeological resource as defined by CEQA or a Section 4(f) historic resource.	If cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area will be diverted until a qualified archaeologist can assess the nature and significance of the find. If human remains are discovered, the County Coroner will be contacted and disturbances and activities stopped in any area or nearby area suspected to overlie remains. The provisions of California Public Resources Code Section 5097.98 will be followed as applicable. If the remains are thought to be Native American, the Coroner will notify the Native American Heritage Commission.
Hydrology and Floodplain	None.	Both Build Alternatives would have components in the 100-year floodplain. The project would not cause a longitudinal	Measures proposed to avoid or minimize impacts to water quality, storm water runoff, and wetlands and other waters of the U.S. will also avoid and minimize hydrology and floodplain impacts.

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		encroachment of the base floodplain. Additional impervious surface (4.22 acres with Alternative 3 and 5.03 acres with Alternative 8B) may increase the velocity and volume of downstream flows. Both Build Alternatives would provide permanent storm water treatment of 100 percent of the net added and reworked impervious surfaces.	
Water Quality and Storm Water Runoff	The No Build Alternative could have permanent water quality impacts due to continuing congestion and deposition of air quality emissions.	Project construction could have temporary impacts to water quality and storm water runoff from increased erosion and subsequent transport of sediment to surface waters. Spills and fluid leaks from construction vehicles, equipment, or materials may also occur during construction. Disturbed soil area would total 22.99 acres with Alternative 3 and 24.98 acres with Alternative 8B.	The project would implement a Storm Water Pollution Prevention Plan (SWPPP) that will include storm water best management practices (BMPs) applicable to construction of the proposed project. The SWPPP must also comply with the goals and restrictions identified in the San Francisco Regional Water Quality Control Board's (RWQCB) Basin Plan. Standard Special Provision 07-345 will be included in the plans, specifications, and estimates to address the preparation of the SWPPP document and the implementation of the SWPPP during construction. The project would implement short-term (construction) and long-term (permanent) BMPs outlined in the City of Redwood City and Department approved list, and listed in Section 2.2.2.2.
Geology/Soils/ Seismicity/ Topography	The No Build Alternative would be subject to the same geologic, soils, and seismic hazards as the Build Alternatives.	The project area could be exposed to strong earthquake shaking. Liquefaction could affect embankments and to a lesser extent structures supported on deep foundations on untreated soils. Construction of either of the Build Alternatives has the potential to encounter groundwater.	The project will be designed and constructed to meet seismic design requirements for ground shaking and ground motions, as determined for the project vicinity and site conditions (liquefaction, settlement, and corrosion). Additional geotechnical subsurface and design investigations will be performed during final project design and engineering phase, including site-specific evaluation of subsurface conditions (such as potential for liquefaction and lateral spreading) at the location of proposed foundation features. Excavations in existing embankments fill will not exceed slopes of 1.5:1 without shoring designed by a Registered Civil Engineer. A comprehensive evaluation of construction dewatering will be undertaken as a part of the field investigation program. The plan may include installation of groundwater monitoring wells along with

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			in-situ permeability tests to better evaluate the hydraulic conductivity of the subsurface soils. These data will provide the basis to evaluate construction dewatering schemes appropriate for both Build Alternatives.
Paleontology	None.	The project area is not considered sensitive for paleontological resources, and a review of database records did not identify known resources in Redwood City. The project is not expected to encounter paleontological resources.	Caltrans Standard Specification 14-7.02 will be implemented during project construction to avoid potential impacts to sensitive paleontological resources, if present. Standard Specification 14-7.02 states: If paleontological resources are discovered at the job site, do not disturb the material and immediately: 1. Stop all work within a 60-foot radius of the discovery 2. Protect the area 3. Notify the Engineer The Department investigates and modifies the dimensions of the protected area if necessary. Do not move paleontological resources or take them from the job site. Do not resume work within the specified radius of the discovery until authorized.
Hazardous Waste/ Materials	None.	Thirty-five potential hazardous materials sites are within 1 mile of the project area. There is a risk of encountering contamination from these properties. Structures have the potential to contain asbestos-bearing construction materials, leaded paint, and PCBs. In addition, vehicle tire and brake wear, oil, grease, and exhaust from vehicular traffic US 101 and local roads within the project area may have contaminated surface soils in the immediate vicinity with aerially deposited lead (ADL) and other heavy metals.	If the project construction excavations will extend to groundwater, groundwater sampling, analysis, and characterization are recommended before the start of construction to investigate safety precautions for construction personnel. Furthermore, treatment and disposal options for extracted groundwater will need to be evaluated prior to any dewatering of excavations due to construction activities. If suspected petroleum hydrocarbon-impacted soils are encountered during soil excavation activities, soil should be sampled, tested, and characterized for petroleum hydrocarbons. If soil excavation activities are planned near properties where chlorinated compounds may be present, the soil and groundwater should be sampled, tested, and characterized for chlorinated compounds. Prior to the beginning of, and periodically during any soil excavation work, surface soils should be tested for aerially deposited lead to evaluate safety recommendations for construction workers and soil management options.

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	No Build Alternative	**Build Alternatives** ***(Impacts apply to both Build Alternatives unless otherwise noted)***	
			Any proposed property acquisitions require further investigation of soil and/or groundwater, due to the potential for presence of petroleum hydrocarbons, solvents, and aerially deposited lead. A qualified and licensed inspector should evaluate and sample the existing building and structures scheduled for demolition for the presence of potential asbestos-containing materials, lead-based paint, and PCBs.
Air Quality	None.	The project would not increase concentrations of criteria pollutants that would result in air quality standard violations. The project would not violate standards for particulate matter less than 2.5 micrograms in diameter ($PM_{2.5}$). Neither Build Alternative would increase mobile source air toxics emissions compared to the No Build Alternative. Construction activities associated with the proposed project would be relatively short in duration and intensity and would not exceed state thresholds for construction emissions.	The project will comply with the Department's Special Provisions and Standard Specifications in Section 14.
Noise	Residences and other land uses in the project area have existing and future noise levels that approach or exceed federal noise abatement criteria.	Depending on the location, the Build Alternatives would increase future noise levels by 0 to 3 decibels over the No Build Alternative. Construction noise would be temporary, limited in duration, and generally at or below the existing freeway noise levels. A traffic noise abatement evaluation following Department procedures identified feasible sound walls, but none were determined cost-effective.	The project will: -Restrict overly loud construction activities to between 7:00 a.m. and 8:00 p.m., weekdays (except on holidays), where feasible. -Limit pile driving activities to daytime hours, where feasible. -Equip all internal combustion engine driven equipment with intake and exhaust mufflers that are in good condition and appropriate for the equipment. -Use "quiet" air compressors and other "quiet" equipment where such technology exists. -Prohibit unnecessary idling of internal combustion engines within 100 feet of residences. -Avoid staging of construction equipment within 200 feet of residences and locate all stationary noise-generating construction equipment, such as air compressors, portable power generators, or self-powered lighting systems as far practical from noise sensitive residences.

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			-Require all construction equipment to conform to Section 14-8.02, Noise Control, of the latest Department Standard Specifications.
Natural Communities	None.	The project area has no natural communities of concern. Neither Build Alternative would have temporary or permanent impacts to wildlife migratory corridors or fish passage.	Existing landscaping affected by the project would be replaced as discussed in Section 2.1.6.4. Landscaping would include the use of native species where possible.
Wetlands and Other Waters	None.	Both Build Alternatives would permanently affect 0.02 acre of drainage ditches that are considered waters of the State. Neither Build Alternative would affect potentially jurisdictional waters of the United States.	The project will comply with the following standards/BMPs, including but not limited to the following: -Where work areas encroach on wetlands, RWQCB-approved physical barriers will be constructed to prevent the flow or discharge of sediment into these systems. -Discharge of sediment into culverts and storm drains will be held to a minimum during construction of the barriers. -RWQCB-approved measures will be used to keep sediment from leaving the project construction area. -All off-road construction equipment should be cleaned of potential noxious weed sources (mud and vegetation) before entering the project area and after entering a potentially infested area before moving on to another area. The contractor will employ whatever cleaning methods (typically spraying with a high-pressure water hose) are necessary to ensure that equipment is free of noxious weeds. -Equipment should be considered free of soil, seeds, and other such debris when a visual inspection does not disclose such material. Disassembly of equipment components or specialized inspection tools is not required. Equipment washing stations will be placed in areas that afford easy containment and monitoring (preferably outside of the project area) and that do not drain into sensitive (riparian, wetland, etc.) areas. Upon completion of the project, all temporarily affected areas will be restored to approximately the original site conditions.
Animal Species	None.	Both Build Alternatives would result in permanent loss of 0.18 acre of ruderal upland habitat that provides marginal foraging and nesting habitat for raptors and migratory birds and potential foraging, nesting, and resting	***Migratory Birds:*** If construction is scheduled during the nesting season for migratory birds (February 1 through August 31), structures in the project area, including the remaining trees, will be surveyed for nesting migratory birds no more than three days prior to the start of ground disturbing

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Affected Resource	Potential Impact: No Build Alternative	Potential Impact: Build Alternatives *(Impacts apply to both Build Alternatives unless otherwise noted)*	Avoidance, Minimization, and/or Mitigation Measures
		habitat for the salt marsh wandering shrew. Both Build Alternatives would remove bridges that are suitable roosting and nesting sites for special-status and high priority bat species. In addition, construction noise could temporarily deter species from foraging in the project area.	activities. The overcrossing will be inspected weekly for signs of nesting activity from the start of the nesting season until the end of the season, or until the existing overcrossing has been removed, depending upon which event occurs first. If nests are identified in trees or under the overcrossing structure during preconstruction surveys, the following measures will be implemented: -Buffers will be established around active migratory bird nests found in trees or on the ground. The size of the buffer may vary for different species and will be determined in coordination with California Department of Fish and Wildlife (CDFW). A qualified biologist will delineate the buffer using environmentally sensitive area (ESA) fencing, pin flags, and/or yellow caution tape. The buffer zone will be maintained around all active tree-nest sites until the young have fledged and are foraging independently. In the event that an active tree-nest is found after the completion of preconstruction surveys and after construction begins, all construction activities will be stopped until a qualified biologist has evaluated the nest and erected the appropriate buffer around it. -A qualified biologist will work with CDFW before the start of nesting season (February 1) to determine and implement appropriate techniques to discourage migratory birds from developing new nests on the underside of the overcrossing for the duration of construction, and remove any existing nests. Strategies may include installing exclusionary netting underneath the bridge and plugging drain holes with wire mesh prior to nesting season. In the event that nesting birds are present and attempt to build nests during construction, a biologist will work with CDFW to implement a strategy to prevent nests from becoming established. ***Raptors:*** Schedule vegetation removal during nonbreeding season: To avoid disruption or impacts to nesting raptors and other nesting birds, removal of vegetation (trees and ground cover) in the project's construction area should occur between September 1 and October 15, outside of the bird nesting season and prior to the rainy season. If construction is scheduled during the nesting season (February 1

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			through August 31), the remaining trees in the biological study area (BSA), the Broadway overcrossing, and the pedestrian overcrossing within 500 feet of the construction area will be surveyed no more than 3 days prior to ground-disturbing activities. If an active nest is found, a qualified biologist will determine the appropriate buffer size through consultation with CDFW. If nesting activity is identified within the project's construction area, a qualified biologist will check the nest area weekly for potential disturbances associated with construction. Construction within the buffer is prohibited until the biologist determines the nest is no longer active. If an active nest is found after the completion of the preconstruction surveys and after construction begins, all construction activities will stop until the qualified biologist has evaluated the nest and an appropriate buffer has been established around the nest. Construction work will be excluded from the buffer area until the nesting activity is complete. If establishment of the buffer is not feasible, CDFW will be contacted for further avoidance and minimization guidelines. These requirements apply only to nesting activity. ***Bats:*** Disturbance of bats is of particular concern during the maternity roosting season (April 15 through August 31), when bats are likely to be raising young. The following measures will be implemented to avoid and minimize impacts on bats: -No more than three days prior to the start of ground disturbing activities, a qualified biologist will survey the trees and human-made structures in the BSA for evidence of bat roosts (e.g., bat guano). If bat roosts are located during preconstruction surveys, the roosts will be flagged and avoided during construction. To the extent possible, night work will be limited in areas where roosts are observed. -If roosts cannot be avoided during construction, exclusionary strategies will be developed through coordination with CDFW.
Threatened and Endangered	None.	Neither Build Alternative would have permanent impacts on California black rail, Ridgway's rail, or California least tern.	***General Construction Measures:*** Prior to initiation of the proposed action, the qualifications of the biological monitor(s) will be submitted to United States Fish and

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Species		Temporary construction noise is not expected to exceed the masking threshold, and effects would be discountable. Both Build Alternatives would remove bridges that could provide roosting and nesting habitat for bank swallows and 0.18 acre of potential foraging, nesting, and resting habitat for the salt marsh harvest mouse.	Wildlife Service (USFWS) and CDFW for approval. Such approved biologists are hereafter referred to as the "USFWS-approved biologist(s)." USFWS-approved biologist(s) (knowledgeable about sensitive species and habitats in the action area) or designee(s) will conduct pre-construction surveys to examine the BSA for occurrences of special-status wildlife species. In the event that occupied nests or other habitats are found, the USFWS-approved biologist(s) will adhere to the measures set forth by the USFWS. If the situation is otherwise unique, the USFWS-approved biologist will discuss the situation with a Department biologist who will contact the USFWS and CDFW to determine how to avoid or relocate the resident animal(s). All proposed construction will be limited to the existing and proposed right-of-way. ESAs will be identified on contract plans and discussed in the Special Provisions. The ESAs will include areas designated in the environmental document and biological reports that support wetlands, waters, and/or habitats that potentially support listed species, and have been specifically identified to avoid during construction. ESA provisions may include, but are not limited to, the use of temporary orange fencing to delineate the proposed limit of work in areas adjacent to sensitive resources, or to delineate and exclude sensitive resources from potential construction impacts. Contractor encroachment into ESAs will not be allowed without a USFWS-approved biologist(s) or designee(s) being present. This includes staging/operation of heavy equipment or casting of excavation materials. ESA provisions will be implemented as a first order of work and remain in place until all construction is completed. No debris, soil, silt, sand, bark, slash, sawdust, cement, concrete, washings, petroleum products or other organic or earthen material shall be allowed to enter into or be placed where it may be washed by rainfall or runoff into waters of the United States or drainages. No discharges of excessively turbid water will be allowed, and all equipment will be well-maintained and free of leaks.

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Affected Resource	Potential Impact		Avoidance, Minimization, and/or Mitigation Measures
	No Build Alternative	Build Alternatives *(Impacts apply to both Build Alternatives unless otherwise noted)*	
			Before the onset of construction and within 3 days of any new worker arrival, a USFWS-qualified biologist will conduct an education program for all construction personnel. At a minimum, the training will include a description of the salt marsh harvest mouse, California black rail, Ridgway's rail, and California least tern, and other listed species and their habitats; the potential occurrence of these species within the project area; an explanation of the status of these species and protection under the Federal Endangered Species Act (FESA), California Endangered Species Act (CESA), and all other federal, state, and local regulatory requirements; the measures to be implemented to conserve listed species and their habitats as they relate to the work site; and boundaries within which construction may occur. A fact sheet conveying this information will be prepared and distributed to all construction crews and project personnel entering the project area. Upon completion of the program, personnel will sign a form stating that they attended the program and understand all of the avoidance and minimization measures and implications of the FESA, CESA, and all other federal, state, and local regulatory requirements. Erosion control. Temporary erosion control and slope stabilization BMPs will be installed before the start of the wet season (October 15 through April 15). Erosion control measures may include silt fencing, straw wattles, straw bales, coir blankets, sediment traps, and other protective measures to minimize the potential for erosion of sediment beyond the work area or degradation of water quality in adjacent aquatic habitats. Upon project completion, all temporarily disturbed areas will be restored to pre-construction conditions. ***Salt Marsh Harvest Mouse:*** Preconstruction Surveys. Preconstruction surveys will be conducted prior to the installation of the temporary mouse barrier. Temporary Mouse Barrier. Prior to the start of construction work near the Seaport Boulevard/East Bayshore Road/Blomquist Street intersection, a temporary mouse barrier will be erected to prevent

Table S-1: Summary of Impacts and Avoidance, Minimization, and/or Mitigation Measures

Affected Resource	Potential Impact		Avoidance, Minimization, and/or Mitigation Measures
	No Build Alternative	Build Alternatives *(Impacts apply to both Build Alternatives unless otherwise noted)*	
			the potential movement of individuals into the construction zone. The mouse barrier fence will consist of corrugated metal fencing a minimum of 1 foot taller than adjacent herbaceous and shrub vegetation and buried 1 foot deep into the soil to prevent mice from burrowing under the fence. ESA fencing on the construction side of the mouse-proof barrier will increase visibility and awareness of the protected area. To ensure proper exclusion, the mouse barrier must terminate at permanent passage barriers (i.e. permanent water, high levee) at both ends. The mouse barrier will be installed in such a manner that it will not exclude salt marsh harvest mice from upland refugia areas. In addition, the mouse barrier will be placed so that individuals would not become trapped within the mouse-proof barrier area. Construction Monitoring. A USFWS-approved biologist(s) or designee(s) will monitor for potential salt marsh harvest mice presence prior to construction, and through installation of the previously described barrier. Following installation, the barrier will be inspected periodically along its margins as needed to maintain its integrity, and repaired within 24 hours. The USFWS-approved biologist(s) or designee(s) will have the authority to stop work if deemed necessary for any reason to protect the species. If a salt marsh harvest mouse is observed in the project area, work will be stopped immediately by the USFWS-approved biologist(s) or designee(s) until the salt marsh harvest mouse leaves the project area on its own volition. If the salt marsh harvest mouse does not leave the project area, work will not resume until after the USFWS and CDFW have been contacted and a decision is reached on how construction activities should proceed. The project resident engineer will consult with the USFWS-approved biologist(s) or designee(s) on how to proceed. Erosion Control. Erosion control and other SWPPP measures will be installed to prevent materials from entering the tidal marsh.
Invasive Species	None.	Project construction for either Build Alternative has the potential to inadvertently spread noxious weeds.	Project landscaping and erosion control will not use species listed as noxious weeds. No disposal of soil and plant materials would be allowed from areas

Table S-1: Summary of Impacts and Avoidance, Minimization, and/or Mitigation Measures

Affected Resource	Potential Impact		Avoidance, Minimization, and/or Mitigation Measures
	No Build Alternative	**Build Alternatives** ***(Impacts apply to both Build Alternatives unless otherwise noted)***	
			that support invasive species to areas dominated by native vegetation. All off-road construction equipment will be cleared of potential noxious weed sources before entering project area. Equipment will be regularly cleaned and inspected to minimize the spread of soil, seeds, and other such debris. Equipment will be regularly cleaned and inspected to minimize the spread of soil, seeds, and other such debris. Equipment washing stations will be placed in easily accessible areas (preferably outside of the project area) and kept from draining into sensitive (riparian, wetland, etc.) areas.
Cumulative Impacts	None.	The potential for cumulative impacts to resources will be avoided or minimized.	None.
Climate Change (CEQA)	The No Build Alternative would have higher carbon dioxide emissions than either of the Build Alternatives.	Both Build Alternatives have the potential to temporarily increase greenhouse gas emissions during construction.	The project will comply with the Department's Special Provisions and Standard Specifications, Section 14, Environmental Stewardship. The Department is using strategies from the Governor's Strategic Growth Plan for California to meet the targets set in AB 32 as presented in Table 2.5.1-2.

Table of Contents

Summary ..... **i**

Chapter 1 Proposed Project **1-1**

1.1 Introduction 1-1
1.1.1 Location and Route Description 1-1
1.1.2 Background 1-3
1.2 Purpose and Need 1-4
1.2.1 Purpose of the Project 1-4
1.2.2 Project Need 1-4
1.3 Project Alternatives 1-12
1.3.1 Common Design Features of the Build Alternatives 1-13
1.3.2 Unique Features of the Build Alternatives 1-13
1.3.3 Project Construction 1-19
1.3.4 Estimated Cost and Schedule 1-21
1.3.5 No Build Alternative 1-21
1.3.6 Final Decision Making Process 1-22
1.3.7 Alternatives Considered but Eliminated from Further Discussion 1-22
1.3.8 Permits and Approvals Needed 1-26

Chapter 2 Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures **2-1**

2.1 Human Environment 2-3
2.1.1 Existing and Future Land Use 2-3
2.1.2 Consistency with State, Regional and Local Plans and Programs 2-9
2.1.3 Parks and Recreational Facilities 2-19
2.1.4 Relocations and Real Property Acquisition 2-22
2.1.5 Environmental Justice 2-27
2.1.6 Utilities/Emergency Services 2-33
2.1.7 Traffic and Transportation/Pedestrian and Bicycle Facilities 2-36
2.1.8 Visual/Aesthetics 2-48
2.1.9 Cultural Resources 2-55
2.2 Physical Environment 2-58
2.2.1 Hydrology and Floodplain 2-58
2.2.2 Water Quality and Storm Water Runoff 2-62
2.2.3 Geology/Soils/Seismic/Topography 2-71
2.2.4 Paleontology 2-75
2.2.5 Hazardous Waste/Materials 2-77
2.2.6 Air Quality 2-83
2.2.7 Noise 2-93
2.3 Biological Environment 2-106
2.3.1 Natural Communities 2-106
2.3.2 Wetlands and Other Waters of the United States 2-108
2.3.3 Animal Species 2-112
2.3.4 Threatened and Endangered Species 2-116
2.3.5 Invasive Species 2-126
2.4 Cumulative Impacts 2-128
2.4.1 Regulatory Setting 2-128
2.4.2 Cumulative Impact Analysis 2-128
2.5 Climate Change (CEQA) 2-133

2.5.1 Regulatory Setting 2-133

Chapter 3 Comments and Coordination 3-1

3.1 Public Scoping and Participation 3-1
3.1.1 Stakeholder and Coordination Meetings 3-1
3.1.2 Community Meetings 3-2
3.1.3 Environmental Document Meetings 3-2
3.1.4 City Council Study Sessions 3-3
3.2 Consultation and Coordination with Public Agencies 3-3
3.3 Circulation, Review, and Comment on the Draft Environmental Document 3-4

Chapter 4 List of Preparers 4-1

Chapter 5 Distribution List 5-1

Chapter 6 References 6-1

Appendix A CEQA Checklist A-1

Appendix B Section 4(f) *De Minimis* Determination B-1

Appendix C Summary of Relocation Benefits C-1

Appendix D Title VI Policy Statement D-1

Appendix E Noise Receptors and Barriers E-1

Appendix F Consultation and Coordination F-1

Appendix G Environmental Commitment Record G-1

Appendix H List of Acronyms H-1

Appendix I List of Technical Studies I-1

Figures

Figure 1.1.1-1: Project Location and Regional Setting 1-2
Figure 1.2.2-1: Levels of Service for Signalized Intersections 1-5
Figure 1.3.1-1: Alternative 3 1-15
Figure 1.3.1-2: Alternative 8B 1-17
Figure 2.1.1-1: Redwood City General Plan Land Use Designation 2-4
Figure 2.1.4-1: Properties Potentially Affected by the Project 2-23
Figure 2.1.5-1: Environmental Justice Study Area 2-28
Figure 2.1.7-1: Local Roadway Intersections 2-38
Figure 2.1.8-1: Existing View Toward Woodside Road/Seaport Boulevard on Northbound US 101 2-50
Figure 2.1.8-2: Simulated View of Proposed Veterans Boulevard Flyover, Looking Toward Woodside Road/Seaport Boulevard on Northbound US 101 2-50
Figure 2.1.8-3: Existing View Looking North Toward US 101 on Woodside Road 2-52
Figure 2.1.8-4: Simulated View, Looking North Toward US 101 on Woodside Road 2-52
Figure 2.2.1-1: Floodplains in the Project Vicinity 2-59
Figure 2.2.7-1. Noise Levels of Common Activities 2-95
Figure 2.5.1-1. California Greenhouse Gas Forecast 2-136
Figure 2.5.1-2. Possible Effect of Traffic Operation Strategies in Reducing On-Road CO_2 Emission 2-137
Figure 2.5.1-3. The Mobility Pyramid 2-140
Figure B-1: Bay Trail Map B-3

Tables

Table S-1: Summary of Impacts and Avoidance, Minimization, and/or Mitigation Measures ii
Table 1.2.2-1: Vehicle Collision History for US 101 and Ramps at Woodside Road (June 2009–May 2012) 1-7
Table 1.2.2-2: Local Street Collision History (January 2010–December 2012) 1-8
Table 1.2.2-3: Local Street Pedestrian and Bicyclist Collision History (January 2008-December 2012) 1-9
Table 1.2.2-4: Bicycle and Pedestrian Facilities in and Around the Project Area 1-11
Table 1.3.1-1: Key Differences Among Alternatives 1-14
Table 1.3.8-1: Permits and Approvals Needed 1-26
Table 2.1.1-1: Proposed Projects 2-5
Table 2.1.2-1: Consistency of Proposed Project with Applicable Plans and Programs 2-15
Table 2.1.4-1: Proposed Right-of-Way and Temporary Construction Easements 2-24
Table 2.1.5-1: Minority and Low-Income Percentages in the Region and Environmental Justice Study Area 2-30
Table 2.1.6-1: Potential Utility Relocation 2-34
Table 2.1.7-1: Existing US 101 Peak Hour Measures of Effectiveness 2-39
Table 2.1.7-2: Existing Peak Hour Intersection Analysis 2-40
Table 2.1.7-3: 2022 US 101 Peak Hour Measures of Effectiveness 2-41
Table 2.1.7-4: 2042 US 101 Peak Hour Measures of Effectiveness 2-41
Table 2.1.7-5: 2022 Peak Hour Intersection Analysis 2-43
Table 2.1.7-6: 2042 Peak Hour Intersection Analysis 2-45
Table 2.2.2-1: Surface Water Quality in South San Francisco Bay 2-66
Table 2.2.2-2: Minimum Requirements for Temporary BMPs 2-69
Table 2.2.5-1: Potential Hazardous Materials Sites 2-78
Table 2.2.6-1: State and National Ambient Air Quality Standards 2-85

Table 2.2.6-2: CALINE4 CO Modeling Results for No Build and Build Alternatives, Including Background 2-88
Table 2.2.6-3: Estimated MSAT Emissions 2-90
Table 2.2.7-1: Noise Abatement Criteria 2-94
Table 2.2.7-2: Modeled Noise Levels 2-98
Table 2.2.7-3: Noise Abatement Analysis Results 2-102
Table 2.3.2-1: Impacts to Potential Jurisdictional Waters in the BSA 2-110
Table 2.5.1-1: Annual CO_2 Emissions for Existing (2014) and Future No Build and Build Alternatives (Opening Year [2022] and Design Year [2042]) 2-138
Table 2.5.1-2: Climate Change/CO_2 Reduction Strategies 2-142
Table G-1: Summary of Minimization and/or Mitigation Measures G-1

Chapter 1 Proposed Project

1.1 Introduction

The California Department of Transportation (Department), in conjunction with the City of Redwood City and the San Mateo County Transportation Authority (SMCTA), propose the United States Highway 101 (US 101)/State Route (SR) 84 (Woodside Road) Interchange Improvement Project (project) in the City of Redwood City, County of San Mateo. The project would widen and add lanes to SR 84 (hereafter simply Woodside Road), reconstruct all ramp connections to US 101, and construct direct-connect flyover ramps between US 101 and Veterans Boulevard. The project would also construct additional pedestrian and bicycle facilities throughout the project area and improve the intersections of Woodside Road with Veterans Boulevard, Broadway, and Bay Road to the south of US 101, and Seaport Boulevard/East Bayshore Road/Blomquist Road to the north of US 101.[1] The project area is shown in Figure 1.1.1-1 and includes all project components and staging areas.

The project is included in the Metropolitan Transportation Commission's (MTC's) Regional Transportation Plan (RTP), *Plan Bay Area* (ABAG and MTC 2013a, RTP ID No. 21603). The project is also included in the 2015 Transportation Improvement Program (TIP), which was adopted by the MTC on September 24, 2014 (TIP ID No. SM-050027). The Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) approved the 2015 TIP on December 15, 2014.

The Department is the National Environmental Policy Act (NEPA) lead agency per assignment of responsibilities by the FHWA pursuant to Title 23, USC, Section 327. The Department is also the California Environmental Quality Act (CEQA) lead agency for the project.

1.1.1 Location and Route Description

US 101 is a major north-south corridor extending from Los Angeles, California, to Washington State. The route serves local and interregional traffic along the San Francisco Peninsula and the greater Bay Area. It is also known as the Bayshore Freeway through San Mateo County. In the project area, US 101 is an eight-lane divided freeway with three general purpose lanes and one high-occupancy vehicle (HOV) lane in each direction to the south and north of the Woodside Road on- and off-ramps. There is an auxiliary lane in each direction to the south and north of the Woodside Road on- and off-ramps. All ramps at the interchange have ramp meters. Just to the north of the US 101/Woodside Road interchange, Maple Street crosses over US 101 but has no ramp connections to the freeway.

From US 101 in the project area, Woodside Road extends to the west and Seaport Boulevard to the east. Woodside Road is designated as SR 84 through Redwood City. It is the only major

[1] US 101 is designated as a north-south freeway, and SR 84 is designated as an north-south highway that is signed as east-west in the project area. However, within the project area, US 101 bears east-west, and SR 84 bears west-south, overlapping US 101 between Woodside Road in Redwood City and Marsh Road in Menlo Park. For purposes of this report, all descriptions of travel movements on US 101 and SR 84 (Woodside Road) will correspond to north and south for US 101, and east and west for SR 84 (Woodside Road). All other references to east, west, north, and south will generally correspond to actual compass bearings. In other words, except for descriptions of travel movements on US 101 and SR 84 (Woodside Road), all other directions are in relation to the north arrow shown in the report figures.

Figure 1.1.1-1: Project Location and Regional Setting

east-west high-capacity roadway through the city, and one of only three east-west links within the entire San Francisco Peninsula. Woodside Road has two eastbound lanes, three westbound lanes, a divided median, and no sidewalks or designated bicycle lanes.

East of US 101, Seaport Boulevard provides the primary access to US 101 for industrial and commercial traffic generated from land uses including the Pacific Shores Center business park, the Port of Redwood City, Seaport Centre, the Redwood City Municipal and Westpoint Harbor marinas, and several industrial debris and material reuse facilities. In the project area, Seaport Boulevard has two lanes in each direction, with a center median. Seaport Boulevard also has a Bay Trail segment on the east side of the roadway, north of Blomquist Street and East Bayshore Road.

Just north of US 101, East Bayshore Road parallels the northbound US 101 lanes and off-ramp and is one leg of the intersection with Seaport Boulevard and Blomquist Street. Blomquist Street extends between Seaport Boulevard and Maple Street, which is the only other crossing of US 101 in the project area.

Veterans Boulevard, Broadway, and Bay Road connect to Woodside Road south of US 101 in at-grade intersections that are relatively closely spaced. The southbound US 101 off-ramp to westbound Woodside Road forms a multi-lane, five-legged intersection with Broadway.

The Union Pacific Railroad (UPRR) maintains a freight spur line that parallels Seaport Boulevard and crosses under US 101 on the northwest side of the interchange, and continues southward on Chestnut Street.

1.1.2 Background

The reconstruction of the US 101/Woodside Road interchange was included in San Mateo County Tax Measure A, approved in June 1988 as part of planned improvements to US 101. Measure A authorized the imposition of a half-cent sales tax and the creation of SMCTA to administer the proceeds. In November 2004, San Mateo County voters approved a 25-year extension of the half-cent sales tax. The proposed project is part of the reauthorized Measure A expenditure plan (SMCTA 2004).

In 2000, the Department approved a Project Study Report (PSR) for the US 101/Woodside Road Interchange Reconstruction Project. Seven alternatives were studied. In 2006, the Department approved a Supplemental PSR for the US 101/Woodside Road Interchange Reconstruction, which modified the 2000 the Department-approved PSR by eliminating two projects that were assumed to be constructed: the SR 84 Extension of Bayfront Expressway Project, and the SR 84 (Woodside Road) Widening Project. These projects were not pursued due to funding constraints, environmental issues, and lack of local support.

In 2011, an Alternatives Analysis Study was completed for SMCTA. The study evaluated a variety of potential improvements that would alleviate congestion and developed five feasible alternatives. The current proposed project builds on the 2011 study by further evaluating the previously studied alternatives, and proposing additional, or combinations of, the previously studied alternatives.

1.2 Purpose and Need

1.2.1 Purpose of the Project

The purpose of the project is to:

- Alleviate peak-hour congestion at the US 101/Woodside Road interchange;
- Improve traffic operations within the project limits at the local street intersections of Woodside Road with Veterans Boulevard, Broadway, Bay Road, and Seaport Boulevard/Blomquist Street/East Bayshore Road; and
- Improve bicycle and pedestrian access across US 101 within the project limits.

1.2.2 Project Need

The US 101/Woodside Road interchange is at the junction of several closely spaced street and ramp intersections where drivers experience peak-period delays. Congestion on the local streets and interchange ramps causes backups for vehicles entering the project area from US 101. The interchange also lacks sufficient opportunities for bicycle and pedestrian access across US 101 and Woodside Road. The interchange is near San Francisco Bay, UPRR tracks, a Pacific Gas and Electric Company (PG&E) substation, and established land uses, which have all presented limitations to the development of transportation improvements in the interchange area. The following sections describe the existing transportation use, constraints, and limitations at the US 101/Woodside Road interchange for vehicles, bicycles, and pedestrians.

1.2.2.1 Capacity and Transportation Demand

Capacity and Operating Conditions. Level of Service (LOS) is an indicator of operational conditions on a roadway or at an intersection and is defined in categories ranging from A to F, with LOS A representing the best roadway conditions and LOS F indicating substantial congestion with stop-and-go traffic (see Figure 1.2.2-1). At intersections, LOS is evaluated in terms of delay caused by vehicles slowing or stopping due to a signal, stop sign, or queue caused by congestion. At signalized intersections, LOS A indicates that vehicles are delayed by 10 seconds or less, and LOS F represents delays of more than 80 seconds. The Redwood City General Plan Circulation Element (City of Redwood City 2010a) calls for maintaining an LOS D or better.

All intersections in and adjacent to the US 101/Woodside Road interchange operate overall at acceptable levels of service (LOS D or better) during the AM and PM peak hours,[2] except the following locations:

1. Veterans Boulevard/Woodside Road (LOS F during the PM peak hour); and
2. Broadway/Woodside Road (LOS E during the AM peak hour and LOS F during PM peak hour).

[2] The AM peak hour in the project area is 7:30 to 8:30 AM. The PM peak hour is 5:00 to 6:00 PM.

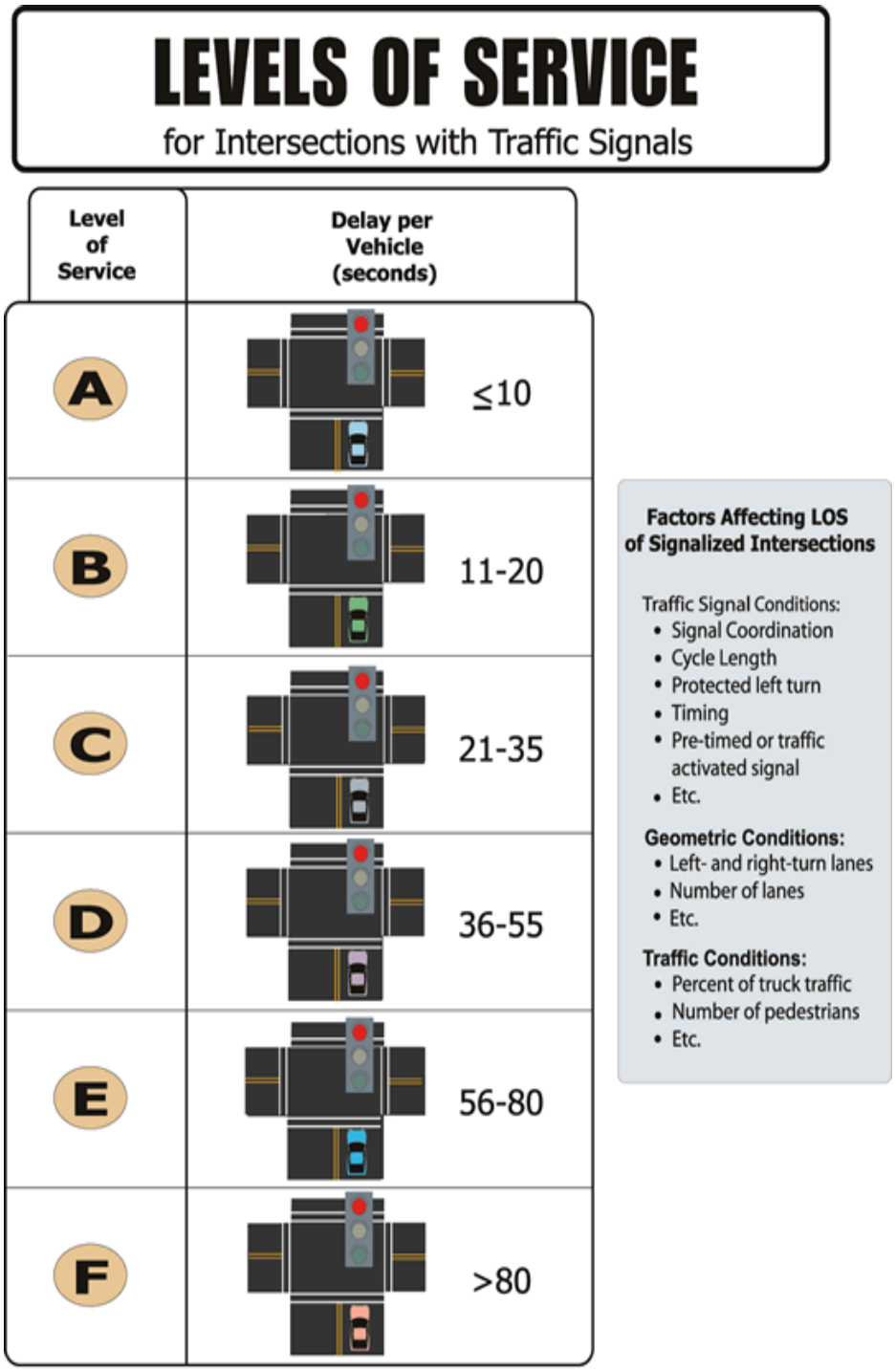

Figure 1.2.2-1: Levels of Service for Signalized Intersections

The back-up, or queue, at these intersections during peak periods[3] typically extends to the next intersection in either direction. At the southbound US 101 off-ramp, the vehicle queue from the Broadway/Woodside Road intersection extends onto the off-ramp and into the southbound auxiliary lane of the freeway.

In addition, the side street where the former Lyngso Garden Materials property meets Seaport Boulevard operates at LOS E during the PM peak hour.

Trucks also affect traffic operations at the US 101/Woodside Road interchange. US 101 is a major truck route for the Peninsula with an average of 9,765 trucks per day south of the interchange and an average of 9,450 north of the interchange, or 4.5 percent of total freeway traffic volume, in 2014 (Caltrans 2014a). Seaport Boulevard provides access to the Port of Redwood City, which supports industrial and commercial land uses associated with trucking. The Bay Conservation and Development Commission's *San Francisco Bay Area Seaport Plan* provides for increases in cargo throughput at the Port of Redwood City, and the Port has proceeded with modernizing its wharves and facilities to increase current throughput capacity (BCDC and MTC 2012). These measures are expected to increase truck volumes. A truck classification survey recently measured a total of over 3,000 trucks on a typical weekday on Seaport Boulevard north of Blomquist Street (Fehr & Peers 2015).

Businesses near the interchange that generate truck traffic were surveyed as part of the traffic studies for this project (Fehr & Peers 2015), and the following trends and issues were identified:

- Truck volumes peak around noon on weekdays, and the majority of truck traffic occurs before 1 PM.
- Predominant truck travel routes on Seaport Boulevard use US 101 to and from areas south of the project location. Fewer trucks from Seaport Boulevard use Woodside Road, or US 101 to and from the north.
- Issues identified by truck operators include delays from queues on Woodside Road blocking the US 101 southbound off-ramp, congestion causing backups on the northbound US 101 off-ramp, a difficult right-turn movement from Woodside Road to Veterans Boulevard due to congestion, and eastbound traffic on Seaport Boulevard backing up to the US 101 interchange (Fehr & Peers 2015).

All vehicle conditions are expected to worsen in the future with continued development and redevelopment in the region and in the project area. Between 2010 and 2040, San Mateo County is predicted to experience a 26 percent increase in population and a 29 percent increase in jobs (Association of Bay Area Governments [ABAG] and MTC 2013b). In Redwood City, job growth in the designated Priority Development Area[4] of the Broadway/Veterans Boulevard Corridor between 2010 and 2040 is estimated at 40 percent, and housing unit growth is estimated at 199 percent (ABAG and MTC 2013b).

Although Redwood City expects to reduce trip generation rates and decrease roadway system congestion by 10 percent through 2035 by focusing on alternative modes of transport and

[3] The AM peak period in the project area is 7:00 to 9:00 AM. The PM peak period is 4:00 to 7:00 PM.
[4] As described in *Plan Bay Area,* Priority Development Areas (PDAs) are locally designated areas within existing communities that have been identified and approved by local cities or counties for future growth. These areas are typically accessible to transit, jobs, shopping and other services (MTC and ABAG 2014).

improvements to SR 82 (El Camino Real), Woodside Road, US 101, and I-280 (City of Redwood City 2010a), it is reasonable to expect that regional traffic volumes will increase and affect traffic in the project area.

Safety. Traffic Accident Surveillance and Analysis System data are summarized in Table 1.2.2-1 for US 101 and Woodside Road in the project area for the period between June 2009 and May 2012. The data are expressed as accidents per million vehicle miles traveled and accidents per million vehicles for ramps. The data show that three of the four highway segments and six of the nine ramps had higher collision rates than the state average for similar facilities. For US 101, the majority (60 to 70 percent) of the accidents recorded were rear-end collisions, which is indicative of a congested corridor. Sideswipe collisions were also prevalent (10 to 15 percent) potentially due to lane changes in congested conditions, and "hit object" collisions were also prevalent (10 to 15 percent) in the corridor, especially for northbound US 101.

Table 1.2.2-1: Vehicle Collision History for US 101 and Ramps at Woodside Road (June 2009–May 2012)

	Number of Collisions			Collision Rate (accidents/million vehicle miles)					
				Actual			State Average		
Facility	Total	Fatal	Fatal + Injury	Fatal	Fatal + Injury	Total	Fatal	Fatal + Injury	Total
Eastbound SR 84 (PM 25.3 to PM 25.7)	30	0	14	0.000	1.40	3.01	0.009	0.35	0.84
Westbound SR 84 (PM 25.3 to PM 25.7)	24	0	7	0.000	0.70	2.41	0.009	0.35	0.84
Northbound US 101 (PM 3.3 to PM 7.0)	287	0	73	0.000	0.18	0.71	0.004	0.28	0.91
Southbound US 101 (PM 3.3 to PM 7.0)	455	1	123	0.002	0.30	1.13	0.004	0.28	0.91
Northbound US 101 Off-Ramp to SR 84/Woodside (PM 5.1)	4	0	2	0.000	0.10	0.20	0.002	0.08	0.25
Southbound US 101 On-Ramp from SR 84/Woodside (PM 5.2)	13	0	4	0.000	0.20	0.63	0.002	0.22	0.63
US 101 Segment Northbound Off-Ramp to Westbound SR 84 (PM 5.2)	3	0	1	0.000	0.05	0.16	0.004	0.16	0.49
US 101 Segment Northbound Off-Ramp to Eastbound Woodside (PM 5.2)	2	0	2	0.000	0.60	0.60	0.004	0.24	0.75
Northbound US 101 On-Ramp from Eastbound SR 84/Woodside (PM 5.3)	11	0	4	0.000	0.27	0.27	0.002	0.21	0.73
Northbound US 101 On-Ramp from Westbound SR 84/Woodside (PM 5.5)	6	0	3	0.000	0.77	0.77	0.003	0.18	0.57
US 101 Segment SB Off-Ramp to Eastbound Woodside (PM 5.6)	8	0	3	0.000	0.82	2.18	0.003	0.30	1.06
US 101 Segment Southbound Off-Ramp to Westbound SR 84 (PM 5.6)	8	0	3	0.000	0.20	0.54	0.004	0.24	0.75
Southbound US 101 Off-Ramp to SR 84/Woodside (PM 5.7)	10	0	4	0.000	0.22	0.54	0.002	0.08	0.25

Shaded cells denote locations that exceed the statewide average.
Source: Caltrans District 4 Traffic Accident Surveillance and Analysis System (TASAS) data between 06/01/2009 and 5/31/2012, as noted in Fehr & Peers 2015.

Local street motor vehicle collision history data were obtained from the California Highway Patrol Statewide Integrated Traffic Records System (Table 1.2.2-2). Of the 145 collisions reported over this period, one involved a pedestrian, one involved a bicyclist, and three involved trucks. The highest total number of collisions in and around the project area occurred at the intersections of Woodside Road with Broadway, Middlefield Road, and Bay Road. The highest number of collisions was reported at the Woodside Road/Broadway intersection. Factors that likely contribute to the number of accidents are the intersection alignments, complex signalization, and high levels of congestion.

Table 1.2.2-2: Local Street Collision History (January 2010–December 2012)

Location	Total Collisions	Collisions Resulting in Injury	Collisions Involving Bicyclists	Collisions Involving Trucks	Collisions Involving Pedestrians	Collisions Resulting in Fatality
Intersections						
Seaport & Blomquist/Bayshore	4	3	0	0	0	0
Seaport & Lyngso	1	1	0	0	0	0
Woodside/SR 84 & Veterans	8	3	0	0	0	0
Woodside/SR 84 & Broadway	28	11	0	0	0	0
Woodside/SR 84 & Bay	10	4	0	0	0	0
Woodside/SR 84 & Spring	1	0	0	0	0	0
Woodside/SR84 & Middlefield	15	7	0	1	0	0
Maple & Blomquist	0	0	0	0	0	0
Maple & Oddstad	0	0	0	0	0	0
Maple & Veterans	6	3	0	0	0	0
Chestnut & Veterans	2	1	0	0	0	0
Chestnut & Broadway	4	2	0	0	0	0
Roadway Segments						
Seaport from Blomquist/ Bayshore to Lyngso	1	1	0	0	0	0
Woodside from Lyngso to Veterans	12	4	0	0	0	0
Woodside from Veterans to Broadway	6	3	0	1	0	0
Woodside from Broadway to Bay	6	3	0	0	0	0
Woodside from Bay to Spring	2	0	0	0	0	0
Woodside from Spring to Middlefield	15	6	0	0	0	0
Blomquist from Seaport to Maple	1	0	0	0	0	0
Maple from Blomquist to Oddstad	1	0	0	0	0	0
Maple from Oddstad to Veterans	2	0	0	0	0	0
Veterans from Maple to Chestnut	5	2	0	1	0	0
Veterans from Chestnut to Woodside	7	0	0	0	0	0
Chestnut from Veterans to Broadway	2	0	0	0	0	0
Broadway from Chestnut to Woodside	6	4	1	0	0	0

Source: California Highway Patrol Statewide Integrated Traffic Records System data between 01/01/2010 and 12/31/2012

During this time, one bicycle was involved in a collision that occurred on Broadway from Chestnut Street to Woodside Road. No collisions involving pedestrians were reported during the three-year period.

A larger collision data set was obtained from the California Highway Patrol Statewide Integrated Traffic Records System for January 2008 – December 2012. This five-year data set was evaluated for pedestrian and bicyclist collisions. As shown in Table 1.2.2-3, a total of 16 collisions were reported involving bicyclists and 10 involving pedestrians, resulting in 3 severe injuries and 23 minor injuries.

Table 1.2.2-3: Local Street Pedestrian and Bicyclist Collision History (January 2008–December 2012)

Intersection	Collisions Involving Bicyclists	Collisions Involving Pedestrians	Collision Severity		
			Fatal	Severe	Minor
Maple Street/US 101	2	0	0	0	2
Veterans Boulevard/ Walnut Street	2	0	0	1	1
Walnut Street/ Marshall Street	1	0	0	0	1
Maple Street/ Veterans Boulevard	1	2	0	0	3
East Bayshore/ Seaport Boulevard	1	0	0	1	0
Broadway/ Chestnut Street	2	2	0	0	4
Chestnut Street/ Spring Street	1	0	0	0	1
Broadway/ Woodside Road	4	0	0	0	4
Woodside Road/ Bay Road	2	0	0	0	2
Walnut Street/ Marshall Street	0	1	0	0	1
Spring Street/ Walnut Street	0	1	0	0	1
Broadway/ Maple Street	0	2	0	0	2
Broadway/ Beech Street	0	1	0	1	0
Charter Street/Bay Street	0	1	0	0	1
TOTAL	**16**	**10**	**0**	**3**	**23**

Source: California Highway Patrol Statewide Integrated Traffic Records System data between 01/01/2008 and 12/31/2012.

1.2.2.2 Roadway, Bicycle, and Pedestrian Facility Deficiencies

Roadway Deficiencies

In addition to congestion, the existing configuration of the US 101/Woodside Road interchange and associated intersections limits the flow of traffic and contributes to backups on the ramps that interfere with freeway traffic during peak periods. The five-legged intersection at Woodside Road and Broadway requires additional signal phasing time (the total duration for each sequence of green, yellow, red, and walk light changes). Southbound US 101 traffic exiting at Woodside Road is limited to a single-lane off-ramp. Heavy demand at this exit causes backups onto US 101 because vehicles are delayed at the five-legged intersection at Broadway. Because of the extra signal timing delay to handle a five-legged intersection and its high volume, this intersection operates at LOS E and LOS F in the AM and PM peak periods, respectively. As a result of this backup, vehicles headed toward the Port of Redwood City are delayed exiting the freeway on this ramp until it splits and allows eastbound vehicles (headed toward the Port) to continue to the southbound-to-eastbound loop ramp that connects to Seaport Boulevard.

The close intersection spacing along Woodside Road (Bay Road, Broadway, Veterans Boulevard, and the on- and off-ramps at US 101) results in weaving that contributes to traffic

congestion and delays. The Veterans Boulevard intersection with Woodside Road is in close proximity (less than 500 feet) to the Broadway intersection, and the backup and congestion at Broadway also extends to this intersection. These two intersections function at LOS E and LOS F during either the AM or PM peak periods, or both. The Seaport Boulevard/Blomquist Street intersection can also be functionally affected when railroad traffic on the UPRR tracks crosses Blomquist Street and effectively closes this leg of the intersection.

Loop ramps at the interchange serve eastbound Woodside Road to northbound US 101, and southbound US 101 to eastbound Woodside Road/Seaport Boulevard. The off-ramp to Seaport Boulevard has a relatively short radius, which is geometrically undesirable and requires reduced speeds and is especially difficult for large trucks heading to the Port of Redwood City. The close proximity of the two on- and off-ramp loops results in a short weaving distance on eastbound Woodside Road/Seaport Boulevard.

The height of the existing Woodside Road undercrossing of US 101 is below current height clearance standards (SMCTA 2011). There is no data or information that indicates this height may be restricting the use of the undercrossing or diverting trucks. However, incorporating a higher clearance that meets current Department design standards should be an objective of the project design.

Bicycle and Pedestrian Facility Deficiencies

The interchange vicinity lacks bicycle and pedestrian facilities. No designated bicycle facilities provide access across US 101 in the project area. The closest bicycle facility is on Blomquist Street, which has Class II bikeways.[5] Seaport Boulevard has a Class I bikeway north of Blomquist Street and East Bayshore Road. Veterans Boulevard has buffered Class II bikeways[6] north of Chestnut Street, but no bicycle or pedestrian facilities between Chestnut Street and the interchange. Bay Road and Broadway have sidewalks but no designated bicycle facilities. Within Redwood City, US 101 serves as a barrier to bicycle and pedestrian access between each side of the freeway. Table 1.2.2-4 summarizes existing bicycle and pedestrian facilities.

Bicyclists and pedestrians have to use Woodside Road to connect to Seaport Boulevard, or use the overcrossing at Maple Street, which is approximately 0.5 mile to the west of Woodside Road, to travel across the freeway. Woodside Road has no striped bike or pedestrian facilities in the vicinity of the US 101 undercrossing, and the freeway on- and off-connections to Woodside Road are not considered “bike friendly” because of the free-flow merging of exiting and entering traffic typical of interchange ramps. The Redwood City General Plan notes the lack of sidewalks and safe crossings, the high vehicular volumes that discourage pedestrian and bicycle use, and the need to provide better linkages accessible to these modes of travel and use (City of Redwood City 2010b). These connections are specifically needed in this area to complete the pedestrian and bikeway access along Seaport Boulevard to Woodside Road that currently terminates at Blomquist Street.

[5] A Class I bikeway (bike path) is a completely separate facility designated for the exclusive use of bicycles and pedestrians, with vehicle and pedestrian cross-flow minimized. A Class II bikeway (bike lane) is a striped lane designated for the use of bicycles on a street. A Class III bikeway (bike route) is a route designated by signs or pavement markings for bicyclists within the vehicular travel lane (i.e., shared use) of a roadway (City of Redwood City 2010b).

[6] A buffered Class II bikeway (bike lane), has a marked (painted) buffer without flexible posts or inflexible barriers as the separation between the bike lane and the vehicular traffic lane.

Table 1.2.2-4: Bicycle and Pedestrian Facilities in and Around the Project Area

Street	From	To
Bicycle Facilities		
Blomquist Street: Class II bikeways	Seaport Boulevard	Maple Street
Seaport Boulevard (1.4-mile Class I bikeway)	Blomquist Street	Pacific Shores Center
East Bayshore Road (shared lane markings)	Seaport Boulevard	Approximately Haven Avenue
Broadway (shared lane markings and Class II bikeways)	East of Woodside Road (shared lane)	West of Woodside Road (Class II)
Veterans Boulevard (Class II bikeways)	Chestnut Street	West of Chestnut Street
Sidewalks with Buffer to Traffic and/or Minimal Barriers		
Veterans Boulevard (north side)	Maple Street	Chestnut Street
Maple Street (east side)	Marshall Street	Veterans Boulevard
Chestnut Street (east side)	Broadway	Veterans Boulevard
Broadway (south side)	Chestnut Street	Woodside Road
Broadway (north side)	Woodside Road	Charter Street
Sidewalks in Poor Condition or with Barriers		
Veterans Boulevard (south side)	Maple Street	Chestnut Street
Maple Street (west side)	Marshall Street	N. of Veterans Boulevard
Chestnut Street (west side)	Broadway	Veterans Boulevard
Broadway (north side)	Maple Street	Woodside Road
Broadway (south side)	Maple Street	Chestnut Street
Broadway (south side)	Woodside Road	Charter Street
Blomquist Street	Maple Street	Seaport Boulevard
No Sidewalk		
Maple Street (both sides)	N. of Veterans Boulevard	Blomquist Street
Blomquist Street (north side)	Maple Street	Seaport Boulevard
Woodside Road (both sides)	Blomquist Street	Bay Road

Source: Fehr & Peers 2015

Other than Seaport Boulevard/Woodside Road, the Maple Street overcrossing is the only means of crossing US 101 in the southern portion of Redwood City. Bicyclists currently use the Maple Street overcrossing of US 101 because it is a relatively less traveled vehicle route, but the existing striped shoulders are relatively narrow and there are no sidewalks except on the bridge structure.

Local pedestrian and bicycle access across Woodside Road to/from downtown Redwood City is also limited due to heavy traffic volumes and the design of the intersections, which provide only two signalized crossings in the study area south of US 101 (at Bay Road and Broadway). There is one grade-separated pedestrian overcrossing of Woodside Road at Stambaugh Street, which is two intersections to the south of the project limits.

1.2.2.3 Modal Interrelationships and System Linkages

Transit in Redwood City includes Caltrain rail service and San Mateo County Transit District (SamTrans) bus service, which serve the downtown and surrounding areas. Caltrain has a station in Redwood City on James Avenue near Broadway, northeast of Woodside Road. SamTrans bus route 270 provides service on East Bayshore Road, Blomquist Street, Maple Street, Veterans Boulevard, and Broadway in the project area. SamTrans bus routes 79, 276, 296, 297, and 397 also operate in and around the project area.

Potential streetcar service is planned for the future, as is potential ferry service to a terminal at the Port of Redwood City at Westport Slough, accessed by Seaport Boulevard. Ferry service would likely increase bicycle use along Seaport Boulevard/Woodside Road, Blomquist Street,

and Maple Street as ferry commuters and recreational riders use the routes described in this section.

The project area includes an existing Bay Trail segment along Seaport Boulevard. The trail extends northward to the Pacific Shores Center. Planned Bay Trail segments in the vicinity of the project are along Blomquist Street and Maple Street, between Redwood Creek and Seaport Boulevard, and along the Cargill Levee on the south side of the salt crystallizer beds.

1.2.2.4 Independent Utility and Logical Termini

FHWA regulations (23 Code of Federal Regulations [CFR] 771.111[f]) require that the proposed action evaluated:

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

The project limits were chosen based on the traffic analysis, the range of design alternatives that could address the purpose and need, and the potential northbound and southbound US 101 on- and off-ramp design and construction options. The northern and southern post mile limits on US 101 include the interchange locations with the highest traffic: the southbound US 101 off-ramp to Woodside Road, where vehicle traffic backs up onto US 101, and the northbound US 101 off-ramp to Seaport Boulevard. The northern post mile limit on US 101 also encompasses the Maple Street overcrossing, which is 0.5 mile north of Woodside Road, to allow for evaluation of new local interchange ramps at Maple Street as part of the proposed project. New US 101 ramps at Maple Street were ultimately determined infeasible because their short distance from the Woodside Road interchange would result in new congestion from traffic attempting to enter and exit US 101 between the two interchanges.

For the local roads, the primary congestion issue is on Woodside Road, where the length of queuing overlaps between intersections at Veterans Boulevard, Broadway, and Bay Road, causing backups on Woodside Road and preventing traffic from turning onto Woodside Road. The post mile limit on Woodside Road therefore extends from the US 101 ramps to Spring Street, which is one intersection past Bay Road. In addition, the limits on Veterans Boulevard, Broadway, and Bay Road were extended to allow consideration for right and left turning lanes onto and off of Woodside Road.

There are currently no plans to widen US 101 through this area. No subsequent improvements in the area would be needed to meet this project's purpose and need.

1.3 Project Alternatives

This section describes the proposed project and the project alternatives that were developed by a multidisciplinary team to achieve the project's purpose and need, while avoiding or minimizing environmental impacts. Three alternatives are considered in this document: two Build Alternatives, and the No Build Alternative.

The purpose of the proposed project is to alleviate peak-hour congestion at the US 101/Woodside Road interchange and to improve traffic operations, pedestrian and bicycle access in the interchange area.

1.3.1 Common Design Features of the Build Alternatives

Two Build Alternatives are being considered for the proposed project: the Partial Cloverleaf with Diamond Alternative (Alternative 3), and the Diverging Diamond Alternative (Alternative 8B). With both Build Alternatives, the project would widen Woodside Road to six lanes (three in each direction) plus turn pockets. Woodside Road would be lowered in grade to increase the vertical clearance at the US 101 undercrossing from 14.5 feet to 15.0 feet. The project would reconstruct all ramp connections between Woodside Road and US 101. Additional turning lanes, with longer pocket lengths would be added at ramp intersections as well as at Blomquist St, East Bayshore Road, Broadway, and Bay Road. In addition, the project would construct direct-connect flyover ramps between northbound US 101 and westbound Veterans Boulevard and between eastbound Veterans Boulevard and southbound US 101. The project would also eliminate the existing five-legged intersection at Broadway and Woodside Road. Other than the freeway on-ramp and off-ramp modifications, the project would not change the alignment or operations of US 101.

Sidewalks and bicycle facilities would be added on Woodside Road between approximately Bay Road and Seaport Boulevard/East Bayshore Road/Blomquist Street. Both Build Alternatives would include Class I bikeways on both sides of Veterans Boulevard between Chestnut Street and Woodside Road. A Class I bikeway is also proposed adjacent to the UPRR tracks that extend along Chestnut Street and under US 101 to Seaport Boulevard. Protected intersections would be provided for bicyclists accessing the intersections along Woodside Road including Broadway and East Bayshore Boulevard/Blomquist Street. Protected intersections are designed to separate bicyclists and pedestrians from motorists via a refuge area located on the corners of the intersections, which allows for increased reaction time and visibility, and improves safety. Sidewalks would range from 6 feet to 10 feet in width, and crosswalks would include standard safety features.

Differences between the two Build Alternatives are outlined below and summarized in Table 1.3.1-1. For right-of-way and properties affected by the project, refer to Figure 2.1.2-1 in Chapter 2.

1.3.2 Unique Features of the Build Alternatives

1.3.2.1 Partial Cloverleaf with Diamond Alternative (Alternative 3)

North of US 101, this alternative would replace the existing northbound US 101 ramps with a new slip on-ramp, loop on-ramp, and diagonal off-ramp in a single partial cloverleaf ramp configuration (Figure 1.3.1-1). The new ramps would connect with Woodside Road at a new signalized intersection. Alternative 3 would also realign and replace the existing southbound US 101 ramps with a single wider diamond-configuration off-ramp and new on-ramp connecting with Woodside Road at a new signalized intersection.

With Alternative 3, sidewalks would be added on both sides of Woodside Road between Broadway and Bay Road. A new Class I bikeway would be added on the east side of Woodside Road between Broadway and the Seaport Boulevard/East Bayshore Road/Blomquist Street

intersection to the north of US 101. Other bikeways would be added to the west side of Woodside Road. The bikeways would connect with Veterans Boulevard and a new Class I bikeway along the UPRR tracks that would cross under US 101 to Seaport Boulevard.

Alternative 3 would also include Class IV bikeways on both sides of Woodside Road between Bay Road and the Seaport Boulevard/East Bayshore Road/Blomquist Street intersection.

1.3.2.2 Diverging Diamond Alternative (Alternative 8B)

This alternative would replace all existing US 101 ramp connections with diagonal ramps on both sides of US 101 in a diverging diamond configuration (Figure 1.3.1-2). Woodside Road would be reconfigured to allow eastbound and westbound traffic to cross to the opposite side of the road (on the driver's left) and back again between two new signal intersections, one on each side of US 101. The diverging diamond configuration would allow for two-phase operations (eastbound/westbound Woodside Road through movements and off-ramp left/right-turn movements). The off-ramp intersections with Woodside Road and Seaport Boulevard would be signal controlled. This alternative would add a ramp meter to the northbound on-ramp.

Bicycle and pedestrian facilities would be generally the same as for Alternative 3 except along the diverging diamond section of Woodside Road under US 101. A Class I bikeway would be constructed in the median, between the intersections where vehicle traffic would change directions. The path would connect via signalized intersections with crosswalks to the proposed pedestrian and bicycle facilities to the north and south of US 101. With Alternative 8B, the realigned segment of Veterans Boulevard between Charter Street and Chestnut Street would not have a Class I bikeway on the south side, although a separate Class I bikeway slightly to the south of Veterans Boulevard would connect with Woodside Road, Veterans Boulevard, and the two Class I crossings of US 101.

Table 1.3.1-1: Key Differences Among Alternatives

Project Component	No Build Alternative	Alternative 3	Alternative 8B
US 101 Ramps	No change to existing ramps would occur.	Replace northbound ramps with slip on-ramp, loop on-ramp, and diagonal off-ramps in a single partial cloverleaf configuration. Replace southbound ramps with a single wider diamond configuration.	Replace all ramps with diagonal ramps in a diverging diamond configuration.
Signalized Intersections	No change to existing signalized intersections would occur.	Addition of two signalized intersections: one that connects Woodside Road to the northbound ramps and one that connects Woodside Road to the southbound ramps.	Addition of two signalized intersections on Woodside Road on either side of US 101 controlling eastbound and westbound traffic on Woodside Road.
Bicycle Facilities	No additional bicycle facilities would be constructed.	Class I bicycle facility on the east side of Woodside Road under US 101. Class I bicycle facility on Veterans Road east of Woodside Road.	Class I bicycle facility in the median of Woodside Road under US 101.

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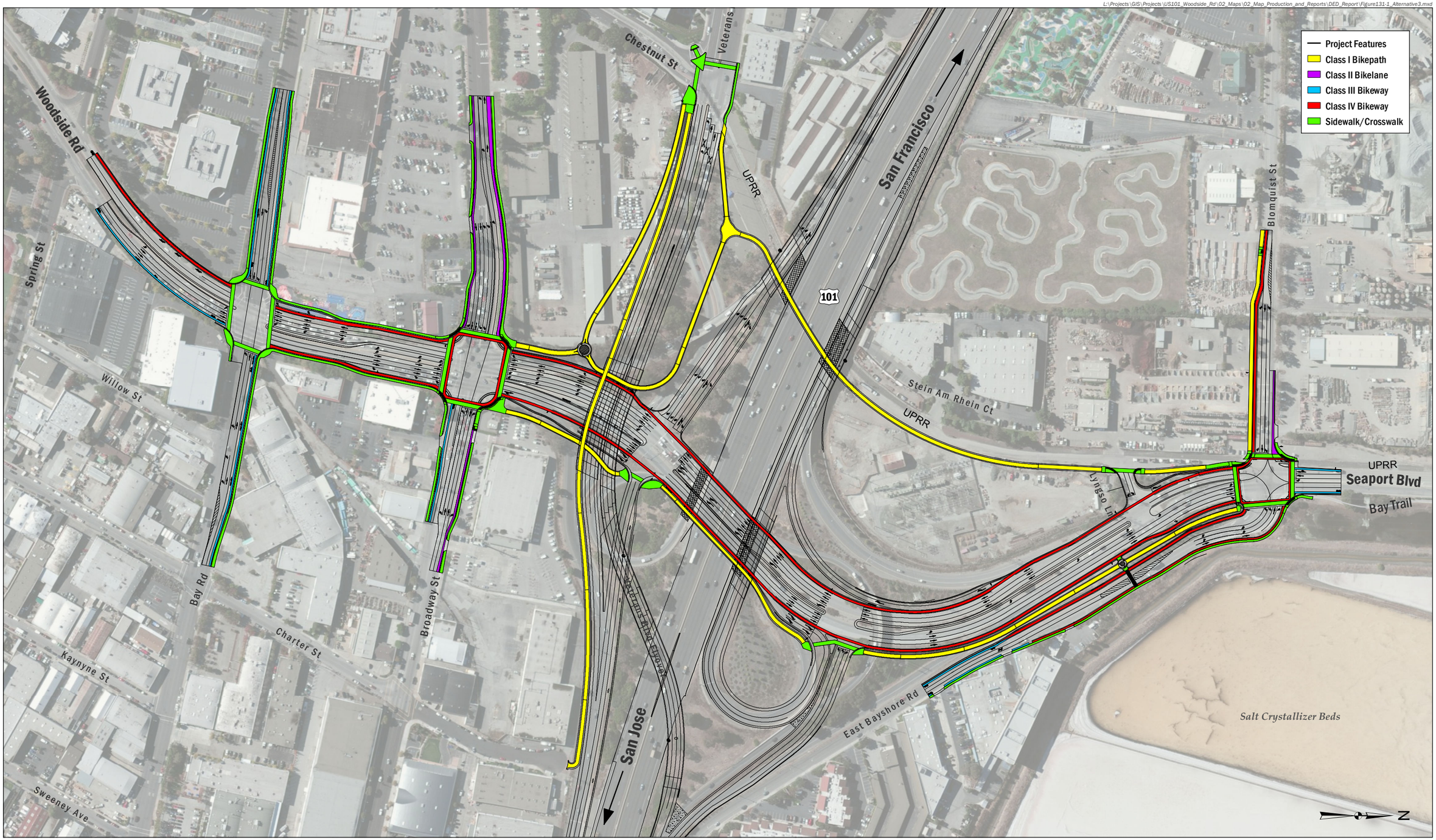

US 101/SR 84 (Woodside Road) Interchange Improvement Project
Redwood City, CA

FIGURE 1.3.1-1
Alternative 3

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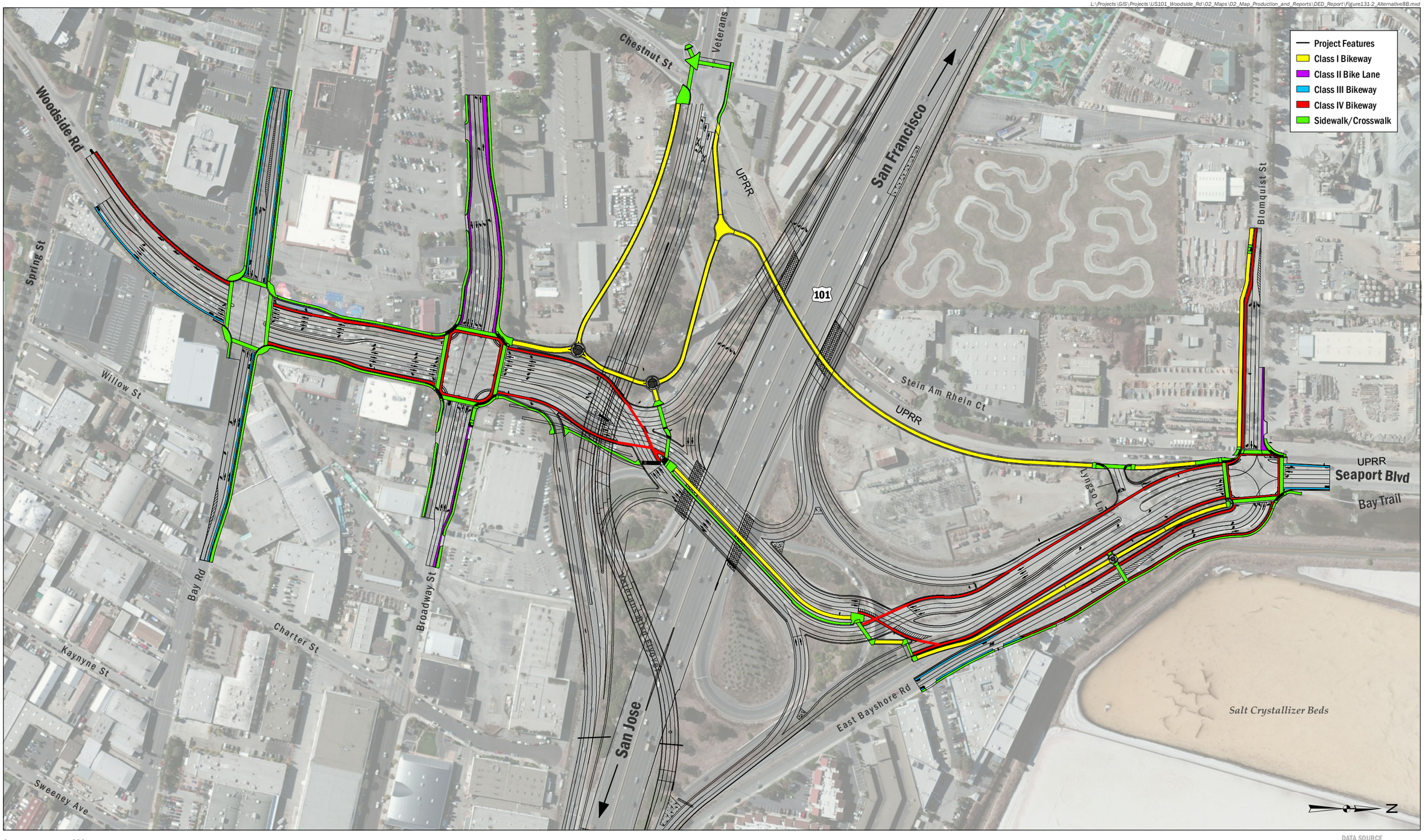

US 101/SR 84 (Woodside Road) Interchange Improvement Project
Redwood City, CA

FIGURE 1.3.1-2
Alternative 8B

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1.3.3 Project Construction

The following activities and components are anticipated as part of project construction. Unless otherwise stated, the descriptions apply to Alternatives 3 and 8B. Project construction would take approximately 3 years. Vehicle, bicycle, and pedestrian access throughout the interchange area would be maintained throughout project construction. Any lane or ramp closures would be temporary and limited to nighttime hours.

Right-of-Way Requirements

No residential parcels would be acquired or used for temporary construction access or staging. North of US 101, widening of East Bayshore Road and the Seaport Boulevard/East Bayshore Road/Blomquist Street intersection is anticipated to require acquisition of small sections of parcels along the roadside frontages of industrial and commercial properties.

Widening of Woodside Road, realignment of freeway ramps, and construction of the new Veterans Boulevard flyover would require full acquisition of two parcels (a restaurant and a parking lot), and partial acquisitions from commercial/office and municipal properties along Woodside Road and the section of Veterans Boulevard to the south of US 101. The existing and proposed right-of-way, and additional details and discussion are available in Section 2.1.4.2.

New bridges would be constructed above several sections of the UPRR tracks. This would require coordination with the California Public Utility Commission. If necessary, additional temporary construction easements (TCEs) would be coordinated during the project's final design phase.

Throughout the project area, TCEs would also be needed for construction access and staging and are described further in section 2.1.4.2.

The proposed property acquisitions and temporary construction easements would be generally the same for both Build Alternatives. Retaining walls have been used to minimize right-of-way impacts.

Structures

With both Build Alternatives, direct-connect flyover ramps for Veterans Boulevard would be constructed to serve the northbound and southbound movements from and to US 101. The flyovers would extend up to approximately 30 feet above the roadway of US 101. With both alternatives, the bridges where the northbound US 101 on-ramp and southbound US 101 off-ramp cross the UPRR tracks would be reconstructed to accommodate wider ramps with additional lanes, and additional vertical clearances. The bridge section of the eastbound Woodside Road to northbound US 101 loop ramp would also be reconstructed to accommodate an additional lane.

Groundwater has been encountered in and around the project area at an approximate depth of 4 feet below existing grade. Structure footing locations may require dewatering, and the collected groundwater may need to be pumped to tanks. Groundwater would be treated and tested before being disposed of at an appropriate off-site facility. Project area drainage is discussed further below under "Utilities and Drainage."

Retaining Walls, Concrete Barriers, and Sound Walls

Retaining walls would be installed along new and reconstructed ramps, including the Veterans Boulevard flyover. A retaining wall would also be constructed along the proposed Class I bikeway adjacent to the UPRR tracks that extend along Chestnut Street and under US 101 to Seaport Boulevard.

Concrete safety barriers would be constructed in several locations in the project area. With both Build Alternatives, concrete barriers would be constructed along the northbound US 101 on- and off-ramps, both sides of the Veterans Boulevard flyover, at the northbound US 101 on-ramp and southbound US 101 off-ramp crossings of UPRR tracks, and both sides of Woodside Road under US 101.

The project area has existing sound walls along East Bayshore Road. The sound walls would not be affected by the project.

Utilities and Drainage

Utility investigations have identified the location and extent of existing service lines within the project area. Both Build Alternatives are expected to require relocating some underground and aboveground utilities to outside of the right-of-way. The relocation of utilities would result in localized construction impacts and could result in temporary interruption of service. The affected utilities identified in the preliminary investigations involve gas, electric, telephone, cable television, sewer, and water. Suitable areas for utility relocation have been included in the project area. Final verifications would be performed during the project's design phase. The depth to groundwater in the project area is approximately 4 feet, and the project would lower the elevation of Woodside Road to increase its vertical clearance under US 101.

Redwood Creek crosses US 101 approximately 0.8 mile west of Woodside Road. The project does not include work in or near this creek.

Roadside drainages exist along both sides of US 101 to the west of the US 101/Woodside Road interchange ramps and along the east side of Seaport Boulevard. US 101 ramp modifications and widening of the East Bayshore Road and the Seaport Boulevard/East Bayshore Road/Blomquist Street intersection are anticipated to require minor modifications to the drainages.

Salt crystallizer beds lie northeast of the project area. A berm separates the beds from a drainage along the east side of Seaport Boulevard and from the roadways of East Bayshore Road and Seaport Boulevard. The berm may require minor modifications to accommodate widening at the Seaport Boulevard/East Bayshore Road/Blomquist Street intersection. Temporary construction access may be needed on the west side of the berm.

Ramp Metering

The project would maintain the existing ramp metering at the US 101/Woodside Road interchange.

Construction Staging

Staging would involve temporary pavement, restriping, and relocation of utilities within the existing and proposed right-of-way to allow completion of a sequence of construction steps.

Detour and construction staging plans would be developed to minimize temporary impacts on motorists, pedestrians, bicyclists, and local business owners. Public outreach would be performed in advance to ensure that any lane, intersection, or road closures are announced in a timely manner. Construction staging will be further detailed and refined during final design.

1.3.3.1 Transportation System Management (TSM) and Transportation Demand Management (TDM) Alternatives

TSM strategies increase the efficiency of existing facilities by accommodating a greater number of vehicle trips on a facility without increasing the number of through lanes. TDM focuses on regional means of reducing the number of vehicle trips and vehicle miles traveled (VMT) as well as increasing vehicle occupancy. Although TSM and TDM measures alone could not satisfy the purpose and need of the project, the following TSM and TDM measures have been incorporated into the Build Alternatives for this project:

- Alternative 3 would include a high-occupancy vehicle (HOV) preferential lane for the northbound on-ramp. The ramp geometry for Alternative 8B does not allow for inclusion of an HOV preferential lane on the northbound on-ramp. Existing ramp meters will remain in place.
- Both Build Alternatives would provide two locations where pedestrians and bicyclists can cross under US 101: Woodside Road and the proposed Class I bikeway along the UPRR tracks. Sidewalks and Class IV bikeways would be added to both sides of Woodside Road between Broadway and Bay Road. Both Build Alternatives would provide a combination of Class I and IV bikeways and sidewalks on Woodside Road between Broadway and Blomquist Street. The additional pedestrian and bicycle facilities would provide connectivity to existing and proposed public transportation.

1.3.4 Estimated Cost and Schedule

The project is funded through the project approval and environmental document phase from San Mateo County Measure A funds and City of Redwood City matching funds. The City is working with local, state, and federal agencies to identify funding sources for the design and construction of the project. The estimated total cost, including the support costs, for the proposed project is $138.9M for Alternative 3 and $138.5M for Alternative 8B. Funding for environmental studies and support costs was programmed in the Plan Bay Area (ID No. 21603) and the TIP (ID No. SM-050027). Estimated future capital construction cost for Alternative 3 is $113.0M and for Alternative 8B is $112.6M. Future construction funds will be programmed in the 2020 TIP and RTP.

The proposed schedule identifies completion of the project approval and environmental document phase in November 2016, start of construction in August 2019, and opening of the interchange in March 2023.

1.3.5 No Build Alternative

The No Build Alternative assumes no modifications would be made to the current US 101/Woodside Road interchange or improvements made to local roadway intersections, other than routine maintenance and rehabilitation of the facility and any currently planned and programmed projects within Redwood City.

The No Build Alternative would not alleviate current and future traffic or improve traffic circulation at the US 101/Woodside Road interchange. It would also not provide improvements to local intersections near the interchange or provide for increased bicycle and pedestrian access on local roadways or across US 101. With the No Build Alternative, US 101 would continue to be an impediment to the movement of bicycle and pedestrian movement across US 101. Under this scenario, traffic conditions and congestion will continue to degrade with increased future freeway traffic demand. Environmental impacts from the No Build Alternative could include increased air pollutant emissions associated with traffic congestion.

1.3.6 Final Decision Making Process

This IS/EA will be made available for public review and comment as described on the "General Information about This Document" page. After the public circulation period, all comments will be considered and the Department will select a preferred alternative and make the final determination of the project's effect on the environment. Under CEQA, if no immitigable significant adverse impacts are identified, the Department will prepare a Negative Declaration (ND). Similarly, if the Department determines the action does not significantly impact the environment, the Department, as assigned by FHWA, will issue a Finding of No Significant Impact (FONSI) in accordance with NEPA.

1.3.7 Alternatives Considered but Eliminated from Further Discussion

Alternatives were identified and considered during the early stages of project development but were eliminated because they did not meet the project's purpose and need or would have potentially substantial environmental impacts. The following describes these alternatives and why they were not advanced for further evaluation.

A major constraint at the existing interchange is the close proximity of the Woodside Road intersections with Veterans Boulevard and Broadway with the southbound US 101 off- and on-ramps. The lack of separation of these intersections results in vehicle backups or queuing that overlaps between intersections. The Woodside Road intersections with Veterans Boulevard and Broadway currently operate at LOS E or F. Alternatives that would not separate the traffic movements in this area would continue to operate at poor levels of service in the future and could not be advanced for further consideration.

1.3.7.1 Southbound Diamond, and Southbound Loop Off-Ramps Combined with Northbound Partial Cloverleaf Interchanges (Alternatives 1, 2, and 4)

These designs are similar (but not identical) to those considered in the 2011 study, with the same identification numbering. For all three, the northbound US 101 ramps would form a partial cloverleaf design. The southbound US 101 ramps would be configured as a compact diamond with partial interchange improvements at Maple St (Alternative 1), loop off-ramp exit aligned with Veterans Boulevard (Alternative 2), or loop off-ramp exit aligned with Veterans Boulevard with direct diagonal off-ramp to Woodside Road (Alternative 4). These alternatives would not reduce the number of intersections on Woodside Road, and the close spacing of intersections would remain, resulting in traffic queues that overlap with adjacent intersections. These designs would not provide adequate levels of service or meet the Project's purpose and need to improve traffic conditions at local roadway intersections.

1.3.7.2 Roundabout (Yield) Interchange (Alternatives 3A, 3B, 6, 6A and 6B)

The potential use of one or more roundabouts (also known as traffic circles) was investigated where Woodside Road intersects with the northbound and southbound US 101 on- and off-ramps. A basic issue with roundabouts at this interchange is the need for signals to handle the high traffic volumes and pedestrian crossings, which eliminate the continuous traffic flow advantage that a roundabout design offers.

Alternative 3A

Alternative 3A would be similar to Alternative 3. The southbound US 101 off- and on-ramps would form a diamond interchange with Woodside Road, the northbound US 101 off-ramp would lead into a Veterans Boulevard flyover ramp, and the northbound US 101 on-ramp would have a three-lane partial cloverleaf configuration. However, on the north side of US 101, the northbound US 101 off-ramp would terminate at a 125-foot inscribed diameter[7] three-leg roundabout with bypass lanes from the northbound US 101 off-ramp to Seaport Boulevard and from Seaport Boulevard to the northbound US 101 on-ramp.

The projected traffic volumes and traffic analysis (Fehr & Peers 2015) indicate that the roundabout would create traffic queuing (backing up) onto northbound US 101 from the northbound US 101 off-ramp. The northbound US 101 off-ramp approach would operate at LOS F in opening year 2022 and design year 2042 due to pedestrian crossings of the roundabout legs. This would present significant traffic and safety concerns and therefore would not meet the project's purpose and need.

Alternative 3B

As with Alternative 3, Alternative 3B would have a standard diamond ramp configuration at the southbound ramps. Southbound US 101 off- and on-ramps would form a diamond interchange with Woodside Road. However, the intersection for the southbound ramps would be wider to accommodate a grade separation at Woodside Road and Broadway, theoretically improving travel times on Woodside Road, but would also create additional undesirable five legged intersections at the US 101 southbound ramps/Woodside Road intersection and Bay Road/Woodside Road intersection. Both of these intersections would result in no overall improvement in traffic operations. Therefore, Alternative 3B was determined to not meet the Project's purpose and need.

Alternative 6 and Variations

Alternative 6 would have roundabouts on both sides of US 101. With Alternative 6, the southbound US 101 ramps would be part of a six-leg, 400-foot inscribed diameter, two-lane roundabout with Woodside Road, Veterans Boulevard, and Broadway. Bypass lanes would be provided for the southbound US 101 off-ramp to Veterans Boulevard and northbound Broadway to the southbound US 101 on-ramp. The northbound US 101 on-ramp would be part of a two-lane partial cloverleaf interchange and would terminate in a 250-foot inscribed diameter, three-leg, two-lane roundabout with bypass lanes from the northbound US 101 off-ramp to Seaport Boulevard and Seaport Boulevard to the northbound US 101 on-ramp.

[7] Inscribed diameter refers to the diameter of the roundabout's outside edge of traveled way.

Traffic volumes were projected to be too high at the Woodside Road/Broadway intersection to consider a roundabout, even one with three lanes. Under Alternative 6, the existing and estimated 2040 volumes would be well above the two-lane roundabout threshold at both roundabout locations.

With Alternative 6A, the southbound US 101 ramps would be part of a 300-foot inscribed diameter, five-leg, two-lane roundabout with Woodside Road, Veterans Boulevard, and Broadway. There would be bypass lanes for the southbound US 101 off-ramp to Broadway and northbound Broadway to the southbound US 101 on-ramp. Veterans Boulevard flyover ramps would connect with the southbound US 101 on-ramp and northbound US 101 off-ramp. The northbound US 101 on-ramp would be part of a two-lane partial cloverleaf interchange and would terminate in a 250-foot inscribed diameter, four-leg, two-lane roundabout. Like Alternative 6, Alternative 6A would have bypass lanes from the northbound US 101 off-ramp to Seaport Boulevard and Seaport Boulevard to the northbound US 101 on-ramp.

Under Alternative 6A, at the roundabout on the south side of US 101, the existing and estimated 2040 volumes would be well above the threshold for the amount of traffic that can be expected to use a two-lane roundabout. At the roundabout on the north side of US 101, estimated 2040 volumes are right above the threshold for a two-lane roundabout. A roundabout at the northern ramps would not be feasible due to similar reasons mentioned under Alternative 3A.

With Alternative 6B, the southbound US 101 ramps would be part of a five-leg, two- and partial three-lane, 300-foot inscribed diameter roundabout with Woodside Road and Broadway. The roundabout would have bypass lanes serving the same movements as Alternative 6A, and Veterans Boulevard flyover ramps would be provided as with Alternative 6A. Alternative 6B would also have a roundabout on the north side of US 101; in this case, it would be a 250-foot inscribed diameter, four-leg, two-lane roundabout. Like Alternative 6A, it would have bypass lanes from the northbound US 101 off-ramp to Seaport Boulevard and Seaport Boulevard to the northbound US 101 on-ramp.

The roundabouts proposed on the south side of US 101 for Alternatives 6, 6A, and 6B would be challenging for pedestrians and bicyclists to navigate. There is a higher risk of conflict between vehicles and bicycles on the roadway, and the lack of a crosswalk on the north side of Woodside Road at Broadway would force pedestrians to go out of their way or cross midblock.

The roundabouts on the south side of US 101 for Alternatives 6, 6A, and 6B would require substantially more right-of-way acquisitions than the proposed Build Alternatives and could result in loss of business and tax revenue for the City of Redwood City. Affected businesses along Woodside Road could include community retail, commercial, and restaurants. Utility relocations would be needed for gas transmission, gas and electric distribution, water, sewer, and communication lines. The existing pump station and PG&E substation could also be affected.

1.3.7.3 Type L-5 Interchange with Maple Street Ramps (Alternatives 5 and Variations)

A “Type L-5” interchange refers to one of a number of interchange designs that connect with or add roads parallel to the freeway (frontage roads). For this design concept, Alternatives 5 and it’s variations would add on- and off-ramps to the west of the existing Maple Street

overcrossing and one-way frontage roads connecting to Woodside Road and Seaport Boulevard, and Alternative 5A would add braided (overcrossing) ramps in those locations instead of frontage roads. Alternative 5B would modify alternative 5 to provide single off-ramp and on-ramp access in both northbound and southbound directions to both Woodside Rd and Maple Street. Alternative 5C would provide separate on-ramps and off-ramps in northbound and southbound directions for both Woodside road and Maple Street. Alternative 5D would modify Alternative 5C to combine northbound loop on-ramp from Seaport Boulevard connection with Maple Street northbound diagonal on-ramp.

These alternatives offered the potential to distribute traffic between Woodside Road and Maple Street, possibly improving traffic on Woodside Road. This design was ultimately rejected because the proposed ramps would be within 0.75 mile of the existing Whipple Avenue interchange, which would not meet a Department mandatory design requirement of at least 1 mile spacing between freeway interchanges. Alternatives 5A and 5C were rejected because they would create additional freeway entrance points. Constructing interchange ramps at the Maple Street overcrossing would also add potential new intersection conflicts for bicyclists who prefer using Maple Street to other busier US 101 crossings.

1.3.7.4 Single Point Interchange (Alternative 7)

A “single point” or “urban” interchange offers the advantage of a more compact design and reduces the number of traffic points of conflict by having all directions of travel pass through a single intersection. This type of interchange would have very high construction and staging costs and was considered infeasible to build because it would require simultaneous reconstruction of the US 101/Woodside Road undercrossing and the mainlines of northbound and southbound US 101. Staging would be impractical considering the traffic volumes on US 101. Traffic operations would be delayed in all directions by a pedestrian or bicyclist activating a signal crossing. This alternative was therefore eliminated from further consideration.

1.3.7.5 Diverging Diamond (Alternatives 8 and 8A)

Like Alternative 8B described in Section 1.3.1.2, Alternatives 8 and 8A are “diverging diamond” designs. Alternative 8 was eliminated from further consideration because it would not provide direct freeway access to and from Veterans Boulevard. For this reason, flyover ramps connecting Veterans Boulevard with US 101 were considered for Alternatives 8A and 8B. Alternative 8A was eliminated because the required grades on the flyover ramps would exceed the Department’s advisory standard for ramp grades, (8 percent grade. On the descending on-ramps and ascending off-ramps, an additional one percent steeper grade is allowed). In addition, the southbound US 101 off-ramp would not meet elevation and curve radius standards for exiting the freeway.

1.3.7.6 Combined Diamond and Partial Clover Leaf Interchange with Direct Connectors to Woodside Road (Alternative 9)

This design concept would offer direct connections between Woodside Road and the US 101 northbound and southbound ramps, possibly improving flow at these ramps. Alternative 9 would require multiple flyover ramps, significantly increasing the height of the interchange and resulting in a visually unappealing structure. This alternative would require the proposed ramps to converge at the Woodside Road/Broadway intersection, and may result in unfavorable intersection geometry. This design was rejected because it did not meet the purpose and need to

improve local traffic operations (on Woodside Road). In addition, estimated construction costs would be high and it would not provide direct freeway access to and from Veterans Boulevard.

1.3.7.7 Value Analysis Study

In addition to the evaluation of alternatives, a Value Analysis (VA) study[8] was performed for the Build Alternatives in June 2015 (VMS 2015). The objective of the VA study was to identify proposals to improve or maintain performance, reduce cost, and reduce design and construction time. The VA team concurred on a proposal to add retaining walls and eliminate fill on the west side of Veterans Boulevard from Woodside Road to Chestnut Street, to reduce the need for right-of-way acquisition. This proposal will be further evaluated during detailed project design.

1.3.8 Permits and Approvals Needed

The following permits, reviews, and approvals would be required for project construction:

Table 1.3.8-1: Permits and Approvals Needed

Agency	Permit/Approval	Status
U.S. Fish and Wildlife Service (USFWS)	Section 7 consultation for threatened and endangered species.	● A Biological Assessment will be submitted to the USFWS after public review of this IS/EA to address species protected under Section 7 of the Federal Endangered Species Act (FESA).
Federal Highway Administration (FHWA)	Concurrence with project's conformity to Clean Air Act and other requirements.	● Air quality studies will be submitted for FHWA concurrence after public review of this IS/EA.
U.S. Army Corps of Engineers (USACE)	Concurrence on delineation of waters of the United States.	● The Jurisdictional Delineation was submitted to USACE on September 2, 2015, for concurrence.
State Historic Preservation Officer (SHPO)	Notification of finding of "No Historic Properties Affected" under the Section 106 Programmatic Agreement.	● The SHPO concurred with findings on October 8, 2015.
San Francisco Bay Regional Water Quality Control Board (RWQCB)	Waste discharge requirements under the Porter-Cologne Water Quality Control Act; National Pollutant Discharge Elimination System (NPDES) approval for work greater than one acre.	● Joint "Application for 401 Water Quality Certification and/or Report of Waste Discharge" will be submitted during the project design phase. ● NPDES permit application will be submitted during the project design phase. ● A Notice of Intent and Storm Water Pollution Prevention Plan will be prepared/submitted prior to construction.
City of Redwood City	Encroachment permit for work within City right-of-way.	● Application for encroachment permits will be submitted during the project design phase.

[8] A VA study is used to evaluate whether other solutions might exist to meet project objectives. The study is conducted by a multidisciplinary team as a comprehensive, independent peer review of the proposed project alternatives. Recommendations from the VA study may be considered for inclusion in the project.

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

This chapter addresses the environmental impacts of the proposed project. An evaluation of the proposed project is provided below and is consistent with CEQA checklist criteria provided in Appendix A. Avoidance, minimization, and/or mitigation measures are discussed in the following sections and summarized in Appendix G. The environmental resource discussions presented in this chapter are based on the technical studies cited at the beginning of each discussion and listed in Appendix I.

For the proposed project, the CEQA baseline for all resource areas except traffic, air quality, and noise is 2014, the period when environmental studies commenced. For traffic, the CEQA baseline is 2014. The air quality and noise studies began in 2015 and used the 2014 baseline year traffic data for existing conditions with the most current monitoring and measurement data for the study area.

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

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

Growth

Transportation projects can foster economic or population growth, or the construction of additional housing, either directly or indirectly. These effects can occur if a project removes obstacles to growth, particularly by creating new or additional access to areas not previously served by a transportation mode or facility; facilitates or accelerates growth beyond planned or projected developments; or induces growth elsewhere in the region.

The project would not contribute to growth because it is limited to reconfiguring the existing US 101/Woodside Road interchange. The project would not add capacity to US 101 and improvements are limited to the interchange ramps and adjacent surface streets. Neither of the Build Alternatives would create new or additional motor vehicle access to these areas or other areas not previously served by the interchange. The proposed project is a response to existing and foreseeable demand. As summarized in the *Traffic Operations Analysis Report* (Fehr & Peers 2015), the proposed project would reduce delay times and improve levels of service compared with the No Build Alternative and incrementally improve existing motor vehicle access through the project area primarily during peak morning and evening traffic periods. Therefore, project-related traffic improvements at the interchange would not accelerate growth beyond planned or projected developments or cause unforeseen local growth or encourage growth elsewhere in the region (URS 2015a).

Farmlands/Timberlands

There are no farmlands or timberlands in or adjacent to the project area. Therefore, the project does not have the potential to result in the conversion of Prime Farmland, Unique Farmland, Grazing Land, or timberland (URS 2015a).

Community Impacts

Community Character and Cohesion

The Build Alternatives would not increase access to or through the project area, study area, or region in a way that would increase the population or demand for housing. Nor would they influence housing costs, circulation and access, or community connectivity in a way that would cause a change in the age or racial distribution of the study area.

The Build Alternatives would not displace or relocate any residents, change any existing community boundaries, physically divide an established community, or create a new barrier to movement within the project area. The Build Alternatives are not expected to influence population growth; affect housing, demographic, or economic trends; or result in major changes in commuting patterns.

Plant Species

A California Natural Diversity Database (CNDDB) query indicated no rare or sensitive plants have been reported in the BSA (CDFW 2015). The California Native Plant Society (CNPS) online Inventory of Rare and Endangered Plants (CNPS 2014) and the USFWS species list (USFWS 2015; see Appendix F) were also consulted. Forty special-status plant species (including federal and state listed plant species) were evaluated for their potential to occur in the BSA based on the geographic range of various species. Of the 40 special-status plant species evaluated, three CNPS-listed plant species – coastal marsh milk-vetch (*Astragalus pycnostachyus* var. *pycnostachyus*), Point Reyes salty bird's-beak (*Chloropyron maritimum* sp. *Palustre*), and saline clover (*Trifolium hydrophilum*) – have the potential to occur within the BSA. The only area with potential to support these or other special-status species is a tidal marsh near the Seaport Boulevard/East Bayshore Road/Blomquist Street intersection, which would be avoided by the project.

2.1 Human Environment

2.1.1 Existing and Future Land Use

2.1.1.1 Affected Environment

The following discussion is from the Community Impact Assessment (URS 2015a) for the proposed project, which was completed in September 2015.

Existing Land Use

Existing land use types within the project area are industrial, commercial, mixed-use, and urban reserve. Figure 2.1.1-1 shows land use designations from the City of Redwood City 2010 General Plan. The following paragraphs describe land uses in the area around the project area.

Northwest of the project area are mostly industrial and mixed-use waterfront neighborhood land uses. Between Seaport Boulevard and Maple Street, businesses include Lyngso Garden Materials, Graniterock (which sells building and landscape materials concrete-related supplies and services), and Peninsula Building Materials. The former Malibu Grand Prix property directly north of US 101 is currently vacant and potentially slated for redevelopment as Harbor View Place, an office campus (discussed further in Future Development Trends). A correctional center was recently constructed just northeast of Maple Street and US 101. Between Maple Street and Redwood Creek are the Redwood City Police Department, a pump station, a jail and transitional facility with homeless shelter operated by San Mateo County, the Bair Island Aquatic Center, a waterfront (houseboat) community known as Docktown, and a marina.

Northeast of the project area are additional industrial land uses. East Bayshore Road is the location of AI Industries (an anodizing manufacturer), Mid Peninsula Business Park (which houses plumbers, bankers, and other professional services), and a public storage facility. Salt crystallizer beds, which are designated as an urban reserve and owned and operated by Cargill, lie north of the industrial uses.

Farther north of the interchange along Seaport Boulevard are several industrial (recycling, construction, and materials processing) businesses; commercial land uses along Chesapeake Drive; the Port of Redwood City; and Pacific Shores Center business park.

The area southwest of the US 101/Woodside Road interchange generally contains downtown Redwood City with commercial and mixed-use land uses including a newly renovated town square, entertainment district, and some high-density residential units. Between Chestnut Street and Woodside Road, land uses include the City's Municipal Service Center, restaurants such as Jack in the Box and Denny's, a Food Co. grocery store, Big Lots, and the Woodside Technology Center. Veterans Boulevard has a public storage facility, Veterans Square (a shopping center), high-density residential development, and the Kaiser Permanente medical campus.

The area southeast of the interchange is designated as "Industrial–Light/Incubator Overlay" to promote new startup industrial businesses along Broadway just east of Woodside Road. The area currently contains a post office and a Smart and Final grocery store, and a 24 Hour Fitness facility. Farther to the east are Summit Preparatory Charter High School, a school bus yard, and

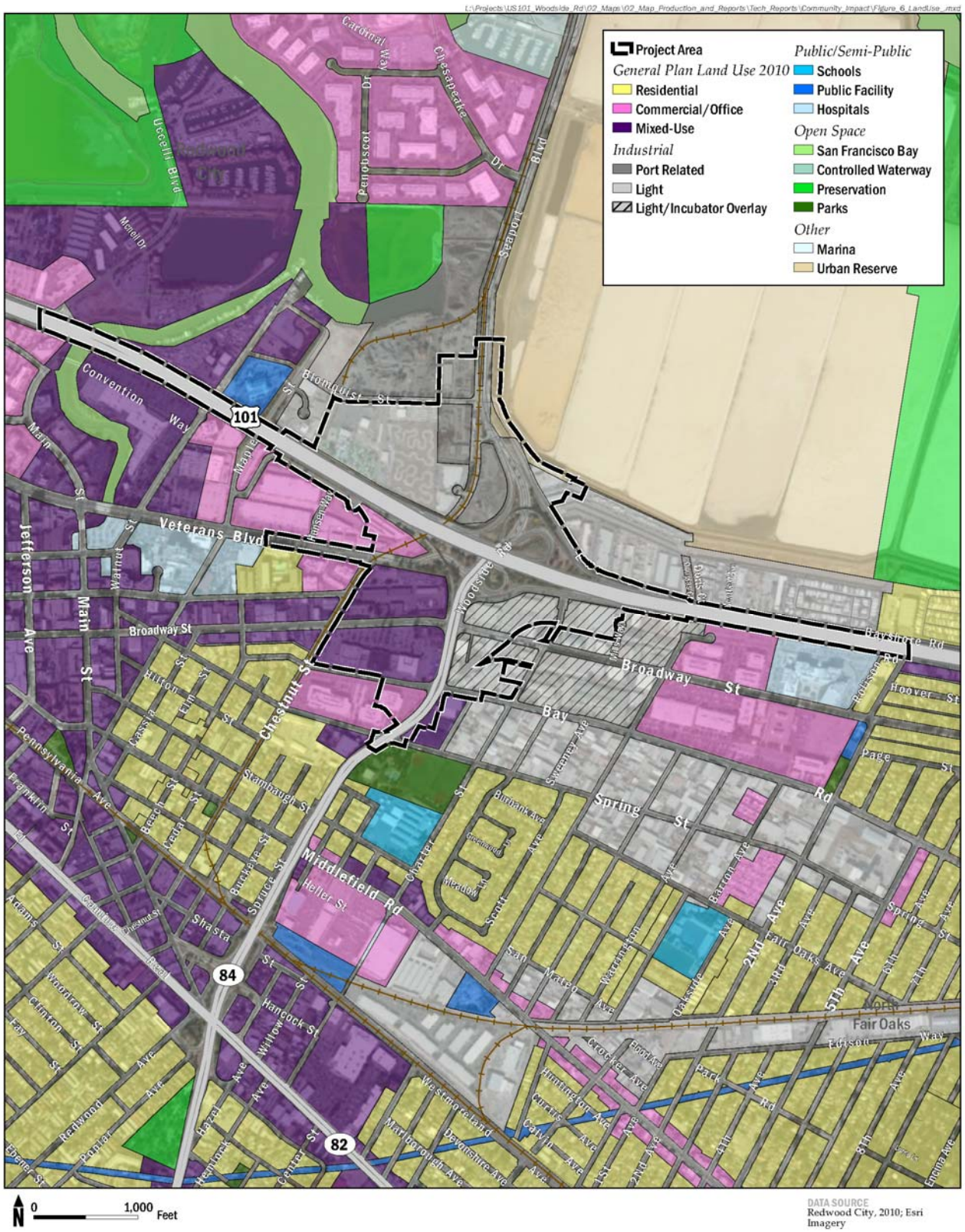


Figure 2.1.1-1: Redwood City General Plan Land Use Designation

the future Stanford in Redwood City campus. To the southeast is the North Fair Oaks community. It is characterized by medium-density housing, industrial areas, and commercial office buildings.

Future Development Trends

Development trends in the project vicinity echo the strategies of the City as a whole. Redwood City's land use strategies favor pedestrian-oriented environments that focus growth and development into mixed-use activity centers and corridors that serve residents and businesses alike, encouraging infill development and easy access to goods, services, and activities (City of Redwood City 2010b).

Future proposed development within approximately 1 mile of the project area is described in Table 2.1.1-1. This information was obtained through May 2015 from CEQAnet, and updated in February 2016 based on City of Redwood City information. The table is organized by project type, and provides the name of each development and project details including location, status (built, under construction, or proposed), and size (if available).

Table 2.1.1-1: Proposed Projects

Name	Location	Approximate Distance from Project Area	Proposed Uses	Status
Transportation				
US 101 Pedestrian Undercrossing Project	Redwood Creek & US 101	0.4 mile	Construction of a 14-foot wide multi-use path for pedestrians and cyclists. It will run under Hwy 101 along Redwood Creek to connect Bair Island Rd and Convention Way.	Recent investigation by City indicated this project is not feasible; status uncertain
San Mateo County – Smart Corridors Project	Various	Within and adjacent to project area	Installation of traffic management equipment on various roadways and intersections. This includes traffic sensors, electronic message signs, and closed circuit television cameras	Under construction
Charter Street Safe Routes to School Project	Charter Street between Spring St and Middlefield Rd	0.2 mile	Improvements to increase safety for children walking and biking to Hoover Community School. Includes new traffic signs, lighting, speed humps, roadway striping, and sidewalk extensions	Approved
US 101 HOV/Express Lanes	Santa Clara County line to I-380	Within/ overlaps	Widening of portions of US 101 to provide HOV lanes between Whipple Avenue and I-380, and conversion of the existing and future HOV lanes between Santa Clara County and I-380 to Express	Preliminary design and environmental review.

Table 2.1.1-1: Proposed Projects

Name	Location	Approximate Distance from Project Area	Proposed Uses	Status
			Lanes	
Residential				
Classics at Redwood City	735 Brewster Ave	0.7 mile	3 level residential building with 18 detached units and a 35 space parking garage	Approved
The Palacio	439 Fuller St	0.6 mile	Multi-Family residential building with 133 rentals and underground parking garage.	Under construction
Pete's Harbor	1 Ucelli Blvd	0.6 mile	Redevelopment of 13.8 acre site including construction of 411 multi-family residential units and various community facilities including a public pathway and conversion of the commercial marina into a private marina	Approved
612 Jefferson Ave	612 Jefferson Ave	0.6 mile	20 affordable housing units and an at-grade parking garage	Pending
One Marina	650 Bair Island Rd	0.4 mile	231 residential condominiums	Under construction
333 Main St	333 Main St	0.3 mile	132 residential units on a 2.2 acre property	Built
849 Veterans Blvd	849 Veterans Boulevard	0.2 mile	83 market rate and 7 affordable rental units and a 142 space parking garage	Pending
Commercial				
Harbor View Place	Bordered by Maple St, Blomquist Rd, Seaport Blvd, and US 101	Immediately adjacent	21.53 acre campus with 1,174,605 sf of office space in three eight-story towers, 30,000 sf fitness center, shuttle to downtown and Caltrain	Development application pending
Stanford in Redwood City	405 Broadway	0.5 mile	1.5 million square foot office, R&D, and medical clinic campus	Under construction
601 Marshall St	601 Marshall Street	0.6 mile	Construct a new 124,220 square foot office building and public parking	Approved
Crossing 900	950 Middlefield Rd	0.7 mile	Two mid-rise buildings 300,980 square feet of office space and 5,075 square feet of retail space, and 904 space parking garage	Under construction

Table 2.1.1-1: Proposed Projects

Name	Location	Approximate Distance from Project Area	Proposed Uses	Status
One Marina Hotel	650 Bair Island Rd	0.4 mile	177 room 5-story hotel and 2 level parking garage	Approved
Emergency Management Center and Motor Pool Relocation Project	551 Winslow Street/752 Chestnut Street	0.8 mile	Redevelopment of 551 Winslow Street to accommodate a new emergency management center. Relocate motor pool to 752 Chestnut Street	Approved
Hampton Inn	1690 Broadway	0.2 mile	Construct a new 5-story hotel and partially submerged parking garage	Pending
Mixed-Use				
Saltworks	Seaport Blvd	Immediately adjacent	Restoration of the majority of the 1,400-acre property and other potential land uses.	Awaiting new submittal
525 Middlefield Rd	525 Middlefield Rd	0.6 mile	Multifamily residential building with 471 for-rent units and parking wrapped by storefront office space	Proposed
Broadway Plaza	1401 Broadway	0.1 mile	Mixed-use project consisting of 400 multi-family units, 420,000 square feet of office space and 19,000 square feet of retail space.	Conceptual Design Review
Other				
Redwood City Inner Harbor Specific Plan	Blomquist Street and Maple Street	0.1 mile	Propose new land use policies and zoning designations to allow 40,000 sf of retail space, 550 residential units and 3.2 acres of recreation in this area.	Proposed
420-450 Broadway	450 Broadway	0.6 mile	103,000 square feet parking garage	Planning Application Submittal
DC Fast Charging Installation Project	750 Marshall St	0.6 mile	Installation of stationary electric vehicle charger and 16kwh Lithium ion battery bank at an existing parking garage.	NOE filed

Sources: CEQAnet search July 2013-May 2015; City of Redwood City 2014a and updated February 2016

2.1.1.2 Environmental Consequences

Alternatives 3 and 8B would have the same effects on land use. Therefore, the following discussion applies to both Build Alternatives.

The Build Alternatives would serve an existing urban area and would not involve unused rural land. Full acquisition of three commercial properties (a restaurant designated as mixed-use, and a storage facility and a parking lot both designated as commercial/office) and partial acquisitions from commercial/office and municipal properties would be needed as discussed further in Section 2.1.4. Except for the three properties that would be acquired for the proposed transportation facility with both Build Alternatives, no land use designations would change with any of the alternatives. The project would not prevent or affect implementation of any of the other proposed projects listed in Table 2.1.1-1, and project construction is not anticipated to affect any of the proposed projects.

The No Build Alternative would not prevent or affect implementation of any of the proposed projects listed in Table 2.1.1-1.

2.1.1.3 Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, or mitigation is required.

2.1.2 Consistency with State, Regional and Local Plans and Programs

2.1.2.1 Affected Environment

The following discussion is from the Community Impact Assessment (URS 2015a) for the proposed project, which was completed in September 2015.

There are several community, regional, and transportation plans that include the project area. The following types of plans were considered and are discussed in the subsections below:

- Transportation plans/programs
- Regional growth plans
- Habitat conservation plans
- General and community plans
- Other regulatory and planning influences

The project's consistency with each of the plans is described in Section 2.1.2.2.

Transportation Plans/Programs

The project is included in Plan Bay Area, the MTC's RTP for the nine-county San Francisco Bay Area (ABAG and MTC 2013, RTP ID No. 21603). The RTP lists projects of local and regional importance based on factors such as local support and need, ridership, and potential cost and funding. These factors provide direction in how anticipated federal, state, and local transportation funds will be spent in the Bay Area during the next 25 years. Plan Bay Area identifies improvement of the Woodside Road interchange as a key highway improvement on the US 101 corridor.

The project is also included in the SMCTA Strategic Plan 2009-2013, which provides a policy framework for guiding programming and allocation decisions within the structure established by the 2004 Measure A Expenditure Plan (SMCTA 2008), and New Measure A Program Short-range Highway Plan 2011-2021, which presents a funding strategy to advance the total program (SMCTA 2011).

Regional Growth Plans

Plan Bay Area (ABAG and MTC 2013a) also functions as a regional growth plan for the nine-county San Francisco Bay Area. Plan Bay Area designates portions of Redwood City as being part of a priority development area (PDA). A PDA is an area within an existing community that has been identified and approved by a local city or county for future growth because of its proximity to transit, jobs, shopping, and other services. The "Broadway/Veterans Boulevard Corridor" PDA in Redwood City encompasses Census Tracts 610201, 610202, and 610500. (Census Tracts 610201 and 610202 are within the study area for the proposed project, along with Block Group 1 of Census Tract 610500.) In the Broadway/Veterans Boulevard Corridor PDA, job growth between 2010 and 2040 is estimated at 40 percent, and housing unit growth is estimated at 199 percent (ABAG and MTC 2013b). Plan Bay Area also projects a 33 percent growth in jobs in Redwood City as a whole by 2040 and a 26 percent growth in population in San Mateo County by 2040.

General and Community Plans

General Plan

The Redwood City General Plan is the primary planning document for the project area. The plan covers all lands within the City's corporate limits as well as adjacent unincorporated areas within the City's sphere of influence (North Fair Oaks, Emerald Hills, and Atherton). The General Plan Circulation Element (City of Redwood City 2010b) identifies a number of issues, opportunities, and constraints about the project area, which are summarized as follows:

- The General Plan cites the need to improve operations, reduce congestion on Redwood City streets near the interchange, and improve access for non-motorized travel.
- US 101 and SR 84 are designated truck routes, along with Seaport Boulevard, East Bayshore Road, Woodside Road, Bay Road, Broadway south of Chestnut Street, and Chestnut Street. Freight movement largely originates from and travels to the industrial businesses located at the Port of Redwood City and adjacent areas, and along Seaport Boulevard, Bayshore Road, and Broadway. Improving operations at the interchange would benefit goods movement along those routes.
- Woodside Road between El Camino Real and US 101 experiences congestion throughout the day. Commute traffic along El Camino Real and Woodside Road frequently diverts into adjoining neighborhoods, seeking less-congested travel paths; in the process, residential neighborhoods are subjected to additional through-traffic.
- Woodside Road presents a barrier to pedestrian travel. Pedestrian improvements would facilitate movement between the residential neighborhoods flanking the commercial corridor, proposed mixed-use development nodes, and existing commercial destinations.
- Providing additional pedestrian and bicycle facilities across US 101 both northwest and southeast of Woodside Road could encourage more people to walk or bike within a better connected multimodal network, which will include the Bay Trail when it is completed in this area. In addition, a connection across US 101 near Downtown is important to facilitate better connections between Downtown and the emerging Redwood Creek/Bayfront Center.
- The Woodside Road/Seaport Boulevard corridor and Broadway in the project area are included as part of a potential future streetcar network that could connect with a future ferry terminal at Pacific Shores Center, at the eastern end of Seaport Boulevard.

The Redwood City General Plan contains the following goals and policies that relate to the project (City of Redwood City 2010b):

- Goal BE-25: Maintain a local transportation system that balances the needs of bicyclists, pedestrians, and public transit with those of private cars.
    - Policy BE-25.1: Accommodate and encourage alternative transportation modes to achieve Redwood City's mobility goals and reduce vehicle trip generation and VMT.
    - Policy BE-25.3: Support using the concept of complete streets to design, construct, operate, and maintain city and private streets to enable safe, comfortable, and attractive access and travel for pedestrians, bicyclists, motorists,

and transit users of all ages, abilities, and preferences. Use the complete streets concept to better link the Port, Seaport Center, Pacific Shores, and other employment centers with Downtown and other nearby areas.

  - Policy BE-25.4: Consider impacts on overall mobility and various travel modes when evaluating transportation impacts of new developments or infrastructure projects.
  - Policy BE-25.5: Continue to implement Pedestrian Enhanced Designs, especially on streets with projected excess vehicle capacity, to reduce either the number of travel lanes or the roadway width, and use the available public right-of-way to provide wider sidewalks, bicycle lanes, transit amenities, or landscaping.

- Goal BE-26: Improve walking, bicycling, and electric bicycle/scooter facilities to be more convenient, comfortable, and safe, and therefore more common transportation modes in Redwood City.
  - Policy BE-26.4: Consider street modifications to improve bicyclist, electric bicycle/scooter, and pedestrian safety through such measures as the use of neighborhood traffic management strategies, the development of complete streets concepts, and implementation of Bicycle Boulevards.
  - Policy BE-26.9: Use portions of railroad and utility rights-of-way for use as exclusive or shared bicycle, electric bicycle/scooter, and pedestrian facilities, as feasible.
  - Policy BE-26.14: Support completion of the pedestrian network by providing sidewalks or paths on at least one side of the street (preferably both sides where feasible) where they are missing and feasible. Crosswalks and sidewalks shall be universally accessible and designed for people of all abilities, wherever feasible.
  - Policy BE-26.19: Expand the bicycle system to provide a continuous system within Redwood City by eliminating missing segments. Additionally, provide continuous bicycle facilities, where appropriate, through eliminating parking on one or both sides of the street and/or other roadway modifications. If exclusive bicycle facilities (i.e. Class I or II) are not feasible, provide shared facilities by posting appropriate signs and shared lane markings.
  - Policy BE-26.20: Eliminate or minimize physical obstacles and barriers on city streets that impede bicycle movement, including consideration of grade-separated crossings at railroad tracks and freeways.

- Goal BE-27: Create conditions to improve utilization of existing public transportation services to increase ridership.
  - Policy BE-27.3: Provide for roadways designated as transit routes to accommodate transit vehicle circulation and adequate access to and from transit stops.
  - Policy BE-27.5: Require that new development and projects improve access to and accommodations for public transit.

- Goal BE-29: Maintain the city's street network to promote the safe and efficient movement of people.
    - Policy BE-29.4: Encourage implementation of Intelligent Transportation Systems strategies to maximize the efficiency of the existing transportation systems.
    - Policy BE-29.8: Consider infrastructure projects that increase the efficiency of the Woodside Road corridor (including the replacement of the El Camino Real/Woodside Road grade separation with an at grade intersection) and balance the needs of all travel modes.
    - Policy BE-29.9: Support increasing the connectivity of all travel modes in the areas east of U.S. 101.
- Goal BE-30: Provide for safe and efficient movement of goods to support commerce and industry.
    - Policy BE-30.1: Minimize potential conflicts between trucks and pedestrian, bicycle, and transit access and circulation on streets designated as truck routes.
    - Policy BE-30.3: Ensure that adequate freight movement capacity is provided at the Port of Redwood City, balanced with the overall transportation needs within the Seaport Boulevard corridor.
- Program BE-49: U.S. 101/Woodside Road Redesign: Continue to participate in the process for the redesign of U.S. 101/Woodside Road interchange, and ensure that it provides access and circulation for all travel modes.
    - Timeframe: Ongoing
    - Responsible Party: Community Development
    - Funding Sources: General Fund

Community Plans

The project area is also adjacent to, but just outside, of the North Fair Oaks Community Plan area. The North Fair Oaks Community Plan was adopted by the County of San Mateo in 2011, making it part of the San Mateo County General Plan. The plan area consists of 798 acres to the southeast of the US 101/Woodside Road interchange in unincorporated San Mateo County. The portion in the study area has the land use designation of existing industrial/commercial land (County of San Mateo 2011). Goals and policies of the plan's Circulation and Parking Element are similar to those listed above from the Redwood City General Plan Circulation Element.

The project area is also adjacent to, and slightly overlaps with, the proposed Inner Harbor Specific Plan area, which includes a 100-acre area north of US 101 between Redwood Creek to the west and the eastern boundary of the former Malibu Grand Prix property to the east. The Inner Harbor Specific Plan will be a community plan that is consistent with but separate from the City's General Plan. Current land uses in the Inner Harbor Specific Plan area are civic/institutional (police station, jail, and homeless shelter), recreational, industrial, waterfront residential, marina, and open space/marsh land.

The Inner Harbor Specific Plan would provide planning policies and guidelines for the inclusion of additional open space, redevelopment, and relocation of "floating communities" (i.e.,

Docktown) (City of Redwood City 2014b, 2014c). The plan is intended to implement the City's General Plan goals to reinvigorate the Inner Harbor area, by promoting access to and connection to San Francisco Bay and its waterways, determining appropriate land use changes while accommodating existing land uses, and planning for potential sea level rise. The plan is in development and is expected to be completed in late 2015.

The project area is just to the northeast, and outside, of the Downtown Precise Plan area (City of Redwood City 2013).

Other Regulatory and Planning Influences

San Francisco Bay Plan

The San Francisco Bay Conservation and Development Commission (BCDC) has legislative authority to issue permits and regulate public or private projects that impact the San Francisco Bay and adjacent wetlands and shorelands. BCDC maintains jurisdiction over the San Francisco Bay, a shoreline band between the shoreline of San Francisco Bay and a line 100 feet landward of and parallel to the shoreline, salt ponds, some managed wetlands, and certain other waterways that are subject to tidal action.

BCDC performs its functions through the enforcement of the San Francisco Bay Plan (Bay Plan; BCDC 2008). BCDC's major policy goals include curbing Bay fill, promoting public access along the Bay, and supporting recreational uses along the Bay.

The salt crystallizer beds and levee along Seaport Boulevard and the marsh area between the salt crystallizer beds and Seaport Boulevard are being assessed with respect to BCDC's jurisdiction. Bay Plan provisions that may apply to the proposed project are summarized below.

Public Access. The Bay Plan promotes maximum feasible access to and along the waterfront and on permitted fills in and through new development in the Bay or on the shoreline.
Appearance, Design and Scenic Views. The Bay Plan includes policies on appearance, design, and scenic views to enhance use and views of the Bay.

Transportation. Bay Plan policies on transportation include that projects on the Bay shoreline, bridges, and certain waterways should include pedestrian and bicycle paths that are part of or connect with the Bay Trail or other regional or community trails.

Bay Trail Plan

The Bay Trail Plan was adopted in 1989 and encourages the adoption, construction, and maintenance of Bay Trail segments consistent with its 500-mile long plan. In 2005, ABAG published a Gap Analysis study that identified gaps in the Bay Trail and ranked them in terms of priority and benefit (ABAG 2005). Two Bay Trail gap segments are in the project area. Gap segment 2088 is a 1,930-foot segment planned for Blomquist Street and Maple Street, between Redwood Creek and Seaport Boulevard. The second segment, 2089, is a 10,724-foot length of trail planned for the Cargill Levee along the salt crystallizer beds between Seaport Boulevard and Bedwell Bayfront Park in Menlo Park, approximately 2 miles to the east. Both segments would include Community Proposed Class I Bike Path/Recreation Paths (City of Redwood City 2010b).

These Bay Trail segments would connect to the existing Bay Trail in the project area on the east side of Seaport Boulevard. The existing trail segment extends northward to the Port of Redwood City and municipal marina to the west and Pacific Shores Center to the north.

San Mateo County 2001 Trails Plan

The Bay Trail within the study area is also included in the *San Mateo County 2001 Trails Plan* (San Mateo County Parks and Recreation Commission 2001), which provides design and management guidelines for trail construction and operation in the county. No new county trails are proposed in the immediate project area.

San Mateo County Comprehensive Bicycle and Pedestrian Plan

The San Mateo County Comprehensive Bicycle and Pedestrian Plan was adopted in 2011, and seeks to improve cycling and walking conditions in San Mateo County through policy, community involvement, and the development of new routes that address the needs of users and increase multimodal transit integration. The following proposed routes are directly relevant to the study area:

- The "East of US 101 North-South Bikeway" is a proposed on-street route between US 101 and the Bay Trail. No specific alignment has been designated. Blomquist Street and Bayshore Road would be the most available on-street routes in the project area.
- The "North-South Bikeway" corridor seeks to implement improvements along El Camino Real, an ideal corridor for connectivity to destinations within San Mateo County as well as multi-modal transit connections.
- Woodside Road is identified in the plan as a key east-west corridor, linking the Bay Trail, the North-South Bikeway, Alameda de las Pulgas, and the Crystal Springs Regional Trail.

The plan describes the Bay Trail as a primary destination for recreational use and regional cycling, as well as a potential route for commuters. Widely spaced US 101 crossing opportunities limits access to the Bay Trail from areas west of the freeway (C/CAG 2011).

San Carlos Airport Influence Area

San Carlos Airport is a general aviation facility located in the City of San Carlos along the northwestern border of Redwood City. According to the 1996 San Mateo County Comprehensive Airport Land Use Plan and the 2010 City of Redwood City General Plan, all of Redwood City lies within the airport's Influence Area A, which requires disclosure of information in connection with real estate transactions per State law (C/CAG 1996; City of Redwood City 2010b). Areas within 9,000 feet of San Carlos Airport, including portions of northern Redwood City, are in San Carlos Airport Influence Area B, which also requires formal airport/land use review of any proposed land use policy actions (such as General Plan and Zoning Map amendments). Further, San Carlos Airport Influence Area B is subject to Part 77 of the Federal Aviation Regulations, which defines several height and airspace protection parameters that apply to land use and development. The project area is adjacent to, but outside of, San Carlos Airport Influence Area B, and no project structures would meet the height criteria that would require notification of or consultation with the Federal Aviation Administration.

2.1.2.2 Environmental Consequences

Alternatives 3 and Alternative 8B would both be consistent with state, regional, and local plans and programs. Therefore, the following discussion applies to both Build Alternatives.

The proposed project is included in regional and local transportation planning and would address the deficiencies of the project area identified in the Redwood City General Plan Circulation Element. Both of the Build Alternatives would support Redwood City General Plan Circulation Element Goals BE-25 through BE-27, BE-29, and BE-30 and their associated policies, and would be consistent with other regional and local plans and programs, as shown in Table 2.1.2-1. The No Build Alternative would be less consistent or inconsistent with regional and local plans and programs.

Table 2.1.2-1: Consistency of Proposed Project with Applicable Plans and Programs

Plan	No Build Alternative	Build Alternatives
Transportation Plans		
Plan Bay Area	The No Build Alternative would not improve the Woodside Road interchange and would not be consistent with the plan. The No Build Alternative would be less consistent with the plan's PDA designation for the Broadway/Veterans Boulevard Corridor.	Both Build Alternatives qualify as improvement of the Woodside Road interchange and are, therefore, consistent with the plan. By improving traffic circulation and bicycle and pedestrian access in the project area, the Build Alternatives would also be consistent with the plan's PDA designation for the Broadway/Veterans Boulevard Corridor.
SMCTA Strategic Plan 2009-2013 and New Measure A Program Short-range Highway Plan 2011-2021	The No Build Alternative would not reconstruct the US 101/Woodside Road interchange and would not be consistent with the plans.	Both Build Alternatives satisfy the planned reconstruction of the US 101/Woodside Road interchange and are, therefore, consistent with the plans.
City of Redwood City General Plan		
BE-25.1: Accommodate and encourage alternative transportation modes to achieve Redwood City's mobility goals and reduce vehicle trip generation and VMT.	The No Build Alternative would not make any changes in the project area to achieve Redwood City's mobility goals and reduce vehicle trip generation and VMT.	Both Build Alternatives would accommodate and encourage alternative transportation modes by providing additional bike and pedestrian features, including a Class I bikeway adjacent to the UPRR tracks that extends along Chestnut Street and under US 101 to Seaport Boulevard. Moreover, the Build Alternatives would not restrict the future development of a streetcar line along the UPRR corridor or a ferry terminal at the northern end of Seaport Boulevard.
BE-25.3: Support using the concept of complete streets to design, construct, operate, and maintain city and private streets to enable safe, comfortable, and attractive access and travel for pedestrians, bicyclists, motorists, and transit users of all ages, abilities, and preferences. Use the complete streets concept to better link the Port, Seaport Center, Pacific Shores, and other employment centers with Downtown and other nearby areas.	Other than allowing for routine maintenance, the No Build Alternative would not provide for any project area changes that incorporate Complete Streets performance expectations and objectives.	Both Build Alternatives incorporate Complete Streets performance expectations and objectives targeting local circulation (including potential fixed-route transit) and pedestrian/bicycle access throughout the project area.

Plan	No Build Alternative	Build Alternatives
BE-25.4: Consider impacts on overall mobility and various travel modes when evaluating transportation impacts of new developments or infrastructure projects.	The No Build Alternative would not change mobility or travel modes.	Both Build Alternatives have been designed to increase overall mobility and accommodate various travel nodes in the project area.
BE-25.5: Continue to implement Pedestrian Enhanced Designs (PEDs), especially on streets with projected excess vehicle capacity, to reduce either the number of travel lanes or the roadway width, and use the available public right-of-way to provide wider sidewalks, bicycle lanes, transit amenities, or landscaping.	The No Build Alternative does not implement pedestrian enhanced designs since much of the project area lacks pedestrian facilities.	The Build Alternatives maximize the use of right-of-way to provide sidewalks and bikeways on Woodside Road where none currently exist. Landscaping and other aesthetic features would be included.
BE-26.4: Consider street modifications to improve bicyclist, electric bicycle/scooter, and pedestrian safety through such measures as the use of neighborhood traffic management strategies, the development of complete streets concepts, and implementation of Bicycle Boulevards.	See discussion for Policy BE-25.3 regarding Complete Streets. The No Build Alternative does not contain any modifications to improve multimodal transit.	See discussion for Policy BE-25.3 regarding Complete Streets. The Redwood City General Plan Circulation Element does not include Bicycle Boulevards in the project area (Redwood City 2010, Figure BE-14).
BE-26.9: Use portions of railroad and utility rights-of-way for use as exclusive or shared bicycle, electric bicycle/scooter, and pedestrian facilities, as feasible.	The No Build Alternative would not use railroad and utility rights-of-way for bicycle and pedestrian access.	The Build Alternatives include a Class I bikeway adjacent to but outside the UPRR right-of-way that extends along Chestnut Street and under US 101 to Seaport Boulevard. The facility would accommodate bicycles, electric bicycles/scooters, and pedestrians.
BE-26.14: Support completion of the pedestrian network by providing sidewalks or paths on at least one side of the street (preferably both sides where feasible) where they are missing and feasible. Crosswalks and sidewalks shall be universally accessible and designed for people of all abilities, wherever feasible.	The No Build Alternative does not include completion of the pedestrian network as it contains several sections of roadway with breaks in the pedestrian facilities.	See discussion for Policy BE-25.5. Sidewalks and crosswalks would be designed to comply with ADA.
BE-26.19: Expand the bicycle system to provide a continuous system within Redwood City by eliminating missing segments. Additionally, provide continuous bicycle facilities, where appropriate, through eliminating parking on one or both sides of the street and/or other roadway modifications. If exclusive bicycle facilities (i.e. Class I or II) are not feasible, provide shared facilities by posting appropriate signs and shared lane markings.	The No Build Alternative would not expand the bicycle system.	The Build Alternatives would expand the bicycle system by providing a combination of Class I and IV bikeways on Woodside Road between approximately Bay Road to the south of US 101 and Seaport Boulevard/East Bayshore Road/Blomquist Street to the north of US 101. Both Build Alternatives include a Class I bikeway adjacent to the UPRR tracks that extends along Chestnut Street and under US 101 to Seaport Boulevard.

Plan	No Build Alternative	Build Alternatives
BE-26.20: Eliminate or minimize physical obstacles and barriers on city streets that impede bicycle movement, including consideration of grade-separated crossings at railroad tracks and freeways.	The No Build Alternative would not eliminate or minimize physical obstacles and barriers on city streets that impede bicycle movement.	Both Build Alternatives would minimize the existing barrier to bicycle movement at US 101 as described in the discussion for Policy BE-26.19.
BE-27.3: Provide for roadways designated as transit routes to accommodate transit vehicle circulation and adequate access to and from transit stops.	The No Build Alternative would not change any roadways designated as transit routes.	According to the City's General Plan Circulation Element, Seaport Boulevard and Broadway are the only "transit streets" in the project area (Redwood City 2010, Figure BE-14). The Build Alternatives are designed to improve traffic circulation and pedestrian facilities on Seaport Boulevard, Broadway, and other project area streets, which would benefit both transit vehicle circulation and access to and from transit stops.
BE-27.5: Require that new development and projects improve access to and accommodations for public transit.	See discussion for Policy BE-27.3.	See discussion for Policy BE-27.3.
BE-29.4: Encourage implementation of Intelligent Transportation Systems (ITS) strategies to maximize the efficiency of the existing transportation systems.	Same as with the Build Alternatives.	Ramp metering is already in place at the US 101/Woodside Road interchange ramps and would remain so with both of the Build Alternatives. Opportunities exist to install ITS connecting to standard Department Traffic Operations Systems such as traffic monitoring stations and fiber optics communication lines. In addition, both of the Build Alternatives would allow for connection to the San Mateo Smart Corridors project at Seaport Boulevard/East Bayshore Road/Blomquist Street, and installing additional Smart Corridors equipment such as trailblazer signs, traffic monitoring stations on arterial corridors, and fiber optic communication connections to City Hall and the Department's Transportation Management Center.
BE-29.8: Consider infrastructure projects that increase the efficiency of the Woodside Road corridor (including the replacement of the El Camino Real/Woodside Road grade separation with an at grade intersection) and balance the needs of all travel modes.	The No Build Alternative would not replace the El Camino Real/Woodside Road grade.	The Build Alternatives do not include replacement of the El Camino Real/Woodside Road grade but would increase the efficiency of the Woodside Road corridor and balance the needs of all travel modes within the project area.
BE-29.9: Support increasing the connectivity of all travel modes in the areas east of U.S. 101.	See discussion for Policies BE 25.1 and 27.3.	See discussion for Policies BE 25.1 and 27.3.
BE-30.1: Minimize potential conflicts between trucks and pedestrian, bicycle, and transit access and circulation on streets designated as truck routes.	The No Build Alternative would not make changes to minimize potential conflicts between trucks and pedestrian, bicycle, and transit access and circulation.	Seaport Boulevard, East Bayshore Road, Woodside Road, Bay Road, Broadway south of Chestnut Street, and Chestnut Street are designated truck routes. Both Build Alternatives would provide sidewalks and bike facilities on Woodside Road and a Class I bikeway adjacent to the UPRR tracks along Chestnut Street and under US 101 to Seaport Boulevard, which would help to minimize conflicts with trucks. Existing sidewalks and bike facilities on Seaport Boulevard, East Bayshore Road, and the other streets in the project area will remain.

Plan	No Build Alternative	Build Alternatives
BE-30.3: Ensure that adequate freight movement capacity is provided at the Port of Redwood City, balanced with the overall transportation needs within the Seaport Boulevard corridor.	The No Build Alternative would not change existing freight movement capacity.	The Build Alternatives would provide for adequate Port-related truck movement as part of interchange improvements, while accommodating other vehicle movements and bicycle and pedestrian access through the Seaport Boulevard/Woodside Road corridor.
BE-49: U.S. 101/Woodside Road Redesign: Continue to actively participate in the process for the redesign of U.S. 101/Woodside Road interchange, and ensure that it provides access and circulation for all travel modes.	The No Build Alternative will be considered along with other alternatives as part of the process for the redesign of the US 101/Woodside Road interchange.	The City, other stakeholders, and members of the public have been and will continue to be invited to actively participate in the project as part of the environmental process.
Community Plans		
North Fair Oaks Community Plan	The No Build Alternative would not improve bicycle, pedestrian, or vehicle facilities on Woodside Road to the west of North Fair Oaks, and would be less consistent with the plan than the Build Alternatives.	By improving bicycle and pedestrian access and providing for an additional lane and turning pockets on Woodside Road to the west of North Fair Oaks, the Build Alternatives would support plan goals to facilitate travel by public transit, bicycle, and automobile, while providing a safe and attractive walking environment for pedestrians.
Inner Harbor Specific Plan	The No Build Alternative would not improve access to the Inner Harbor area and would be less consistent with the plan than the Build Alternatives.	The Build Alternatives would improve bicycle and pedestrian access across US 101 to the Inner Harbor area. This supports the plan's goals of promoting access to and within the area.
Bicycle and Pedestrian Plans		
San Francisco Bay Plan	The No Build Alternative would not improve access to the Bay and would be less consistent with the plan than the Build Alternatives.	The Build Alternatives would improve bicycle and pedestrian access across US 101 to the Bay. This supports the plan's goals of promoting access to the area. Both Build Alternatives would maintain views of the Bay.
Bay Trail Plan and San Mateo County 2001 Trails Plan	The No Build Alternative would not improve public access to the trail and would be less consistent with these plans than the Build Alternatives.	The project area contains a section of Bay Trail. Both Build Alternatives would improve bicycle and pedestrian access to the Bay Trail. Therefore, the Build Alternatives are consistent with the plan.
San Mateo County Comprehensive Bicycle and Pedestrian Plan	The No Build Alternative would not preclude other east-west corridors from being constructed but would also not provide one in the project area. It would be less consistent with the plan than the Build Alternatives.	The Build Alternatives would provide a key east-west corridor for this plan, and would, therefore, be consistent with the plan.

2.1.2.3 Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, or mitigation is required.

2.1.3 Parks and Recreational Facilities

2.1.3.1 Affected Environment

The following discussion is from the Community Impact Assessment (URS 2015a) for the proposed project, which was completed in September 2015.

Parks

There are no parks in or directly adjacent to the project area. There are two parks within 0.5 mile of the project area: Hoover Park and Andrew Spinas Park.

Hoover Park is approximately 1,900 feet southeast of the US 101/Woodside Road interchange. This 10.18-acre park at Woodside Road and Spring Street has a pool (summer only), ball fields, play equipment and a play area, a picnic area with barbecue pits, basketball courts, and restrooms (City of Redwood City 2012a).

Andrew Spinas Park at Second Avenue and Bay Road is approximately 2,000 feet east-southeast of the interchange. The 1.46-acre park has a water feature, play equipment and a play area, a picnic area, tennis and basketball courts, and restrooms (City of Redwood City 2012b).

Both parks are protected by the Park Preservation Act of 1971 (California Public Resources Code [PRC] Sections 5400-5409) as well as Section 4(f) of the Department of Transportation Act of 1966 (49 United States Code [USC] 303), which protect parkland from being converted to non-parkland.

Trails and Recreational Bikeways

The project area includes a Bay Trail segment along Seaport Boulevard. The trail extends northward to the Port of Redwood City and municipal marina to the west and Pacific Shores Center to the north. In the project area, the Bay Trail consists of an 8-foot-wide shared-use trail that is separated from Seaport Boulevard by a landscaped buffer. The Bay Trail provides recreation access along the salt crystallizer beds and Bay slough areas farther north of the project area and also serves bicycle commuters to Pacific Shores Center. The 150-foot section of the trail in the project area does not have any seating or Bay Trail signs.

The Bay Trail is considered a Section 4(f) resource under the U.S. Department of Transportation Act of 1966. A map detail of the Bay Trail in the project area and evaluation of Section 4(f) resources is provided in Appendix B.

2.1.3.2 Environmental Consequences

The No Build Alternative would not affect parks or recreation facilities in the project area.

Alternatives 3 and 8B would both have the same design footprint and require the same construction activities in the vicinity of the project area parks and recreation facilities. Therefore, the following discussion applies to both Build Alternatives.

Parks

With the Build Alternatives, project construction activities in the vicinity of Hoover Park would be limited to striping and sign installation, which would not result in noise or visual impacts to park visitors. Other project construction activities would be at a sufficient distance from the park that temporary noise or visual impacts to park visitors are not expected. Therefore, no temporary or permanent impacts to Hoover Park would occur.

Andrew Spinas Park is separated from the project area by several multistory buildings along US 101, Broadway, and Bay Road. The commercial, business, and industrial development between the project area and the park would provide both acoustic and visual shielding from project-related construction activities. Therefore, no temporary or permanent impacts to Andrew Spinas Park would occur.

No parks would be used for purposes of Section 4(f).

Trails and Recreational Bikeways

Project construction would result in temporary impacts to the 150-foot segment of the Bay Trail within the project area. Temporary closures or detours of a short segment of the Bay Trail for up to approximately two weeks would be required to preserve public safety while construction takes place along East Bayshore Road and Seaport Boulevard. Once the realignment of East Bayshore Road is completed, the trail would be reopened. The length of the trail closure would be substantially shorter in duration than the overall construction period of approximately 3 years. Any detour routes onto Seaport Boulevard would be separated from traffic by a temporary barrier (such as K-rail) for the safety of trail users.

Visitors to the Bay Trail in the project area during construction would be exposed to the periodic sights and sounds of construction equipment as well as structural and roadway work on the Woodside Road undercrossing, reconstructed interchange ramps, Veterans Boulevard flyover ramps, and Seaport Boulevard/East Bayshore Road/Blomquist Street intersection. At any time during project construction, temporary noise and visual impacts could be pronounced during activities such as structure demolition and pile driving. As stated above, temporary trail closures would be required during roadway work along East Bayshore Road and Seaport Boulevard, which would prevent trail users from being exposed to noise and visual disturbance during some construction periods.

The project would also result in minor permanent changes to the Section 4(f) resource. Both of the Build Alternatives would widen and realign East Bayshore Road to the northeast at its intersection with Woodside Road, Seaport Boulevard, and Blomquist Street. A new right-turn lane would be added from East Bayshore Road to Seaport Boulevard, and the sidewalk, curb, and corner along East Bayshore Road and Seaport Boulevard would be reconstructed. Approximately

30 feet of the Bay Trail along Seaport Boulevard would be reconstructed where it connects with the rebuilt sidewalk. One of the Section 4(f) resources, a landscaped area separating the Bay Trail from Seaport Boulevard, may also be permanently removed to accommodate the new right-turn lane and reconstructed curb and sidewalk (as shown in Appendix B). Up to approximately 1,500 square feet of the Section 4(f) resource could be permanently affected. The actual area of the Section 4(f) resource that is permanently removed may be much smaller. Landscaping that is removed or damaged during project construction will be replaced in kind where proper setback exists and where feasible, in accordance with Department policy.

When completed, the Bay Trail would conform to the new alignments of the sidewalk on the east side of East Bayshore Road and the crosswalk to the north side of Blomquist Street. These changes would not affect the long-term use of the Bay Trail. The project would improve pedestrian and bicycle access to the Bay Trail from areas to the south of US 101. However, the project is not anticipated to increase the use of the Bay Trail such that substantial physical deterioration would occur, or affect the recreation functions of the Bay Trail that make it a Section 4(f) resource.

The Department will request concurrence from the City of Redwood City, which has jurisdiction over this Bay Trail segment, that the project's use of the Bay Trail with both of the Build Alternatives will not adversely affect the features and attributes of the property, and that the City has been informed of the Department's intent to make a *de minimis* finding based on that agreement (see Appendix B). *De minimis* impacts on publicly owned parks, recreation areas, and wildlife and waterfowl refuges are defined as those that do not adversely affect the activities, features, and attributes of the Section 4(f) resource.

2.1.3.3 Avoidance, Minimization, and/or Mitigation Measures

For Alternatives 3 and 8B, part of the Bay Trail would need to be temporarily closed or detoured during project construction. The Department will coordinate with the City of Redwood City to develop a trail closure plan during the final design phase. The trail closure plan will:

- Minimize the number of days that the Bay Trail segment will be closed to the public;
- Include a mandatory signage plan notifying Bay Trail users of closures. Notices will be posted at Bay Trail access points as appropriate; and
- Provide a detour or alternate route for trail users during construction. If safety concerns prevent use of another route, the trail closure will be kept to the minimum period possible.

A Transportation Management Plan (TMP) will be developed to address impacts to motor vehicle, bicycle, and pedestrian access during project construction. The TMP will document that bicycle and pedestrian access is to be maintained to the maximum extent feasible as part of construction staging. The plan will include briefing local public officials and developing a public information program to notify the public of project construction progress and upcoming closures and detours. The public information program will include outreach to ride sharing agencies, transit operators, and neighborhood and special interest groups.

2.1.4 Relocations and Real Property Acquisition

2.1.4.1 Regulatory Setting

The Department's Relocation Assistance Program (RAP) is based on the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (as amended) and Title 49 Code of Federal Regulations (CFR) Part 24. The purpose of the RAP is to ensure that persons displaced as a result of a transportation project are treated fairly, consistently, and equitably so that such persons will not suffer disproportionate injuries as a result of projects designed for the benefit of the public as a whole. Please see Appendix C for a summary of the RAP.

All relocation services and benefits are administered without regard to race, color, national origin, or sex in compliance with Title VI of the Civil Rights Act (42 USC 2000d, et seq.). Please see Appendix D for a copy of the Department's Title VI Policy Statement.

2.1.4.2 Affected Environment

The following discussion is from the Community Impact Assessment (URS 2015a) for the proposed project, which was completed in September 2015.

The proposed project would require the full acquisition of two parcels and partial acquisitions from industrial, commercial/office, and municipal properties. Throughout the project area, temporary construction easements (TCEs) would be needed for construction access and staging. No residential properties would be affected. The potentially affected properties are shown in Figure 2.1.4-1 and listed in Table 2.1.4-1. Descriptions of potential project impacts are provided below.

It is possible that as engineering studies for the project design progress, there may be changes in property impacts.

2.1.4.3 Environmental Consequences

The No Build Alternative would not require any property relocations.

North of US 101, both of the Build Alternatives would have generally the same effects to the properties listed in Table 2.1.4-1. South of US 101, the southbound US 101 on-ramp from Woodside Road could require more land from the parking area of the 24 Hour Fitness facility (#8 in Table 2.1.4-1) with Alternative 3 than with Alternative 8B.

Alternatives 3 and 8B are expected to result in the closure or displacement of a Denny's restaurant and a County of San Mateo parking lot (#18 and #23 in Table 2.1.4-1), as described below. Suitable relocation properties are available in Redwood City and the surrounding area (within a 50-mile radius).

Denny's Restaurant

Both Build Alternatives would add a westbound through lane, eastbound left and right turn lanes to Broadway, and Class IV bike lanes on Woodside Road. These project features would encroach on the eastern side of the Denny's property, including the building. Both Build Alternatives would affect approximately 6,600 square feet of the 25,200-square-foot parcel. As part of the

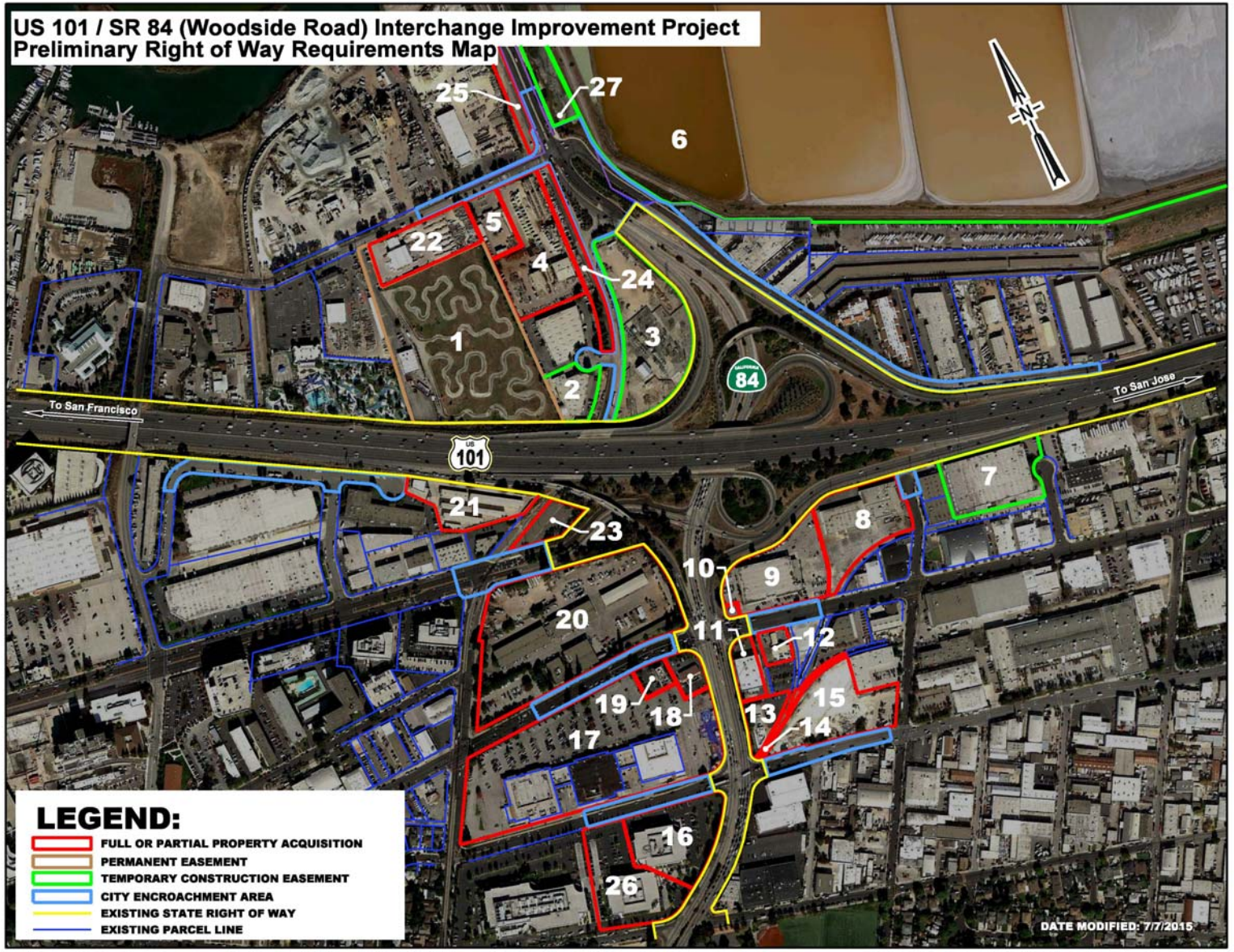


Figure 2.1.4-1: Properties Potentially Affected by the Project

Table 2.1.4-1: Proposed Right-of-Way and Temporary Construction Easements

No.	APN	Address	Type of Development	Type of Property Change
1	052-392-460	340 Blomquist St	Proposed mixed use: Harbor View	TCE; permanent easement for 10-foot setback from right-of-way to accommodate retaining wall. No change to structures or parking.
2	052-392-480	15 Stein Am Rhein Ct	Proposed mixed use: Harbor View	TCE
3	052-392-999	NA	PG&E Substation	TCE
4	052-392-370	19 Seaport Blvd	Industrial: Lyngso	TCE; partial acquisition along Blomquist St frontage (approximately 30 feet). No change to structures; potential removal of a small number of parking places.
5	052-392-280	410 Blomquist St	Industrial: Flyers Gas Station	TCE; partial acquisition along Blomquist St frontage (approximately 30 feet). No change to structures; potential removal or relocation of two gas pumps.
6	054-310-160	NA	Other: Salt crystallizer bed	TCE
7	054-040-330	1089 Mills Way	Industrial	TCE
8	054-023-080	1050 Broadway St	Commercial: 24 Hour Fitness	TCE; partial acquisition of shoulder area along southbound US 101 on-ramp. No change to structures or parking.
9	054-023-060	1100 Broadway St	Commercial: U.S. Postal Service	TCE; partial acquisition along Broadway frontage (approximately 6 feet). No change to structures or parking.
10	054-023-070	Redwood City CA 94063	Infrastructure: Pump Station	TCE; partial acquisition along Woodside Road/Broadway corner. Potential relocation of fence and utility cabinet.
11	054-022-060	1185 Broadway St	Commercial: Smart & Final	TCE; partial acquisition along Broadway frontage (approximately 6 feet). No change to structures or parking.
12	054-022-040	1101 Broadway St	Commercial: Broadway Auto Sales	Partial acquisition along Broadway frontage (approximately 6 feet). No change to structures or parking.
13	054-022-070	1155 Broadway St	Commercial/Office	TCE; partial acquisition along sidewalk at corner of Woodside Rd/Bay Rd. No change to structures or parking.
14	054-022-200	Bay Rd	Vacant	TCE; partial acquisition along sidewalk at corner of Woodside Rd/Bay Rd. No change to structures or parking.
15	054-022-150	2201 Bay Rd	Industrial	TCE; partial acquisition along Bay Rd sidewalk. No change to structures or parking.
16	054-062-130	740 Bay Rd	Commercial/Office: Arstasis	TCE; partial acquisition along corner of Woodside Rd/Bay Rd and Woodside Rd frontage. No change to structures; potential removal or relocation of approximately 25 parking spaces.

Table 2.1.4-1: Proposed Right-of-Way and Temporary Construction Easements

No.	APN	Address	Type of Development	Type of Property Change
17	054-012-120	Broadway	Mixed-use: Longs Drug	TCE; partial acquisition along corner of Woodside Rd/Bay Rd and Woodside Rd frontage. No change to structures; potential removal or relocation of approximately 35 parking spaces.
18	054-012-100	1201 Broadway St	Mixed-use: Denny's	Full acquisition
19	054-012-050	1205 Broadway St	Mixed-use: Jack in the Box	TCE; partial acquisition along Broadway frontage. No change to structures or parking.
20	054-011-060	1400 Broadway St	Industrial: Corp Yard	TCE; partial acquisition along southbound US 101 off-ramp and Broadway frontages. Potential removal of three structures and small number of parking spaces.
21	052-431-060	1498 Oddstad Dr	Industrial: Public Storage	TCE; partial acquisition along the southbound US 101 off-ramp.
22	052-392-470	Blomquist St	Industrial	TCE; partial acquisition along Blomquist St frontage. Potential relocation of existing fence. No change to structures or parking.
23	052-435-010	1513 Veterans Blvd	Commercial/Office: Parking Lot	Full acquisition
24	NA	UPRR	Railroad	TCE; partial acquisition along corner of Seaport Blvd/Blomquist St and Blomquist St frontage. No change to structures; potential removal or relocation of approximately 2 parking spaces.
25	NA	UPRR	Railroad	TCE; partial acquisition along corner of Seaport Blvd/Blomquist St. Potential relocation of utility cabinet. No change to structures or parking.
26	054-062-120	720 Bay Rd	Commercial/Office	TCE; partial acquisition along Bay Rd frontage. No change to structures or parking.
27	NA	Seaport Blvd	Utility	TCE

APN = Assessor's parcel number; NA = Not applicable; TCE = Temporary construction easement

building would be affected, it is assumed that the project would render the business inoperable, and a full acquisition of the property would be needed. The next closest Denny's franchise location is 5 miles north in San Mateo, California. Denny's is open 24 hours a day and employs between 20 and 49 employees. Adequate notice of the restaurant closure or displacement would minimize impacts to employees. There are many other casual food restaurants in the area, and the level of turnover in the service industry is often high (Macke 2013). In addition, Redwood City is expected to continue to see commercial and job growth. Job growth between 2010 and 2040 in the Broadway/Veterans Boulevard corridor is estimated at 40 percent (ABAG and MTC 2013b). Therefore, other employment opportunities are anticipated to be available for displaced employees.

County of San Mateo Parking Lot

Both Build Alternatives would include direct-connect flyover ramps between Veterans Boulevard and the northbound US 101 off-ramp and southbound US 101 on-ramp. The Build Alternatives would also add a Class I shared use path along westbound Woodside Road, which would connect via a roundabout with the existing sidewalk and Class IV bike lane on the north side of Veterans Boulevard and a new Class I shared use path adjacent to the UPRR tracks. The west side of the flyover ramps and the new bike/pedestrian roundabout and adjacent path segments would encroach on the parking lot. It is assumed that full acquisition of the approximately 33,200-square-foot parcel would be needed.

The County-owned parking lot is a fenced, gated facility that does not appear to be used or available for public parking. The pavement is striped for approximately 50 parking spaces. During several field visits in 2014 and 2015, little evidence of use was observed other than periodic materials staging and vehicle storage.

2.1.4.4 Avoidance, Minimization, and Mitigation Measures

The Department's Relocation Assistance Program will be made available to assist in providing relocation benefits or entitlements to property owners. A booklet describing business property owner rights and benefits under the Department's Relocation Assistance Program is provided in Appendix C. Early coordination with the business owners would provide displaced employees with the time necessary to transition with minimal impacts. As the Build Alternatives would provide for the equitable relocation of businesses no further avoidance, minimization, and/or mitigation measures would be required.

2.1.5 Environmental Justice

2.1.5.1 Regulatory Setting

All projects involving a federal action (funding, permit, or land) must comply with Executive Order (EO) 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, signed by President William J. Clinton on February 11, 1994. This EO directs federal agencies to take the appropriate and necessary steps to identify and address disproportionately high and adverse effects of federal projects on the health or environment of minority and low-income populations to the greatest extent practicable and permitted by law. Low income is defined based on the Department of Health and Human Services poverty guidelines. For 2015, this was $24,250 for a family of four (Department of Health and Human Services 2015).

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

2.1.5.2 Affected Environment

The following discussion is from the Community Impact Assessment (URS 2015a) for the proposed project, which was completed in September 2015.

The study area for this analysis included Census Tracts or Block Groups adjacent to the project area boundary (Figure 2.1.5-1). The baseline analysis for this study area was conducted for all communities within and adjacent to the project area.

For each Census block group within the study area, the following data were gathered:

- Total population (U.S. Census Bureau 2010)
- Ethnicity and race (U.S. Census Bureau 2010)
- The ratio of income to poverty level of individuals in the past 12 months (U.S. Census Bureau, American Community Survey [ACS] 2008–2012 5-Year Estimates)

For this analysis, the newest data available at the Census block group level was collected—2010 Census data for minority populations and 2008–2012 ACS estimates of block group data for low-income populations.

Minority persons are defined by the 2010 U.S. Census as all individuals not identified as "White only," including those identified as Hispanic or Latino. Low-income persons were defined as those individuals with household incomes below the Census poverty threshold, which is a ratio of income to poverty level in the past 12 months that is below 1.0.

Figure 2.1.5-1: Environmental Justice Study Area

The state-, region-, county-, and city-wide percentages of minority and low-income populations were also reviewed, so that the definition of "disproportionate" adverse effects could be established (U.S. Census Bureau, ACS 2010 for state-, region-, and county-level data; U.S. Census Bureau, ACS 2008-2010 for city-level data).

Based on the data collected, minority or low-income communities, also referred to as environmental justice communities, were identified within the study area. Environmental justice communities are traditionally defined as a Census block group population that meets either or both of the following criteria:

- The Census block group contains 50 percent or more minority persons, and/or the block group contains 25 percent or more low-income persons.
- The percentage of minority and/or low-income persons in any Census block group is substantially (e.g., more than 10 percentage points) greater than the average of the surrounding region (e.g., the counties overlapping the study area).

The percentage of the population that is a minority in San Mateo County and Redwood City does not exceed 50 percent, at 46.6 percent and 39.8 percent, respectively. However, as noted above, Census block groups containing 50 percent or more minority persons were identified within the study area. Therefore, the first criterion was appropriate to determine the presence of an environmental justice community for minority populations.

The percentage of low-income persons in San Mateo County and Redwood City is 4.9 percent and 6.9 percent, respectively. These percentages are both below 25 percent, and thus the first criterion was not appropriate to determine the presence of an environmental justice community for low-income populations as most of the Census block groups in the study area would be below 25 percent. Therefore, the second criterion was used for low-income populations. For the second criterion, the "surrounding region" for the study area was defined as Redwood City. The low-income population for the region would therefore be 6.9 percent. Thus, a Census block group that would be identified as an environmental justice community would have a low-income population of more than 16.9 percent (more than 10 percentage points greater than the low-income population of 6.9 percent).[9]

Table 2.1.5-1 below presents population estimates with minority and low-income percentages for the region as a whole and also for the population living within the study area. The population living within the study area is in Redwood City or in the unincorporated North Fair Oaks community in San Mateo County.

As stated earlier, the surrounding region of the project was defined as Redwood City. According to the 2010 Census, 39.8 percent of the total population of Redwood City is minority. Within the study area, this percentage is higher, with minority individuals representing an average of 55.8

[9] The Census assigns each person or family one of 48 possible poverty thresholds, which vary according to the size of the family and the age of the members. The 2013 weighted average threshold for a family of four is $23,624. The 2013 Department of Health and Human Services poverty guidelines for a family of four is similar, at $23,550. The 2013 weighted average was the most recent available data at the time of analysis.

Table 2.1.5-1: Minority and Low-Income Percentages in the Region and Environmental Justice Study Area

Location	Total Population 2010[a]	% Minority[a]	% Low-Income[b]
State			
California	3,7253,956	42.4	11.5
Region			
San Mateo County	718,451	46.6	4.9
Redwood City	76,815	39.8	6.9
Census Tract, Block Group (shown in Figure 2.1-1)			
610201, BG 1	984	68.3	13.2
610201, BG 2	1,635	58.0	
610201, BG 3	1,184	57.2	
610201, BG 4	1,961	58.6	
610202, BG 1	2,429	53.9	12.7
610302, BG 1	2,108	42.5	10.2
610500, BG 1	860	51.9	20.8
Study Area	**11,161 (total)**	**55.8 (average)**	**14.2 (average)**

Note:
BG = Block Group
Sources:
[a] U.S. Census Bureau 2010 Census.
[b] U.S. Census Bureau, American Community Survey 2008-2012 5-year estimates.

percent of the population. All but one of the seven Block Groups evaluated in the study area—Census Tract 610302, Block Group 1—meets the environmental justice criteria for minority communities. Figure 2.1.3-1 shows the location of each block group. Hispanics are the predominant minority in all portions of the study area. The North Fair Oaks community, which overlaps with Census Block 610500, Block Group 1, reportedly has a high proportion of residents from the state of Michoacán in central Mexico (Hendricks 2005).

According to the 2012 ACS estimate, 6.9 percent of the total population of Redwood City is living below the U.S. Census poverty threshold. Within the study area, this percentage is higher, with low-income individuals representing an average of 14.2 percent of the population. One of the seven Block Groups evaluated in the study area—Census Tract 610500, Block Group 1—meets the environmental justice criteria for low income.

Therefore, the study area encompasses one block group containing a low-income population and six block groups containing minority populations that qualify for consideration under EO 12898.

2.1.5.3 Environmental Consequences

Since the study area meets the criteria for being identified as an environmental justice community, this section identifies the distribution of impacts from the Build Alternatives in order to determine if they disproportionately affect an environmental justice community. The No Build Alternative would not disproportionately affect any environmental justice community.

Project Operation

The proposed project would not have permanent adverse impacts on community cohesion, air quality, noise, traffic/circulation, or hazardous materials under either Build Alternative. The project would not require residential relocations, and impacts to non-residential properties would be limited to full acquisition of two properties and partial acquisition of frontage areas along and adjacent to Woodside Road, US 101, and the freeway ramps. When completed, the proposed US 101/Woodside Road interchange would remain along the same general alignment as the existing condition. The project has been designed to improve vehicle, bicycle, and pedestrian access throughout the interchange area. The addition of bicycle and pedestrian access would benefit all users equally, including bicyclists or those who rely on public transportation. The addition of sidewalks on Woodside Road and other local streets would also improve connectivity to bus transit corridors such as Broadway, Veterans Boulevard, and (south of the study area) Middlefield Road. There would be no permanent noise impacts to sensitive receptors from the proposed project.

Consequently, there would be no disproportionate impacts on low-income or minority populations identified in the study area.

Temporary impacts from construction of the proposed project are discussed below.

Project Construction

Construction is planned in and adjacent to the existing State right-of-way of US 101 and SR 84, Woodside Road, and other local streets. For both Build Alternatives, temporary construction impacts from the proposed project would include the potential for noise and dust from structure demolition and construction, excavation, and pavement work. Motorists, bicyclists, and pedestrians passing through the project area would be exposed to the periodic sights and sounds of construction equipment as well as structural and roadway work on the Woodside Road undercrossing, reconstructed interchange ramps, Veterans Boulevard flyover ramps, and Seaport Boulevard/East Bayshore Road/Blomquist Street intersection. Temporary noise and visual impacts could be pronounced during construction activities such as structure demolition and pile driving.

Residential land uses (high-density multi-family properties and single-family homes) near the project area would receive some acoustic and visual shielding from project construction activities by multistory development along US 101, Veterans Boulevard, Woodside Road, Broadway, and other local streets. The mobile home parks along East Bayshore Road would receive acoustic and visual shielding from the existing sound wall along the north side of US 101.

Vehicle, bicycle, and pedestrian access throughout the interchange area would be maintained throughout project construction. Any lane or ramp closures would be temporary and limited to nighttime hours.

Construction impacts would affect all communities near the project area at similar levels. Project construction would not disproportionately affect environmental justice communities in the study area.

2.1.5.4 Avoidance, Minimization, and/or Mitigation Measures

Based on the above discussion and analysis, the Build Alternatives will not cause disproportionately high and adverse effects on any minority or low-income populations per EO 12898 regarding environmental justice. Therefore, no avoidance, minimization, and/or mitigation measures are required.

2.1.6 Utilities/Emergency Services

2.1.6.1 Affected Environment

The following discussion is from the Draft Project Report (URS 2016).

Utilities

The utility investigations of the project area included site visits and review of utility locations shown in readily available electronic or hard-copy plans obtained from the Department, SMCTA, City of Redwood City, Comcast, Sprint, Verizon, AT&T, Level III Communication, Qwest, Astound Broadband, and PG&E. Where feasible, existing utility features were identified during field reconnaissance studies.

Utility providers in the project area are listed below by category:

- Gas and electric—PG&E;
- Communications—Sprint, Qwest, AT&T, Comcast, Level III, Verizon, and Astound Broadband;
- Water—City of Redwood City; and
- Sanitary—City of Redwood City.

Storm drain systems are locally maintained.

Emergency Services

The City of Redwood City maintains its own fire and police departments, which serve the project area.

2.1.6.2 Environmental Consequences

The No Build Alternative would not affect utilities or emergency services.

Utilities

Both Build Alternatives are expected to require the relocation of some underground and above ground utilities to outside of the right-of-way. The relocation of utilities would result in short-term, localized construction impacts and could result in temporary service interruptions. The affected utilities identified in the preliminary investigations include gas, electric, telephone, cable television, sewer, and water. Table 2.1.6-1 presents a preliminary list of utility relocations for the Build Alternatives. Final verifications would be performed during the project's design phase.

The depth to groundwater in the project area is approximately 4 feet, and the project would lower the elevation of Woodside Road to increase its vertical clearance under US 101. To accommodate any additional drainage, the pump station at the southeast corner of Woodside Road and Broadway may be reconstructed to increase its capacity.

The project would not result in long-term impacts to utilities.

Table 2.1.6-1: Potential Utility Relocation

Utility Relocation/Casing Line Extension	Owner	Relocation Quantity	Unit
2-22 kV Underground Lines	PG&E	380	linear feet
1-4.16 kV Underground Lines	PG&E	706	linear feet
3-12 kV Underground Lines	PG&E	287	linear feet
12 kV Overhead Pole	PG&E	5	pole
2-4.16kV Overhead Pole	PG&E	1-(Alternative 3) 2-(Alternative 8B)	pole
4-4.16kV Overhead Pole	PG&E	6	pole
4" Gas with 40' of 8" Casing	PG&E	346	linear feet
12" Gas with 323' of 30" Casing	PG&E	323	linear feet
Telecommunication Line	AT&T	364	linear feet
Telecommunication Line	Astound	987	linear feet
10" Water	City of Redwood	253	linear feet
10" Water with 252' of 16" Casing	City of Redwood	1063	linear feet
6" Water with 62' of 12" Casing	City of Redwood	324	linear feet
18" Sanitary Sewer w/ 245' of 24" Casing	City of Redwood	312	linear feet
30" Sanitary Sewer w/ 245' of 36" Casing	City of Redwood	888	linear feet
30" Sanitary Sewer w/ 36" Casing	City of Redwood	426	linear feet
Casing Line Extension			
Extend 30" Casing for 24" Gas	PG&E	86	linear feet
Install 16" Casing for 12" Sanitary Sewer	City of Redwood	228	linear feet

Notes: kV = kilovolt, PG&E = Pacific Gas and Electric Company

Emergency Services

Lane closures would be required to lower Woodside Road under US 101 to meet standard vertical clearances. Lane closures would be done at night to minimize traffic effects. These actions could result in short-term, temporary impacts during project construction, including to emergency service providers, which would be minimized by the avoidance measures described in Section 2.1.4.3.

The project would not result in long-term impacts to emergency services.

2.1.6.3 Avoidance, Minimization, and/or Mitigation Measures

A TMP will be prepared during the design phase of the project to minimize traffic disruptions from project construction. The TMP will provide for public outreach to inform local agencies and the public of the times and locations of upcoming construction, construction signs in and approaching the project area, and incident management for traffic control in the vicinity of construction activities. Access will be maintained for emergency response vehicles. No adverse impacts to emergency services are anticipated from project construction. After project completion, the improved operations on the interchange and local roadways could improve access for emergency service providers.

2.1.7 Traffic and Transportation/Pedestrian and Bicycle Facilities

2.1.7.1 Regulatory Setting

The Department, as assigned by FHWA, directs that full consideration should be given to the safe accommodation of pedestrians and bicyclists during the development of federal-aid highway projects (see 23 CFR 652). It further directs that the special needs of the elderly and the disabled must be considered in all federal-aid projects that include pedestrian facilities. When current or anticipated pedestrian and/or bicycle traffic presents a potential conflict with motor vehicle traffic, every effort must be made to minimize the detrimental effects on all highway users who share the facility.

In July 1999, the U.S. Department of Transportation (USDOT) issued an Accessibility Policy Statement pledging a fully accessible multimodal transportation system. Accessibility in federally assisted programs is governed by the USDOT regulations (49 CFR Part 27) implementing Section 504 of the Rehabilitation Act (29 USC 794). FHWA has enacted regulations for the implementation of the 1990 Americans with Disabilities Act (ADA), including a commitment to build transportation facilities that provide equal access for all persons. These regulations require application of the ADA requirements to federal-aid projects, including Transportation Enhancement Activities.

2.1.7.2 Affected Environment

The information from this section is based on the *Traffic Operations Analysis Report* (Fehr & Peers 2015) completed in December 2015.

Roadway Network

As stated in Section 1.1, US 101 is an eight-lane divided freeway with three general purpose lanes and one high-occupancy vehicle (HOV) lane in each direction. There is an auxiliary lane in each direction to the south and north of the Woodside Road on- and off-ramps. All ramps at the interchange have ramp meters.

SR 84 is signed as an east-west route in the region, although in the project area, Woodside Road is a four- to six-lane north-south road. North of El Camino Real, Woodside Road is categorized as an expressway with access only provided at signalized key intersections or right-in/right-out only connections. In the project area, Woodside Road has a speed limit of 35 miles per hour (mph), no on-street parking or sidewalks, and a raised center median.

South of US 101, local east-west roads include Veterans Boulevard, Broadway, and Spring Street. Local north-south roads include Chestnut Street and Maple Street (west of Woodside Road) and Charter Street (east of Woodside Road).

North of US 101, local east-west roads include Blomquist Street and East Bayshore Road, and one local north-south road: Seaport Boulevard. Project area roadways are shown in Figure 2.1.7-1.

The Redwood City General Plan (City of Redwood City 2010a) designates US 101, Woodside Road/Seaport Boulevard, Broadway, Bay Road, Spring Street, Middlefield Road, Chestnut Street, and Charter Street in the project area as truck routes.

Transit in the project area is described in Section 1.2.2.3.

Pedestrian and Bicycle Facilities

Sections 1.2.2.2 and 2.1.3.1 provide a detailed description of bicycle and pedestrian facilities in the project area, and Section 2.1.3.2 and Appendix B describe the Bay Trail segment in the project area.

Two nearby projects include improvements to pedestrian and bicycle facilities in or adjacent to the project area:

- A correctional center was recently constructed just northeast of Maple Street and US 101, and included a sidewalk on the south side of Maple Street and a sidewalk on the east side of Blomquist Street to accommodate a new bus stop.
- The Redwood City Inner Harbor Specific Plan includes a 100-acre area north of US 101 between Redwood Creek to the west and the eastern boundary of the former Malibu Grand Prix property to the east. The Inner Harbor Specific Plan would provide planning policies and guidelines for the inclusion of additional open space, redevelopment, and relocation of "floating communities" (City of Redwood City 2014b, 2014c). Roadways in the Inner Harbor Specific Plan area would include sidewalks in the public right-of-way and Class II bikeways on Blomquist Street and Maple Street. In addition, a multi-use trail is proposed that would provide a new Bay Trail segment between Bair Island Road and Seaport Boulevard.

Traffic Operations Analysis Study Area and Methods

The study area for traffic operations consisted of two mainline segments of US 101 and 12 local roadway intersections. The mainline segments of US 101 were between the Willow Road and Holly Street interchanges, encompassing a total of six interchanges in the northbound direction; and between the Hillsdale Boulevard and Willow Road interchanges, encompassing a total of eight interchanges in the southbound direction. The number and length of the segments studied in each direction was based on congestion patterns for each direction of travel. The project area is approximately in the middle of the mainline segments studied.

The following 12 local roadway intersections were analyzed:

1. Blomquist Street/Seaport Boulevard
2. Lyngso Access/Seaport Boulevard
3. Veterans Boulevard/Woodside Road
4. Broadway/Woodside Road
5. Bay Road/Woodside Road
6. Spring Street/Woodside Road
7. Middlefield Road/Woodside Road
8. Blomquist Street/Maple Street
9. Oddstad Drive/Maple Street
10. Veterans Boulevard/Maple Street
11. Veterans Boulevard/Chestnut Street
12. Broadway/Chestnut Street

The numbers correspond to those shown in Figure 2.1.7-1. The traffic study analyzed peak period and peak hour conditions on local roads and US 101. For local roads, the peak period is

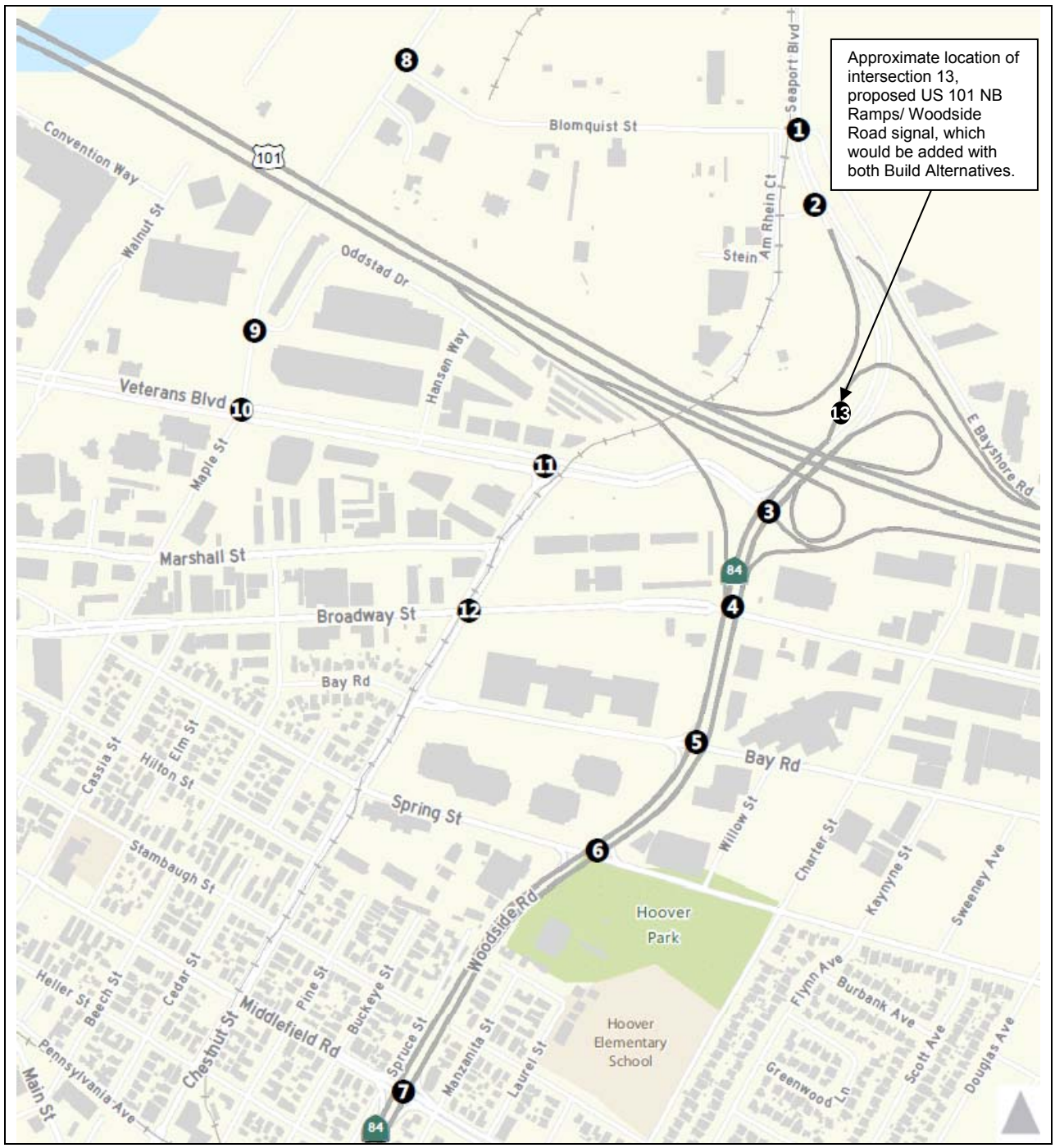


Figure 2.1.7-1: Local Roadway Intersections

defined as 7 AM to 9 AM (AM peak) and 4 PM to 7 PM (PM peak), and the peak hour within the peak period is defined as 7:30 AM to 8:30 AM and 5 PM to 6 PM. For US 101, the peak period is defined as 6 AM to 9 AM (AM peak) and 3 PM to 7 PM (PM peak), and the peak hour within the peak period is defined as 8 AM to 9 AM and 5 PM to 6 PM. Models were calibrated and validated to replicate existing conditions for freeway, ramp, and intersection volumes;

bottleneck locations; and observed queues. Figure 1.2.2-1 describes the levels of service for signalized intersections.

The future traffic forecasts for intersections were developed using the Furnessing Method. The forecasts used the joint Santa Clara Valley Transportation Authority and City/County Association of Governments of San Mateo County travel demand model, which contains 2020 and 2040 population and employment projects from the Association of Bay Area Governments. Intersection operations were analyzed using Synchro/SimTraffic 8.0 software. Mainline operations on US 101 were analyzed using the FREQ macroscopic traffic model.

Existing Conditions

Mainline

This section describes existing traffic conditions in the project area. Table 2.1.7-1 describes the existing conditions on US 101. For this study, vehicle delay is the extra time it takes to travel a segment of US 101 during the peak hour as compared to the time it would take at free-flow speeds (approximately 65 mph). For the study segments, the delay is greatest during the AM peak hour traveling southbound and during the PM peak hour traveling northbound. This is consistent with the commute patterns in the study area.

Table 2.1.7-1: Existing US 101 Peak Hour Measures of Effectiveness

Measures of Effectiveness	Northbound AM[1]	Southbound AM[2]	Northbound PM[1]	Southbound PM[2]
Vehicle Miles of Travel (vehicle-miles)	56,942	71,080	48,842	65,977
Average Travel Time (min:sec)	7:31	21:47	21:09	14:30
Average Travel Speed (mph)	62	27	25	40
Vehicle Delay (vehicle-hours)	38	1,121	1,557	635
Maximum Individual Vehicle Delay (min:sec)	0:22	14:01	16:47	6:53

Source: Fehr & Peers 2015
Notes:
1. Study segment of northbound US 101 extends between the University Avenue on-ramp and the Ralston Avenue off-ramp
2. Study segment of southbound US 101 extends between the Hillsdale Boulevard diagonal on-ramp and University Avenue off-ramp

Local Intersections

In accordance with the City of Redwood City planning criteria, the traffic analysis used LOS D or better as a threshold for an acceptable level of performance, while LOS E or F indicated unacceptable levels as the study intersections and roadway segments.

Table 2.1.7-2 lists the traffic control device at each intersection as well as the current operating delay and LOS for both the AM and PM peak hours. All of the intersections in the project area currently operate at LOS D or better during the AM and PM peak hours except the Lyngso Access/Seaport Boulevard, Veterans Boulevard/Woodside Road, and Broadway/Woodside Road intersections, as shown in Table 2.1.7-2.

Operations at the Veterans Boulevard and Broadway intersections with Woodside Road are affected by the southbound US 101 on-ramp connection to Veterans Boulevard and the southbound US 101 off-ramp connection to Broadway/Woodside Road, where high vehicle volumes exceed the available storage for the majority of intersection movements.

Table 2.1.7-2: Existing Peak Hour Intersection Analysis

Intersection	Traffic Control[1]	Peak Hour	Delay (seconds/ vehicle)	LOS[2]
1. Blomquist Street/Seaport Boulevard	Signal	AM	20	B
		PM	26	C
2. Lyngso Access/Seaport Boulevard	Side Street Stop on Lyngso Access	AM	21	C
		PM	38	**E**
3. Veterans Boulevard/ Woodside Road	Signal	AM	30	C
		PM	81	**F**
4. Broadway/Woodside Road	Signal	AM	66	**E**
		PM	134	**F**
5. Bay Road/Woodside Road	Signal	AM	39	D
		PM	50	D
6. Spring Street/Woodside Road	Side Street Yield on Spring Street	AM	20	C
		PM	13	B
7. Middlefield Road/Woodside Road	Signal	AM	46	D
		PM	45	D
8. Blomquist Street/Maple Street	Side Street Stop on Blomquist Street	AM	5	A
		PM	6	A
9. Oddstad Drive/Maple Street	Side Street Stop on Oddstad Drive	AM	7	A
		PM	11	B
10. Veterans Boulevard/Maple Street	Signal	AM	24	C
		PM	30	C
11. Veterans Boulevard/Chestnut Street	Signal	AM	8	A
		PM	8	A
12. Broadway/Chestnut Street	Signal	AM	14	B
		PM	26	C

Source: Fehr & Peers 2015

Notes: Results are based on SimTraffic.

1. Signal = signalized intersection, Side Street Stop or Yield = The indicated side street has a stop or yield sign on the street indicated, while the other direction is not controlled/signed.

2. Level of service. **Bold** indicates unacceptable level of service (LOS E or F).

2.1.7.3 Environmental Consequences

US 101 Mainline

Neither of the Build Alternatives include direct changes to US 101; however the proposed changes to local intersections and ramps would affect operations on US 101. Tables 2.1.7-3 and 2.1.7-4 list the opening year (2022) and design year (2042) peak hour measures of effectiveness for US 101 with the No Build Alternative, Alternative 3, and Alternative 8B. Under the No Build Alternative in both 2022 and 2042, the vehicle queues from the northbound and southbound off-ramps to Woodside Road are anticipated to extend past the mainline gore points (the locations where the ramps split from the freeway). When this occurs, the traffic backups would extend beyond the exit ramps and into the auxiliary lanes that connect to the ramps, delaying traffic from exiting the freeway.

Table 2.1.7-3: 2022 US 101 Peak Hour Measures of Effectiveness

Scenario	Measure of Effectiveness	No Build Alternative	Alternative 3		Alternative 8B	
			Results	% Change	Results	% Change
Northbound AM	Vehicle Miles of Travel (vehicle-miles)	56,496	57,894	2%	57,892	2%
	Average Travel Time (min:sec)	11:10	8:08	-27%	8:08	-27%
	Average Travel Speed (mph)	43	60	37%	60	37%
	Mainline Vehicle Delay (vehicle-hours)	384	77	-80%	77	-80%
	Maximum Individual Vehicle Delay (min:sec)	3:43	0:41	-82%	0:40	-82%
Southbound AM	Vehicle Miles of Travel (vehicle-miles)	58,464	58,782	1%	58,800	1%
	Average Travel Time (min:sec)	35:01	35:07	0%	35:00	0%
	Average Travel Speed (mph)	17	17	0%	17	0%
	Mainline Vehicle Delay (vehicle-hours)	2,149	2,138	-1%	2,136	-1%
	Maximum Individual Vehicle Delay (min:sec)	26:03	26:08	0%	26:01	0%
Northbound PM	Vehicle Miles of Travel (vehicle-miles)	45,358	45,403	0%	45,403	0%
	Average Travel Time (min:sec)	33:07	33:25	1%	33:25	1%
	Average Travel Speed (mph)	15	15	-1%	15	-1%
	Mainline Vehicle Delay (vehicle-hours)	2,288	2,325	2%	2,325	2%
	Maximum Individual Vehicle Delay (min:sec)	25:40	25:58	1%	25:58	1%
Southbound PM	Vehicle Miles of Travel (vehicle-miles)	58,056	57,961	0%	57,684	-1%
	Average Travel Time (min:sec)	36:43	36:55	1%	37:05	1%
	Average Travel Speed (mph)	16	16	0%	16	0%
	Mainline Vehicle Delay (vehicle-hours)	2,593	2,622	1%	2,613	1%
	Maximum Individual Vehicle Delay (min:sec)	27:44	27:56	1%	28:06	1%

Source: Fehr & Peers 2015

Table 2.1.7-4: 2042 US 101 Peak Hour Measures of Effectiveness

Scenario	Measure of Effectiveness	No Build Alternative	Alternative 3		Alternative 8B	
			Results	% Change	Results	% Change
Northbound AM	Vehicle Miles of Travel (vehicle-miles)	55,336	55,044	0%	55,059	0%
	Average Travel Time (min:sec)	42:28	42:54	1%	42:52	1%
	Average Travel Speed (mph)	18	18	0%	18	0%
	Mainline Vehicle Delay (vehicle-hours)	3,212	3,308	3%	3,305	3%
	Maximum Individual Vehicle Delay (min:sec)	30:23	30:49	1%	30:47	1%
Southbound AM	Vehicle Miles of Travel (vehicle-miles)	54,124	53,867	0%	53,867	0%
	Average Travel Time (min:sec)	85:51	86:40	1%	86:40	1%

Scenario	Measure of Effectiveness	No Build Alternative	Alternative 3		Alternative 8B	
			Results	% Change	Results	% Change
	Average Travel Speed (mph)	14	14	0%	14	0%
	Mainline Vehicle Delay (vehicle-hours)	6,320	6,350	0%	6,350	0%
	Maximum Individual Vehicle Delay (min:sec)	67:27	68:16	1%	68:16	1%
Northbound PM	Vehicle Miles of Travel (vehicle-miles)	41,917	41,843	0%	41,843	0%
	Average Travel Time (min:sec)	107:37	106:40	-1%	106:40	-1%
	Average Travel Speed (mph)	15	15	0%	15	0%
	Mainline Vehicle Delay (vehicle-hours)	6,569	6,461	-2%	6,461	-2%
	Maximum Individual Vehicle Delay (min:sec)	101:23	101:23	0%	101:23	0%
Southbound PM	Vehicle Miles of Travel (vehicle-miles)	51,646	51,646	0%	51,646	0%
	Average Travel Time (min:sec)	85:11	85:11	0%	85:11	0%
	Average Travel Speed (mph)	13	13	0%	13	0%
	Mainline Vehicle Delay (vehicle-hours)	5,708	5,708	0%	5,708	0%
	Maximum Individual Vehicle Delay (min:sec)	67:42	67:42	0%	67:42	0%

Source: Fehr & Peers 2015

Opening Year (2022)

In 2022, the Build Alternatives would eliminate the northbound US 101 bottleneck that would develop during the AM peak hour at the Woodside Road off-ramp under No Build conditions. In the northbound AM peak hour, both Build Alternatives would reduce average travel time by 27 percent and reduce individual vehicle delay by 82 percent compared with the No Build Alternative. Conditions on US 101 during the southbound AM peak hour and both directions in the PM peak hour would be essentially the same with the No Build Alternative and both Build Alternatives, as shown in Table 2.1.7-3.

Design Year (2042)

In 2042, conditions on US 101 would be the same or similar with the No Build Alternative and both Build Alternatives, as shown in Table 2.1.7-4.

Intersections

In general, the Build Alternatives are expected to reduce delays at most of the intersection locations where intersection improvements are proposed. Neither of the Build Alternatives would degrade the traffic level of service at any of the study locations in 2022 or 2042, except the PM peak hour level of service in 2042 at the intersection of Lyngso Access and Seaport Boulevard. At that intersection in 2042, delay will increase and the LOS is predicted to degrade from E (No Build) to F (both Build Alternatives). Some locations would continue to operate at unacceptable service levels in the future due to traffic demand growth that is unrelated to the project and the Build Alternatives would increase delays at several locations where additional traffic is able to access the interchange vicinity.

In opening year 2022 and future year 2042, the majority of the study intersections are anticipated to operate at LOS F under the No Build Alternative. With the No Build Alternative, the projected traffic demand is anticipated to far exceed the available roadway capacity. As a result, vehicle queues will exceed available storage at most study locations, meaning that the vehicles attempting to enter an intersection's turning lanes would build up and extend into adjacent through lanes. Where intersections along Woodside Road lack left-turn pockets, such as at Bay Road, left-turning vehicles are expected to delay an entire through-lane of traffic, substantially adding to congestion. In addition, queues from one intersection would affect operations at adjacent intersections, where congestion would prevent vehicles from entering an intersection when the light changes.

The project would provide operational benefits at most of the intersections studied because of the following changes, which are common to both Build Alternatives:

- Additional turn pocket storage approaching the Blomquist Street/Seaport Boulevard and Bay Road/Woodside Road intersections
- The Veterans Boulevard flyover ramps, which separate traffic traveling between US 101 and Veterans Boulevard and thereby remove those vehicles and the resulting congestion from Woodside Road
- The greater distance between the US 101 southbound ramps and Broadway on Woodside Road
- A new intersection for the US 101 northbound ramps with Woodside Road.

Opening Year (2022)

In 2022, most intersection levels of service would improve with Alternatives 3 and 8B compared with the No Build Alternative (Table 2.1.7-5). In 2022, 11 existing intersections would operate at an unacceptable level of service (LOS E or F) in the AM and/or PM peak hours with the No Build Alternative, compared with five intersections with both Build Alternatives. The new northbound US 101 ramps/Woodside Road intersection that would be included with both Build Alternatives would operate at LOS B during the AM and PM peak hours.

Table 2.1.7-5: 2022 Peak Hour Intersection Analysis

Intersection	Peak Hour	No Build Alternative		Alternative 3		Alternative 8B	
		Delay (seconds)	LOS	Delay (seconds)	LOS	Delay (seconds)	LOS
1. Blomquist Street / Seaport Boulevard	AM	72	**E**	32	C	32	C
	PM	82	**F**	38	D	39	D
2. Lyngso Access / Seaport Boulevard	AM	86	**F**	49	**E**	70	**F**
	PM	156	**F**	30	D	48	**E**
3. Veterans Boulevard / Woodside Road (US 101 SB Ramps/Woodside Road with Build Alternatives)	AM	316	**F**	23	C	18	B
	PM	132	**F**	25	C	19	B
4. Broadway / Woodside Road	AM	417	**F**	46	D	48	D
	PM	273	**F**	45	D	47	D
5. Bay Road / Woodside Road	AM	86	**F**	37	D	37	D
	PM	169	**F**	31	C	38	D
6. Spring Street / Woodside Road	AM	63	**F**	15	C	15	C
	PM	88	**F**	139	**F**	342	**F**
7. Middlefield Road / Woodside Road	AM	156	**F**	139	**F**	138	**F**
	PM	343	**F**	378	**F**	369	**F**

Intersection	Peak Hour	No Build Alternative		Alternative 3		Alternative 8B	
		Delay (seconds)	LOS	Delay (seconds)	LOS	Delay (seconds)	LOS
8. Blomquist Street / Maple Street	AM	5	A	5	A	5	A
	PM	5	A	6	A	5	A
9. Oddstad Drive / Maple Street	AM	26	D	11	B	13	B
	PM	362	**F**	406	**F**	425	**F**
10. Veterans Boulevard / Maple Street	AM	69	**E**	29	C	30	C
	PM	41	D	46	D	48	D
11. Veterans Boulevard / Chestnut Street	AM	150	**F**	14	B	16	B
	PM	52	D	43	D	36	D
12. Broadway / Chestnut Street	AM	216	**F**	30	C	29	C
	PM	192	**F**	87	**F**	81	**F**
13. US 101 NB Ramps/Woodside Road Signal	AM	Does not exist		16	B	18	B
	PM			12	B	17	B

Source: Fehr & Peers 2015, **Bold** indicates unacceptable condition (LOS E or F).

The additional vehicle throughput at some locations would cause both Build Alternatives to have higher delay times in the 2022 PM peak hour than the No Build Alternative. This would occur at the Spring Street/Woodside Road intersection (by 51 seconds with Alternative 3 and 254 seconds [4.2 minutes] with Alternative 8B), Middlefield Road/Woodside Road intersection (by 35 seconds with Alternative 3 and 26 seconds with Alternative 8B), Oddstad Drive/Maple Street intersection (by 44 seconds with Alternative 3 and 63 seconds with Alternative 8B), and Veterans Boulevard/Maple Street intersection (by 5 seconds with Alternative 3 and 7 seconds with Alternative 8B).

All other intersections would improve with the Build Alternatives. Compared with the No Build Alternative, both of the Build Alternatives would reduce delay by approximately 2 minutes or more during the AM or PM peak hours at the following intersections:

- Lyngso Access/Seaport Boulevard (approximately 2 minutes in the PM peak)
- Veterans Boulevard /Woodside Road (approximately 5 minutes in the AM peak)
- Broadway/Woodside Road (more than 6 minutes in the AM peak and close to 4 minutes in the PM peak)
- Bay Road/Woodside Road (more than 2 minutes in the PM peak)
- Veterans Boulevard/Chestnut Street (more than 2 minutes in the AM peak)
- Broadway/Chestnut Street (approximately 3 minutes in the AM peak and close to 2 minutes in the PM peak)

At many of these intersections, operations would improve from LOS F under the No Build Alternative to LOS B through D with Alternatives 3 and 8B.

The additional capacity at intersections on Woodside Road/Seaport Boulevard between Blomquist Street and Bay Road would improve traffic operations and reduce vehicle queue lengths in 2022 compared to No Build conditions. With the No Build Alternative, during the AM peak hour, vehicle queue spillback from the northbound US 101 off-ramp to Woodside Road would extend to the Willow Road on-ramp, two interchanges to the south. Both Alternatives 3 and 8B would provide adequate vehicle storage to avoid vehicle queuing from the northbound and southbound off-ramps onto the mainline of US 101.

Design Year (2042)

In 2042, 11 existing intersections would operate at LOS E or F in the AM and/or PM peak hours with the No Build Alternative, compared with 10 intersections under Alternative 3. Alternative 8B is projected to also have 11 intersections that operate at LOS E or F in the AM and/or PM peak hours. As shown in Table 2.1.7-6, levels of service and/or delay times would generally improve with both Build Alternatives at all but four study intersections. Compared with No Build Alternative, delay times would increase by 30 seconds or more at the Lyngso Access/Seaport Boulevard, Spring Street/Woodside Road, Middlefield Road/Woodside Road, and Oddstad Drive/Maple Street intersections. Notably, delay times with Alternative 8B would increase by 2 minutes or more at the intersections of Lyngso Access/Seaport Boulevard (2.2 minutes in the AM peak hour and 2.9 minutes in the PM peak hour) and Spring Street/Woodside Road (5.1 minutes in the AM peak hour). In general, delays would increase at these locations because the improvements at the interchange with the Build Alternatives would allow more vehicles to reach these intersections than with the No Build Alternative.

Table 2.1.7-6: 2042 Peak Hour Intersection Analysis

Intersection	Peak Hour	No Build Alternative		Alternative 3		Alternative 8B	
		Delay (seconds)	LOS	Delay (seconds)	LOS	Delay (seconds)	LOS
1. Blomquist Street / Seaport Boulevard	AM	212	**F**	41	D	41	D
	PM	223	**F**	58	**E**	153	**F**
2. Lyngso Access / Seaport Boulevard	AM	51	**F**	101	**F**	180	**F**
	PM	45	**E**	105	**F**	221	**F**
3. Veterans Boulevard / Woodside Road (US 101 SB Ramps/Woodside Road with Build Alternatives)	AM	119	**F**	23	C	20	B
	PM	109	**F**	29	C	19	B
4. Broadway / Woodside Road	AM	353	**F**	64	**E**	63	**E**
	PM	287	**F**	58	**E**	54	D
5. Bay Road / Woodside Road	AM	157	**F**	65	**E**	66	**E**
	PM	528	**F**	44	D	45	D
6. Spring Street / Woodside Road	AM	110	**F**	153	**F**	418	**F**
	PM	388	**F**	11	B	21	C
7. Middlefield Road / Woodside Road	AM	332	**F**	362	**F**	382	**F**
	PM	419	**F**	473	**F**	446	**F**
8. Blomquist Street / Maple Street	AM	7	A	6	A	7	A
	PM	6	A	6	A	6	A
9. Oddstad Drive / Maple Street	AM	12	B	14	B	16	C
	PM	120	**F**	304	**F**	280	**F**
10. Veterans Boulevard / Maple Street	AM	31	C	31	C	31	C
	PM	105	**F**	81	**F**	99	**F**
11. Veterans Boulevard / Chestnut Street	AM	72	**E**	17	B	17	B
	PM	144	**F**	102	**F**	72	**E**
12. Broadway / Chestnut Street	AM	261	**F**	48	D	50	D
	PM	362	**F**	258	**F**	244	**F**
13. US 101 NB Ramps/Woodside Road Signal	AM	Does not exist		15	B	18	B
	PM			17	B	126	**F**

Source: Fehr & Peers 2015, **Bold** indicates unacceptable condition (LOS E or F).

At other intersections, the Build Alternatives would reduce delay compared to the No Build Alternative. Both of the Build Alternatives would reduce delay by 2 minutes or more during the AM or PM peak hours at the following intersections:

- Blomquist Street/Seaport Boulevard (approximately 3 minutes in the AM peak)
- Broadway/Woodside Road (approximately 5 minutes in the AM peak and approximately 4 minutes in the PM peak)
- Bay Road/Woodside Road (more than 8 minutes in the PM peak)
- Spring Street/Woodside Road (more than 6 minutes in the PM peak)
- Broadway/Chestnut Street (more than 3 minutes in the AM peak)

In addition, Alternative 3 would reduce delay by approximately 3 minutes in the PM peak at the Blomquist Street/Seaport Boulevard intersection, and Alternative 8B would reduce delay by approximately 2 minutes in the PM peak at the Broadway/Chestnut Street intersection.

In 2042, under the No Build condition, the southbound and northbound US 101 off-ramp vehicle queues would extend onto the US 101 mainline due to congestion at the ramp intersections with Woodside Road/Seaport Boulevard during both the AM and PM peaks. No peak hour queue spillback onto US 101 is anticipated with either of the Build Alternatives. However, for the PM peak hour, both Build Alternatives would have queue spillback into the local street system from the ramp meters at the northbound and southbound US 101 on-ramps. With Alternative 8B, queue spillback from the northbound US 101 ramp meters would worsen PM peak hour operations at the following intersections compared with Alternative 3:

- Blomquist Street/Seaport Boulevard (58 seconds of delay and LOS E with Alternative 3; 153 seconds [2.6 minutes] of delay and LOS F with Alternative 8B)
- US 101 northbound ramps/Woodside Road: (17 seconds of delay and LOS B with Alternative 3; 126 seconds [just over 2 minutes] of delay and LOS F with Alternative 8B).

The difference in operations at these intersections with Alternative 8B would result from the way westbound and eastbound Woodside Road traffic accesses US 101 and the amount of vehicle storage provided at the on-ramp meters. Because Alternative 8B would allow less traffic to access the local street system, operations at the Broadway/Woodside Road and Veterans Boulevard/Chestnut Street would improve compared with Alternative 3.

In general, for 2042, Alternative 3 would result in a greater reduction of peak hour traffic congestion at the US 101/Woodside Road interchange than Alternative 8B.

Construction Impacts

Some nighttime lane closures of US 101 would be required for safety reasons during construction. In addition, some nighttime freeway closures would be required to construct parts of the northbound off-ramp connector to Veterans Boulevard. Short-term closures of existing interchange ramps, sidewalks, and the Bay Trail may be necessary during construction. Vehicle, bicycle, and pedestrian access throughout the interchange area would be maintained throughout project construction.

Pedestrian and Bicycle Facilities

The No Build Alternative would not improve pedestrian or bicycle facilities in the project area. Sidewalks and bikeways are proposed as part of the correctional center project that is under construction northeast of Maple Street and US 101 and would be included in future projects in the Inner Harbor Specific Plan area. However, these improvements would be northeast of the US 101/Woodside Road interchange and would not increase pedestrian or bicycle access in the project area.

Both Build Alternatives would provide two locations where pedestrians and bicyclists can cross under US 101: Woodside Road and the proposed Class I bikeway along the UPRR tracks. Sidewalks and Class IV bikeways would be added to both sides of Woodside Road between Broadway and Bay Road. Both Build Alternatives would provide a combination of Class I and IV bikeways and sidewalks on Woodside Road between Broadway and Blomquist Street.

Alternative 3 would also provide a new Class I bikeway along the west side of the relocated segment of Veterans Boulevard, between Charter Street and Chestnut Street.

The proposed improvements would be compatible with sidewalk and bikeway facilities that are planned or proposed as part of the correctional center and other future projects in the Inner Harbor Specific Plan area.

Access through the project area would be designed with consideration of low-mobility groups. The Build Alternatives would upgrade existing and build new sidewalks in the project limits to meet Americans with Disabilities Act standards, California Code of Regulations Title 24 requirements, and the Department's Design Information Bulletin 82-05 standards. Design features would include ramped curbs at intersections and accessible locations for public transit stops.

2.1.7.4 Avoidance, Minimization and/or Mitigation Measures

As an avoidance measure, the Department will develop a TMP to address impacts to motor vehicle, transit, bicycle, and pedestrian access during project construction. The TMP for the project would be developed and refined during the detailed design phase and supported by detailed traffic studies to evaluate traffic operations. The TMP would include press releases to notify and inform motorists, businesses, community groups, local entities, and emergency services of upcoming closures or detours. Various TMP elements such as portable Changeable Message Signs and the Construction Zone Enhance Enforcement Program may be used to alleviate and minimize delay to the traveling public. These are typical measures required of the contractor, and would be developed or defined in detail in the TMP during the design phase of the project.

2.1.8 Visual/Aesthetics

2.1.8.1 Regulatory Setting

The National Environmental Policy Act of 1969 as amended (NEPA) establishes that the federal government use all practicable means to ensure all Americans safe, healthful, productive, and *aesthetically* (emphasis added) and culturally pleasing surroundings (42 USC 4331[b][2]). To further emphasize this point, the FHWA in its implementation of NEPA (23 USC 109[h]) directs that final decisions on projects are to be made in the best overall public interest taking into account adverse environmental impacts, including among others, the destruction or disruption of aesthetic values.

The CEQA establishes that it is the policy of the state to take all action necessary to provide the people of the state "with…enjoyment of *aesthetic*, natural, scenic and historic environmental qualities" (CA Public Resources Code Section 21001[b]).

2.1.8.2 Affected Environment

This section addresses the visual setting of the project area as described in the *Visual Impact Assessment* (URS 2015b) completed in June 2015.

The landscape in the project area is densely urbanized and characterized by relatively flat terrain south and east of San Francisco Bay, with mature highway landscaping in the US 101/Woodside Road interchange area that includes groves of redwoods, eucalyptus and other trees and shrubs. The land use within the project corridors is primarily urban with commercial, industrial, and government (U.S. Post Office and Redwood City Municipal Service Center maintenance yard) uses, but also includes a private school (Summit Preparatory Charter High School), a Bay Trail segment, Hoover Park, and residential neighborhoods. A PG&E substation is visible along the northbound US 101 on-ramp from Seaport Boulevard.

Scenic Quality

According to the Department's California Scenic Highway Mapping System, US 101 and SR 84 within the project limits are not designated scenic highways. A total of 1.77 miles of non-contiguous portions of US 101 within the project limits are classified as a landscaped freeway, a designation used to control and regulate outdoor advertising (Caltrans 2014b).

No scenic resources as defined by the CEQA exist along the project corridor. According to the San Mateo County General Plan visual policies, preservation of trees and vegetation is a priority for the county. The City of Redwood City General Plan does not designate any resources within the project area as scenic resources (City of Redwood City 2010c).

No residences are adjacent to the interchange where modifications would be visible. Hoover Park at the intersection of Woodside Road and Spring Street is the nearest public park, and views of the project from the park would be limited to the Woodside Road/Spring Street intersection. A Bay Trail segment extends along the east side of Seaport Boulevard from the East Bayshore Road/Blomquist Street intersection northward to the end of Seaport Boulevard. The interchange and some project features would be in the viewshed of this Bay Trail segment near Blomquist Street.

From vantage points along Woodside Boulevard, eastbound motorists between approximately Bay Road and Broadway have minimal views of the existing US 101 overcrossing due to intervening groves of trees that exist along Broadway, Woodside Road, Veterans Boulevard, and the freeway. However, continuing along eastbound Woodside Road between approximately Broadway and US 101, the freeway overpass, on- and off-ramps, and earth embankments along the ramps become more visible. Drivers on Veterans Boulevard between approximately Chestnut Street and Woodside Road have views of the earth embankment of US 101, groves of mature eucalyptus trees, and the existing US 101 southbound off-ramp structure.

From vantage points on southbound US 101, approaching the Woodside Road interchange, visible structures include buildings on both sides of the highway, the southbound off-ramp, the median barrier, overhead signs, lights, and utility lines. Northbound motorists approaching the interchange have views of sound walls along the travel lanes until reaching the interchange's Seaport Boulevard off-ramp. At the interchange, the freeway rises to pass over Seaport Boulevard/Woodside Road, and mature trees are visible within the freeway right-of-way and ramps. From the highest point of the US 101 interchange overcrossing (of Seaport Boulevard/ Woodside Road), there are views of distant ridge lines, regional development, salt crystallizer beds, and utility structures and lines.

2.1.8.3 Environmental Consequences

Visual Resources and Resource Change

The visual character (the natural and man-made components that comprise a particular view) of the proposed project would be compatible with the existing visual character of the corridor. The existing interchange includes a combination of large concrete structures such as the US 101 overcrossing at Woodside Road, multiple vertical support columns, and linear ramps, as well as natural features such as groves of mature trees and shrubs. The project would reconstruct the ramp connections in a general character similar to the existing ramps.

The most visible change would be the flyover ramps connecting Veterans Boulevard with the US 101 northbound off-ramp and southbound on-ramp proposed for both Build Alternatives. The flyover ramps would be consistent in character with the existing highway overcrossing of Woodside Road at this same location and to other highway overcrossings within US 101 in the system. At 30 feet above US 101 at its highest elevation, the flyover ramps would be visible to highway motorists, although briefly, at typical highway driving speeds. Motorists on US 101, as well as pedestrians and bicyclists on Woodside Road, Seaport Boulevard, and East Bayshore Road, could be more aware that there is an interchange at this location with the flyover ramps in view. From the office buildings and commercial uses nearest the interchange, the flyover ramps would be consistent in appearance with the existing highway. Figures 2.1.8-1 and 2.1.8-2 show the existing and simulated with-project view of the flyover ramps from the perspective of a motorist on northbound US 101. Since the flyover ramp is part of both Build Alternatives, the simulated views would be representative of either Build Alternative.

Figure 2.1.8-1: Existing View Toward Woodside Road/Seaport Boulevard on Northbound US 101

Figure 2.1.8-2: Simulated View of Proposed Veterans Boulevard Flyover, Looking Toward Woodside Road/Seaport Boulevard on Northbound US 101

Both Build Alternatives would also require full acquisition of three properties in the project area (a restaurant, a parking lot, and a storage facility). Acquisition of the parking lot or storage facility would not affect visual resources, but acquisition of the restaurant would open up the view along the Woodside Road corridor.

The other notable change in the view of the project area would be the removal of existing trees within the interchange and along Seaport Boulevard, Woodside Road, and Veterans Boulevard. Motorists on Woodside Road and Veterans Boulevard currently have screened views of the existing US 101 overcrossing due to intervening groves of mature trees in the interchange area. In contrast, motorists driving south on Seaport Boulevard have views that include minimal vegetation, and can currently see utility towers and transmission lines, the northbound off-ramp overcrossing, low-rise office buildings, and the coastal hills in the distance.

Following construction, there would be areas in all quadrants of the interchange and along the local streets that would be replanted with trees and shrubs. Segments of US 101 within the project area are designated as landscaped freeway, and for both Build Alternatives there would be adequate space within each quadrant of the interchange for landscape planting. Locations, heights, and species of replacement planting would conform with Department plant setback and spacing guidelines to provide adequate sight distances and recovery zones.

Replacement planting using trees and tall shrubs would provide at least partial screening of views of adjacent industrial buildings, the PG&E substation, and the interchange structures. The locations of replacement trees and other landscaping would be in accordance with setback and line-of-sight guidelines to protect public safety. Where tall trees and shrubs are not permitted because of sight distance setback requirements, smaller shrubs and ground covers would be planted to help blend highway structures into the environment. Alternative 3 would require 10 acres of replacement planting, and Alternative 8B would require 11 acres.

Views of the existing corridors would not be significantly altered by the proposed project. Existing views from the interchange of the surrounding terrain and distant hills would still be available. No scenic resources are visible from within or adjacent to the project limits.

The overall quality of existing views ranges from moderate to low in elements of memorability, freedom of encroachment by urban structures on the natural environment, and the balance between natural and structural features in the landscape. These views are moderate to low in terms of scenic experience and would not change with the proposed project.

Viewers and Viewer Response

Land uses at the interchange are primarily commercial, industrial, and government (Section 2.1.8.2), but also include a school, a segment of the Bay Trail, and a park. In general, people at these neighboring land uses would notice the changes but are not expected to have an adverse reaction to the project with respect to visual resources. Frequent travelers on Woodside Road would notice the proposed removal of the restaurant at Woodside Road and Broadway. Near Hoover Park, at the southwest project limits on Woodside Road at Spring Street, only lane restriping and minor lane realignment would occur and would not result in notable long-term changes. No existing views to or from commercial establishments or office uses would be blocked. No residences would be affected, as none are in the immediate vicinity of the project. Woodside Road would remain on approximately the same alignment but would have one additional lane, and the roadway grade would

be lowered by approximately 1 foot where it crosses underneath US 101. The interchange ramps would be reconfigured but would not result in a negative reaction from viewers at neighboring land uses.

Figure 2.1.8-3: Existing View Looking North Toward US 101 on Woodside Road

Figure 2.1.8-4: Simulated View, Looking North Toward US 101 on Woodside Road

Viewer exposure (the ability for viewers to be exposed to views of the project area) would change with the addition of the flyover ramps between US 101 and Veterans Boulevard, and the removal of existing mature trees and other vegetation within the interchange area. Existing groves of mature trees within the Department right-of-way screen most views of the interchange except at the southbound off-ramp to Woodside Road at the UPRR undercrossing. Prior to growth of any replacement landscaping, the new Veterans Boulevard flyover ramps would be the most noticeable change to viewers at adjacent land uses, and to motorists on US 101, Woodside Road, and Seaport Boulevard (both are considered to have low to moderate-low visual sensitivity, or frequency with which they notice the view). Figure 2.1.8-3 shows a representative view of the interchange area from the perspective of a motorist on northbound Woodside Road, approaching Broadway.

Figure 2.1.8-4 from the same viewpoint shows the proposed Veterans Boulevard flyover ramps in place, removal of the restaurant at Woodside Road and Broadway, and conceptual landscaping along the freeway and Veterans Boulevard.

Viewer exposure and the subsequent response for pedestrians and bicyclists would generally improve compared to existing and No Build conditions. Woodside Road has no sidewalks or bicycle lanes between Bay Road and Blomquist Street, and both Build Alternatives would add sidewalks and a combination of Class I and IV bikeways, including along the UPRR alignment. Portions of these sidewalks and bikeways would be adjacent to landscaped areas within the interchange quadrants, including where existing ramps are removed. The varying heights of the landscaping (low heights near the ramps to allow for adequate sight distance, and higher shrubs and trees set back from the ramps) would provide varying visual buffers that would partially screen views of the ramps and highway, and help enhance the appearance of the facility. Views of the project area would not substantially change for pedestrians and bicyclists heading south on the Bay Trail segment along Seaport Boulevard and from Hoover Park at the intersection of Woodside Road and Spring Street.

Temporary Impacts

The US 101/ Woodside Road interchange is a major local and regional interchange, and reconstruction of the facility would be performed in stages that allow for continued access. For both Build Alternatives, views of construction would include temporary falsework (the use of forms for pouring concrete) to build the Veterans Boulevard flyover ramps and some of the new on- and off-ramps, staging of equipment and materials within the interchange area, concrete safety barriers, detour signs and flagging, and nighttime lighting. Portions of existing ramps would also need to be removed, requiring heavy equipment and possibly cranes. These activities and equipment would be in view over the duration of the three-year construction period, but would move to different locations of the project area as work is completed.

Permanent Impacts

The project would include interchange structures and alterations to Woodside Road, Seaport Boulevard, East Bayshore Road, Blomquist Street, Broadway, and Bay Road. There are no locations within the project limits where the Build Alternatives are expected to diminish the visual character or quality of views from the perspective of motorists or persons within any land uses. With replacement highway planting, the areas would be visually enhanced. Overall, the visual impacts would range from low to moderate-low.

The proposed Veterans Boulevard flyover of US 101 would have generally the same configuration for both Build Alternatives and would be in motorists' viewsheds for a short duration. From the elevated vantage point of the flyover, motorists would have views of scenic resources to the north and south including San Francisco Bay, salt crystallizer beds, and hillsides and ridges surrounding the Bay. Veterans Boulevard motorists traveling east from Chestnut Street would ascend the flyover to pass over Woodside Road and would have views of the portion of the ramp that would split, descend, and connect to the US 101 southbound on-ramp. The flyover would be approximately 0.5 mile away from Bay Trail users along Seaport Boulevard and would not be highly prominent in their viewshed. The Veterans Boulevard flyover would not substantially diminish the character and quality of the views from motorists' or other nearby viewers' perspective, and no adverse visual impacts would occur (moderate-low impact).

As noted previously, the existing groves of trees at the interchange would be removed, exposing views of the highway and ramps. In addition, a small amount of landscaping may be removed along the corner of Seaport Boulevard and East Bayshore Road and Woodside Road. These impacts would occur with both Build Alternatives. Highway planting, including groves of trees in the interchange, would be replaced based upon adequate setback and sight distance requirements. With replacement, the impact of vegetation removal is considered moderate-low. With the replacement planting, the segments of US 101 within the project limits that are designated as Landscaped Freeway are expected to retain this status.

At the current terminus of the Bay Trail segment at the intersection of Seaport Boulevard/Blomquist Street/East Bayshore Road, the intersection would be widened, but there would be no adverse changes to existing views of the Bay or shoreline. For both Build Alternatives, bicyclists and pedestrians would have a new Class I bikeway that is parallel to the east side of the existing UPRR tracks. From Seaport Boulevard, the bikeway would cross under US 101 and the southbound US 101 off-ramp to Woodside Road and connect with Chestnut Street to the south. The bikeway would be separated from the railroad tracks by a 4- to 13-foot-high concrete or masonry wall. No scenic views would be blocked by the walls. Daylight and land uses beyond both ends of the undercrossing would be visible to bikeway users from the undercrossing. The visual experience of bicyclists and pedestrians would be new since there is no existing bikeway at this location.

There are no substantial differences in visual quality between the Build Alternatives. The visual experience of motorists on US 101 would be enhanced with the addition of replacement planting in the interchange and along the highway. The No Build Alternative would not change the existing visual setting or appearance of the highway or local roads.

No controversial elements regarding project-related visual impacts have been identified in any of the public outreach and scoping meetings held to date. No sound walls are proposed, and the retaining walls and safety barriers for this project (described in Section 1.3.1.3) would not block any significant views and with the addition of architectural treatment, would enhance the corridor. The treatment for the walls may consist of textures or theme-type patterns, and the development of the treatment design would involve the City of Redwood City. With the incorporation of the measures listed in Section 2.1.8.4 into the project design and post-construction landscaping, neither of the Build Alternatives would have an adverse impact on visual resources.

2.1.8.4 Avoidance, Minimization, and/or Mitigation Measures

Minimization measures will be implemented with concurrence from the District Landscape Architect and include:

- The project design will incorporate architectural treatment to all walls, bridges, and barriers. The City of Redwood City will be included in the design and selection of any aesthetic treatment for the project.
- Replacement highway planting will be provided in all unpaved areas within the project limits for the selected alternative. Replacement planting, including trees, shrubs and groundcover, will meet the Department's current setback and sight distance requirements.

Highway planting will be completed as a separate project and encompass a three-year plant establishment period.

2.1.9 Cultural Resources

2.1.9.1 Regulatory Setting

The term "cultural resources" as used in this document refers to all "built environment" resources (structures, bridges, railroads, water conveyance systems, etc.), culturally important resources, and archaeological resources (both prehistoric and historic), regardless of significance. Laws and regulations dealing with cultural resources include:

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

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

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

Historical resources are considered under the CEQA as well as CA PRC Section 5024.1, which established the California Register of Historical Resources. PRC Section 5024 requires state agencies to identify and protect state-owned resources that meet the National Register of Historic Places listing criteria. It further specifically requires the Department to inventory state-owned structures in its rights-of-way.

2.1.9.2 Affected Environment

The following section is based on information from the *Archaeological Survey Report* (URS 2015c), *Historic Resources Evaluation Report* (JRP 2015), *Historic Property Survey Report* (URS 2015d), and *Extended Phase I Study* (URS 2015e) completed for the proposed project in August 2015.

The study areas for cultural resources investigations are referred to as Area of Potential Effects (APE). The archaeological and architectural APE for the project consist of US 101 within the Department right-of-way from PM 4.9 to 5.8 and Woodside Road within the Department right-of-way from PM 25.3 to 25.7 on SR-84, to 0.1 mile north of the Seaport Boulevard/East Bayshore Road/Blomquist Street intersection. The APE does not include the full extent of the

project limits on US 101 because no project construction or staging is proposed on US 101 north of PM 5.8 or south of PM 4.9.

The architectural APE also includes the US 101/Woodside Road interchange and adjacent properties along Blomquist Street, Seaport Boulevard, East Bayshore Road, Mills Way, Broadway, Veterans Boulevard, and US 101 (Bayshore Highway).

The APE represents the maximum extent of project-related activities for the proposed undertaking. The APE includes all areas that could be permanently or temporarily affected by the proposed project, including for construction staging and laydown.

The vertical APE represents the maximum vertical extent of project-related activities for the proposed undertaking and varies throughout the project area depending on the project activity. The most substantial vertical impacts are associated with the direct-connect flyover ramps for Veterans Boulevard, where impact-driven piles would be installed to a depth of 65 feet below ground surface. Other vertical impacts include cement deep soil mixing, retaining wall construction, utility relocation, and drainage modifications. The vertical impacts of these activities range from approximately 3 to 50 feet.

Records and Archival Review

A cultural resources records search for the project was conducted at the Northwest Information Center of the California Historical Resources Information System, at California State University, Sonoma. Reports for previous studies were reviewed for the APE and a 0.25-mile radius. Other standard cultural resource inventories and references were also reviewed. Seven cultural resources were identified within the APE.

No additional sites have been identified that would qualify as historical resources for purposes of CEQA.

Native American Consultation

The Native American Heritage Commission (NAHC) was contacted on August 22, 2014, to request a search of the Sacred Lands File for cultural resources of significance to Native Americans within or near the APE. The NAHC responded on September 2, 2014, that no sacred lands were identified in the project APE. The NAHC provided a list of Native Americans who may have concerns about the project or knowledge of cultural resources in the area. Letters or e-mails requesting comments and concerns about the project were sent to each individual on the list in September 2014, and follow-up e-mails and calls were placed. One response was received. A representative of the Indian Canyon Mutsun Band of Costanoan expressed concern about the archaeological sensitivity of the area and asked that a Native American monitor be present during construction activities.

Field Survey Results

A substantial portion of the APE is paved and/or has been previously surveyed. Accessible portions of the archaeological APE were surveyed by archaeologists in October and December 2014. No cultural resources were identified.

Potential for Presence of Buried Resources

The project would require subsurface disturbance in the form of impact-driven piles, retaining walls, utility trenching, and draining modification. Previous studies and project vicinity geomorphology indicate that the APE has the potential to contain buried archaeological deposits.

Subsurface geoarchaeological explorations were undertaken as a good-faith effort to identify obscured or buried archaeological resources that could be affected by project construction. No cultural resources were found during the subsurface testing.

2.1.9.3 Environmental Consequences

Cultural resources were identified within the APE, although they were determined ineligible for listing in the NRHP. Therefore, the cultural resources finding for this project is No Historic Properties Affected. The Department submitted the cultural resources studies to the SHPO on August 26, 2015, for concurrence on the eligibility of the resources within the APE. The SHPO provided concurrence on October 8, 2015 (Appendix F).

The project would not cause a substantial adverse change to a historical or archaeological resource as defined by CEQA. The APE does not contain any Section 4(f) historic resources.

The No Build Alternative would not affect cultural resources.

2.1.9.4 Avoidance, Minimization and/or Mitigation Measures

If cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area will be diverted until a qualified archaeologist can assess the nature and significance of the find.

If human remains are discovered, State Health and Safety Code Section 7050.5 states that further disturbances and activities shall stop in any area or nearby area suspected to overlie remains, and the County Coroner contacted. Pursuant to CA PRC Section 5097.98, if the remains are thought to be Native American, the coroner will notify the NAHC, which will then notify the Most Likely Descendent (MLD). At this time, the person who discovered the remains will contact the District Environmental Branch so that they may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.

2.2 Physical Environment

2.2.1 Hydrology and Floodplain

2.2.1.1 Regulatory Setting

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

To comply, the following must be analyzed:

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

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

2.2.1.2 Affected Environment

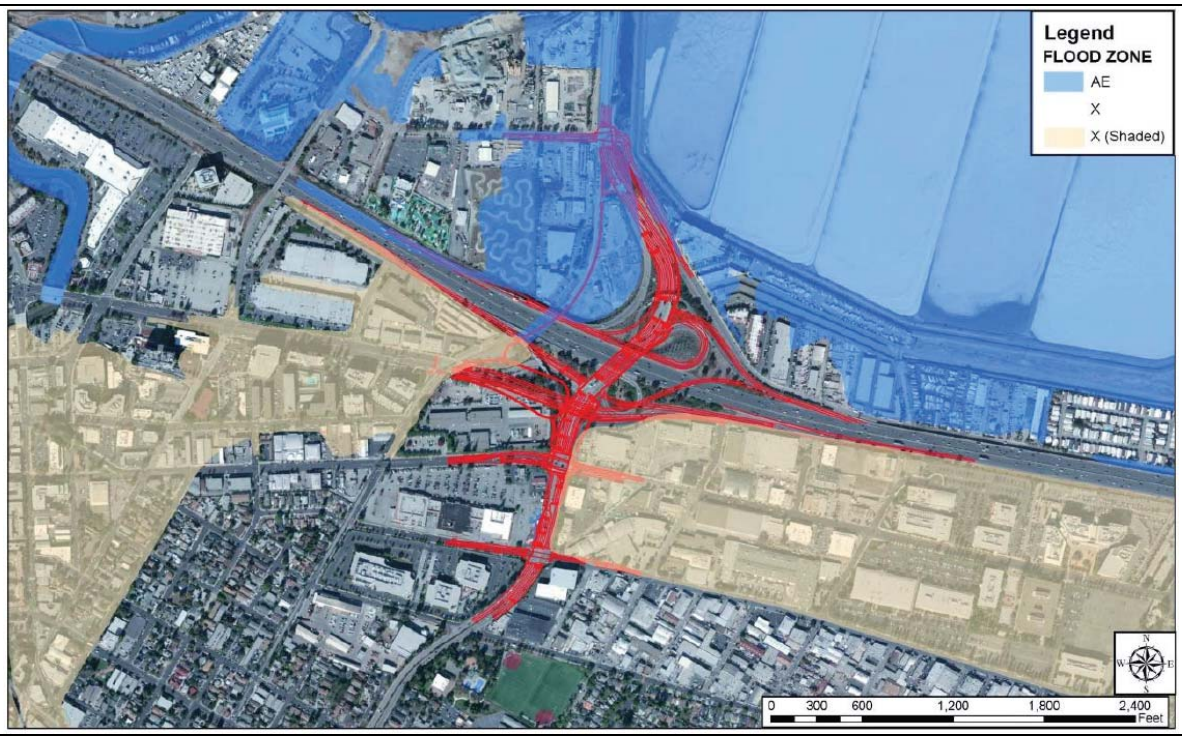
The following discussion is based on the *Location Hydraulic Study Report* (WRECO 2015a) for the proposed project, which was completed in June 2015.

US 101 crosses Redwood Creek approximately 0.8 mile west of Woodside Road. East of the project area, Redwood Creek is a tidal channel. The creek discharges to San Francisco Bay approximately 3.3 miles downstream of the project area.

Roadside drainage ditches in the project area drain to culverts or storm water drains and eventually to San Francisco Bay. East of Seaport Boulevard are engineered salt crystallizer beds and associated engineered canals.

The project limits are in Federal Emergency Management Agency (FEMA) delineated floodplains that are tidal floodplains of San Francisco Bay. As shown in Figure 2.2.1-1, FEMA Flood Insurance Rate Maps (06081C0301E and 06081C0302E) show that portions of the project area are located within Flood Hazard Zones AE, X (unshaded), and X (shaded). Zone AE represents areas that are subject to inundation by the 100-year flood event, and where base flood elevations are determined. Zone X (shaded) represents areas that would be affected by the 500-year flood. Zone X (unshaded) represents areas of minimal flood hazard, which are outside of the Special Flood Hazard Area and higher than the elevation of the 500-year flood.

Although Redwood Creek is the nearest surface water body within the project limits, the 100-year flood elevations in the project area are controlled by San Francisco Bay.



Floodplain map with aerial image: Alternative 3, above; Alternative 8B, below

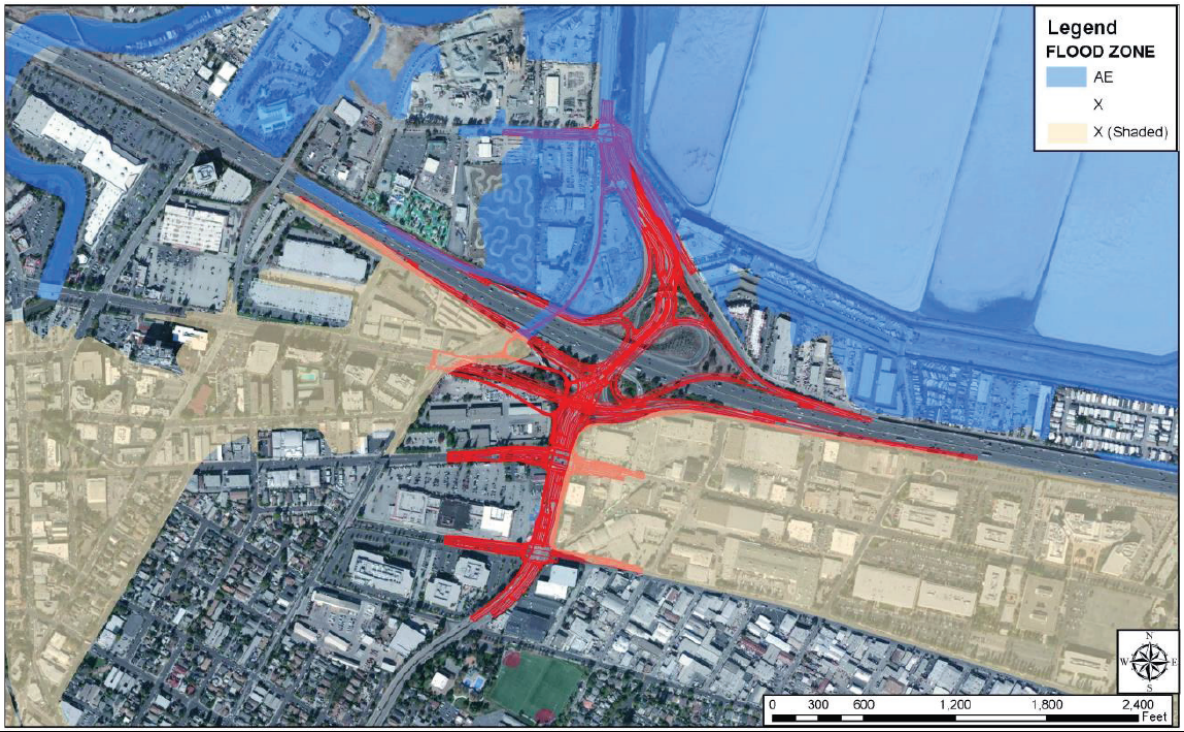


Figure 2.2.1-1: Floodplains in the Project Vicinity

Source: Wreco 2015a, FIRM 06081C0301E and 06081C0302E

2.2.1.3 Environmental Consequences

The No Build Alternative would not result in changes to the existing interchange. The interchange would continue to have features in the 100-year floodplain.

Longitudinal Encroachment

As defined by FHWA, a longitudinal encroachment is an action within the limits of the base floodplain that is longitudinal to the normal direction of the floodplain. The project does not constitute a longitudinal encroachment of the base floodplain.

Risks of the Action

Both Build Alternatives would include roadway widening around the Seaport Boulevard/East Bayshore Road/Blomquist Road intersection, which is in the 100-year floodplain. The new Class I bikeway and retaining wall adjacent to the UPRR tracks would also be within the 100-year floodplain but would be in a cut section and therefore not result in fill. The added impervious surface from the project would be 4.22 acres with Alternative 3 and 5.03 acres with Alternative 8B. The total added impervious surface would represent less than 0.01 percent of the area of San Francisco Bay.

The increase in runoff due to the changes in surface condition would be relatively small, but the additional impervious area proposed for the project may increase the velocity and volume of the downstream flow. The reworked impervious area would be 11.03 acres with Alternative 3 and 28.36 acres for Alternative 8B. The project would provide permanent storm water treatment of 100 percent of the net added and reworked impervious surfaces.

No traffic interruptions from the base flood are expected in the project area. The project would not have significant potential for interruption or termination of a transportation route. Other local roads can be used for emergency vehicles or as evacuation routes. The project would not have a major impact to the floodplains within the project area, and therefore, would not have any adverse effect on traffic interruptions for the base flood.

Natural and Beneficial Floodplain Values

Natural and beneficial floodplain values in the project area include but are not limited to fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, aquaculture, forestry, natural moderation of floods, water quality maintenance, and groundwater recharge. Potential adverse effects to the natural and beneficial floodplain values include temporary loss of vegetation and potential effects to wildlife and fish species and habitats. Long-term adverse effects to the natural and beneficial floodplain values are not anticipated from the project.

Incompatible Floodplain Development

This project would not support incompatible floodplain development. The project would not create new access to developed or undeveloped land.

2.2.1.4 Avoidance, Minimization and/or Mitigation Measures

The proposed project has been designed to avoid and minimize encroachments and impacts to the maximum extent practicable. With implementation of the avoidance and minimization measures described in Section 2.2.2.4 and 2.3.2.4, the project would avoid impacts on natural and beneficial floodplain values. Measures to address the minor increase in impervious surfaces that would result from the project are described in Section 2.2.2.4. No additional avoidance, minimization, and/or mitigation measures are required.

2.2.2 Water Quality and Storm Water Runoff

2.2.2.1 Regulatory Setting

Federal Requirements: Clean Water Act

In 1972, Congress amended the Federal Water Pollution Control Act, making the addition of pollutants to the waters of the U.S. from any point source[10] unlawful unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. This act and its amendments are known today as the Clean Water Act (CWA). Congress has amended the act several times. In the 1987 amendments, Congress directed dischargers of storm water from municipal and industrial/construction point sources to comply with the NPDES permit scheme. The following are important CWA sections are:

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

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

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

Ordinarily, projects that do not meet the criteria for a Nationwide Permit may be permitted under one of the USACE's Standard permits. There are two types of Standard permits: Individual permits and Letters of Permission. For Standard permits, the USACE decision to approve is based on compliance with U.S. Environmental Protection Agency's (U.S. EPA's) Section 404 (b)(1) Guidelines (U.S. EPA CFR 40 Part 230), and whether the permit approval is in the public interest. The Section 404(b)(1) Guidelines were developed by the U.S. EPA in conjunction with the USACE, and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative which would have less adverse effects. The

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

Guidelines state that the USACE may not issue a permit if there is a least environmentally damaging practicable alternative (LEDPA) to the proposed discharge that would have lesser effects on waters of the U.S. and not have any other significant adverse environmental consequences. According to the Guidelines, documentation is needed that a sequence of avoidance, minimization, and compensation measures has been followed, in that order. The Guidelines also restrict permitting activities that violate water quality or toxic effluent[11] standards, jeopardize the continued existence of listed species, violate marine sanctuary protections, or cause "significant degradation" to waters of the U.S. In addition, every permit from the USACE, even if not subject to the Section 404(b)(1) Guidelines, must meet general requirements. See 33 CFR 320.4. A discussion of the LEDPA determination, if any, for the document is included in the Wetlands and Other Waters section.

State Requirements: Porter-Cologne Water Quality Control Act

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

The State Water Resources Control Board (SWRCB) and RWQCBs are responsible for establishing the water quality standards (objectives and beneficial uses) required by the CWA and regulating discharges to ensure compliance with the water quality standards. Details about water quality standards in a project area are included in the applicable RWQCB Basin Plan. In California, Regional Boards designate beneficial uses for all water body segments in their jurisdictions, and then set criteria necessary to protect these uses. As a result, the water quality standards developed for particular water segments are based on the designated use and vary depending on that use. In addition, the SWRCB identifies waters failing to meet standards for specific pollutants. These waters are then state-listed in accordance with CWA Section 303(d). If a state determines that waters are impaired for one or more constituents and the standards cannot be met through point source or non-point source controls (NPDES permits or WDRs), the CWA requires the establishment of Total Maximum Daily Loads (TMDLs). TMDLs specify allowable pollutant loads from all sources (point, non-point, and natural) for a given watershed.

State Water Resources Control Board and Regional Water Quality Control Boards

The SWRCB administers water rights, sets water pollution control policy, and issues water board orders on matters of statewide application, and oversees water quality functions throughout the state by approving Basin Plans, TMDLs, and NPDES permits. RWCQBs are responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility.

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

National Pollutant Discharge Elimination System (NPDES) Program

Municipal Separate Storm Sewer Systems (MS4)

Section 402(p) of the CWA requires the issuance of NPDES permits for five categories of storm water discharges, including Municipal Separate Storm Sewer Systems (MS4s). An MS4 is defined as "any conveyance or system of conveyances (roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, human-made channels, and storm drains) owned or operated by a state, city, town, county, or other public body having jurisdiction over storm water, that is designed or used for collecting or conveying storm water." The SWRCB has identified the Department as an owner/operator of an MS4 under federal regulations. The Department's MS4 permit covers all Department rights-of-way, properties, facilities, and activities in the state. The SWRCB or the RWQCB issues NPDES permits for five years, and permit requirements remain active until a new permit has been adopted.

The Department's MS4 Permit (Order No. 2012-0011-DWQ) was adopted on September 19, 2012 and became effective on July 1, 2013. The permit has basic requirements:

1. The Department must comply with the requirements of the Construction General Permit (see below);

2. The Department must implement a year-round program in all parts of the state to effectively control storm water and non-storm water discharges; and

3. The Department storm water discharges must meet water quality standards through implementation of permanent and temporary (construction) Best Management Practices (BMPs), to the Maximum Extent Practicable, and other measures as the SWRCB determines to be necessary to meet the water quality standards.

To comply with the permit, the Department developed the Statewide Storm Water Management Plan (SWMP) to address storm water pollution controls related to highway planning, design, construction, and maintenance activities throughout California. The SWMP assigns responsibilities within the Department for implementing storm water management procedures and practices as well as training, public education and participation, monitoring and research, program evaluation, and reporting activities. The SWMP describes the minimum procedures and practices the Department uses to reduce pollutants in storm water and non-storm water discharges. It outlines procedures and responsibilities for protecting water quality, including the selection and implementation of BMPs. The proposed project will be programmed to follow the guidelines and procedures outlined in the latest SWMP to address storm water runoff.

Construction General Permit

Construction General Permit (Order No. 2009-009-DWQ) as amended by 2010-0014 DWQ, adopted on November 16, 2010, became effective on February 14, 2011. The permit regulates storm water discharges from construction sites that result in a Disturbed Soil Area (DSA) of one acre or greater, and/or are smaller sites that are part of a larger common plan of development. By law, all storm water discharges associated with

construction activity where clearing, grading, and excavation result in soil disturbance of at least one acre must comply with the provisions of the General Construction Permit. Construction activity that results in soil disturbances of less than one acre is subject to this Construction General Permit if there is potential for significant water quality impairment resulting from the activity as determined by the RWQCB. Operators of regulated construction sites are required to develop storm water pollution prevention plans; to implement sediment, erosion, and pollution prevention control measures; and to obtain coverage under the Construction General Permit.

The Construction General Permit separates projects into Risk Levels 1, 2, or 3. Risk levels are determined during the planning and design phases, and are based on potential erosion and transport to receiving waters. Requirements apply according to the Risk Level determined. For example, a Risk Level 3 (highest risk) project would require compulsory storm water runoff pH and turbidity monitoring, and before construction and after construction aquatic biological assessments during specified seasonal windows. For all projects subject to the permit, applicants are required to develop and implement an effective Storm Water Pollution Prevention Plan (SWPPP).[12] In accordance with the Department's Standard Specifications, a Water Pollution Control Plan (WPCP) is necessary for projects with DSA less than one acre.

Section 401 Permitting

Under Section 401 of the CWA, any project requiring a federal license or permit that may result in a discharge to a water of the United States must obtain a 401 Certification, which certifies that the project will be in compliance with state water quality standards. The most common federal permits triggering 401 Certification are CWA Section 404 permits issued by the USACE. The 401 permit certifications are obtained from the appropriate RWQCB, dependent on the project location, and are required before the USACE issues a 404 permit.

In some cases, the RWQCB may have specific concerns with discharges associated with a project. As a result, the RWQCB may issue a set of requirements known as WDRs under the California Water Code (Porter-Cologne Act) that define activities, such as the inclusion of specific features, effluent limitations, monitoring, and plan submittals that are to be implemented for protecting or benefiting water quality. WDRs can be issued to address both permanent and temporary discharges of a project.

2.2.2.2 Affected Environment

This section is based on the *Water Quality Assessment Report* (WRECO 2015b), which was completed in April 2015. Hydrology and floodplains are discussed in Section 2.2.1.

Water resources in the project area consist of both surface and groundwater features and supplies.

[12] The Storm Water Pollution Prevention Plan (SWPPP) is a document that addresses water pollution control for construction projects. The SWPPP describes potential sources of storm water pollution, discusses activities associated with construction, and identifies Best Management Practices (BMPs) to reduce storm water pollution.

Surface Water Resources

As described in Section 2.2.1.2, Redwood Creek crosses under US 101 within the project limits and discharges to South San Francisco Bay approximately 3.3 miles downstream of the project area. The 2010 Integrated Report (Clean Water Act Section 303[d] List / 305[b] Report) does not list Redwood Creek as an impaired water body. However, South San Francisco Bay is listed as an impaired water body. It is subject to TMDL requirements that limit the amount of a given pollutant that a water body can receive without violating water quality standards and designated uses. Table 2.2.2-1 shows the list of pollutants, pollutant sources, and proposed or approved TMDL dates for South San Francisco Bay.

Table 2.2.2-1: Surface Water Quality in South San Francisco Bay

Stream Name	303(d) Listed Pollutant	Potential Source	TMDL Completion Date
South San Francisco Bay	Chlordane	Nonpoint source	TBD
	Dichlorodiphenyl-trichloroethane (DDT)	Nonpoint source	TBD
	Dieldrin	Nonpoint source	TBD
	Dioxin Compounds (including 2,3,7,8-tetrachlorodibenzodioxin)	Atmospheric deposition	2019
	Furan Compounds	Atmospheric deposition	2019
	Invasive Species	Ballast water	2019
	Mercury	Atmospheric deposition, industrial point sources, municipal point sources, natural sources, nonpoint source, resource extraction	2008
	Polychlorinated biphenyls (PCBs)	Unknown nonpoint source	2008
	PCBs (dioxin-like)	Unknown nonpoint source	2019
	Selenium	Domestic Use of Ground Water	2019

Notes: TBD = To be determined, TMDL = Total maximum daily load

The Basin Plan identifies beneficial uses of Redwood Creek as water contact recreation, non-contact water recreation, warm freshwater habitat, and wildlife habitat.

As the project lies in a low-gradient tidal area, it is exempt from incorporating hydromodification measures.

Groundwater Resources

The project area overlies the Santa Clara Valley – San Mateo Plain groundwater basins (San Francisco Regional Water Quality Control Board [SFRWQCB] 2013). Monitoring well data between 1993 and 2013 indicate that groundwater levels in the project area vary from elevation -1.6 to 3.9 feet (NAVD88), consistent with the close proximity to San Francisco Bay.

The Basin Plan (SFRWQCB 2013) identifies narrative and numerical groundwater objectives for the region. It states, “at a minimum, groundwater shall not contain concentrations of bacteria, chemical constituents, radioactivity, or substances producing taste and odor.”

The existing beneficial uses listed for the Santa Clara Valley – San Mateo Plain groundwater basin are municipal and domestic water supply, industrial process water supply, and industrial service water supply.

Groundwater sub-basins identified as having the existing groundwater beneficial use of municipal and domestic water supply are subject to further narrative and numeric groundwater objectives for bacteria, organic and inorganic constituents, radioactivity, and taste and odor.

2.2.2.3 Environmental Consequences

Short-Term (Construction) Impacts

During construction, potential water quality impacts could include sediment-laden discharge from disturbed soil areas and pollutant-laden discharge from storage or work areas. Alternative 3 would result in 22.99 acres of disturbed soil area, and Alternative 8B would result in 24.98 acres of disturbed soil area. Generally, as the disturbed soil area increases, the potential for temporary water quality impacts also increases.

Grading and excavation could cause minor erosion and runoff of topsoils into the drainage systems along the project corridor, which could temporarily affect water in Redwood Creek. Storm water runoff from the project area could transport pollutants to nearby receiving waters and storm drains if BMPs are not properly implemented.

Fueling or maintenance of construction vehicles could take place within the project area during construction, so accidental spills or releases of fuels, oils, or other potentially toxic materials could occur. An accidental release of these materials may pose a threat to water quality if contaminants enter storm drains, open channels, or surface water bodies. The magnitude of the impact from an accidental release depends on the amount and type of material spilled.

The proposed project would not involve substantial excavations that would affect groundwater resources. As stated in Section 1.3.1.3, dewatering is anticipated for installation of structure footings due to the shallow groundwater depth in the project area.

Long-Term (Permanent) Impacts

The project does not propose work within waterway crossings. The proposed widening and modifications to the existing freeway ramps and local roadways are expected to result in the fill or removal of existing ditches, modification or relocation of existing longitudinal drainage structures, extension or relocation of existing cross culverts, and construction of new drainage structures. The added impervious area created by the project would result in minimal increases in storm water runoff ultimately flowing to Redwood Creek. Existing drainage systems at the edge of shoulders or in the roadway medians may be modified to accommodate project changes.

Any increase in impervious surfaces, such as the additional lane on Woodside Road or the proposed Veterans Boulevard flyover ramps, would result in some additional storm water flow, including potential sediments. However, the additional impervious area is insignificant relative to the 9.3 square miles of the Redwood Creek watershed. Any storm water impacts would be mitigated through the proper implementation of permanent design pollution prevention BMPs.

Generally, highway storm water runoff has the following pollutants: total suspended solids, nitrate nitrogen, total Kjeldahl nitrogen, phosphorous, ortho-phosphate, copper, lead and zinc (Caltrans 2003). Some sources of these pollutants are natural erosion, phosphorus from tree

leaves, combustion products from fossil fuels, and the wearing of brake pads and tires. The No Build Alternative could have permanent water quality impacts due to continuing congestion, and subsequently a greater deposition of particulates from exhaust and heavy metals from braking. Both Build Alternatives could also potentially result in increased deposition of particulates resulting from increased traffic loads throughout the project area.

The addition of impervious area would reduce the available unpaved area that previously allowed runoff to infiltrate into the native soils. The reduction of runoff infiltration has the potential to result in loss in volume or amount of water that previously recharged localized aquifers and to reduce regional groundwater volumes. The reduction in local aquifer and groundwater recharge also has the potential to affect the beneficial uses of groundwater basins. However, the added impervious area for both of the Build Alternatives is minimal (4.22 acres with Alternative 3 and 5.03 acres with Alternative 8B; WRECO 2015b) compared to the 48,100-acre surface area of the groundwater basin. The proposed project is expected to result in minor impacts to water quality with the avoidance and minimization measures incorporated into the project design and construction.

2.2.2.4 Avoidance, Minimization, and/or Mitigation Measures

The project will avoid environmentally sensitive areas in or adjacent to the project limits (as described in Section 2.3.2.4). Measures would be employed to prevent construction material or debris from entering surface waters or their channels. BMPs for erosion control would be implemented and in place prior to, during, and after construction in order to ensure that no silt or sediment enters surface waters. To avoid storm water impacts, the project would be phased to minimize soil-disturbing work during rain events. Avoidance and minimization measures for wetlands and other waters of the U.S. are discussed in Section 2.3.2.4.

The Department would require its contractors to implement a SWPPP to comply with the conditions of the Department's NPDES permit and to address the temporary water quality impacts resulting from the construction activities associated with this project. The SWPPP will describe potential sources of storm water pollution, discuss activities associated with construction, and identify BMPs to reduce storm water pollution. The SWPPP will also be in compliance with the goals and restrictions identified in the San Francisco Bay RWQCB's Basin Plan.

In addition, permanent erosion control BMPs would be addressed as part of project design. Feasible short-term (construction) and long-term (permanent) BMPs for the project are described below.

Short-Term (Construction) BMPs

Adverse impacts can occur during construction-related activities. Soil erosion, especially during heavy rainfall, can increase the suspended solids, dissolved solids, and organic pollutants in storm water runoff generated within the project area. Potential temporary impacts to water quality can be prevented or minimized by implementing standard BMPs recommended for a particular construction activity.

Erosion control measures will be applied to all exposed areas during construction, including the trapping of sediments within the construction area through the placing of barriers, such as silt fences, at the perimeter of downstream drainage point or through the construction of temporary

detention basins. The project will also implement other methods of minimizing erosion impacts, including hydromulching (spraying mulch mixed with liquid to help it adhere to the ground) and/or limiting the amount and length of exposure of graded soil.

Approved erosion control BMPs are described in the Department's Project Planning and Design Guide (2010). Temporary erosion control and water quality measures will be defined in detail in the Erosion Control and Water Pollution Control design sheets prepared for the project, which will also include the specifications for the SWPPP. Temporary control BMPs would be necessary for the project to comply with the Construction General Permit and the Statewide Permit and will be detailed during the Plans, Specifications and Estimates (PS&E) phase.

Table 2.2.2-2 lists the suggested minimum measures that would be considered. Furthermore, during construction, the contractor would be required to detail in the SWPPP the actual in-field implementation of BMPs, plus amend the SWPPP as necessary to match field conditions and phasing of the project.

Table 2.2.2-2: Minimum Requirements for Temporary BMPs

Category	Minimum Requirements
Soil Stabilization	Move In/Move Out (Temporary Erosion Control)
	Temporary Cover
	Temporary Fence (Type ESA)
Sediment Control	Temporary Fiber Rolls
	Temporary Silt Fence
	Temporary Gravel Bag Berm
	Temporary Check Dams
	Temporary Drainage Inlet Protection
Tracking Control	Temporary Construction Entrances/Exits
	Street Sweeping
Non-Storm Water Management	Material and Equipment Use Over Water
	All other anticipated non-storm water management measures are covered under the Job Site Management.
Waste Management and Materials Pollution Control	Temporary Concrete Washout Facilities
	All other anticipated waste management and materials pollution control measures are covered under Job Site Management.
Job Site Management	Spill prevention and control, materials management, stockpile management, waste management, hazardous waste management, contaminated soil, concrete waste, sanitary and septic waste and liquid waste.
	Water control and conservation, illegal connection and discharge detection and reporting, vehicle and equipment cleaning, vehicle and equipment fueling and maintenance, material and equipment used over water, structure removal over or adjacent to water, paving, sealing, saw cutting and grinding operations, thermoplastic striping and pavement markers, concrete curing and concrete finishing.
	Training of employees and subcontractors, and proper selection, deployment and maintenance of construction site BMPs.

Long-Term (Permanent) BMPs

The Department MS4 permit contains provisions to reduce, to the maximum extent practicable, pollutant loadings from the facility once construction is complete. The permit stipulates that permanent measures that control pollutant discharges must be considered and implemented for all new or reconstructed facilities. Permanent control measures located within the Department's right-of-way reduce pollutants in storm water runoff from the roadway. These measures reduce the suspended particulate loads, and thus pollutants associated with the particles, from entering waterways. The measures would be incorporated into the final engineering design or landscape design of the project and would take into account expected runoff from the roadway. In addition, the permit also stipulates that an operation and maintenance program be implemented for permanent control measures. This category of water quality control measures can be identified as including both design pollution prevention BMPs and treatment BMPs.

The following design pollution prevention BMPs are proposed for this project:

- Permanent erosion control measures applied to all new or exposed slopes in consideration of downstream effects;
- Proper design of drainage facilities to handle concentrated flows;
- Slope and surface protection systems; and
- Preservation of existing vegetation.

The City of Redwood City and the Department have an approved list of treatment BMPs that have been studied and verified to remove targeted design constituents and provide general pollutant removal. In addition to the Department approved treatment BMPs, the San Francisco RWQCB has stated to the Department District 4 that permanent storm water treatment within areas covered under the Municipal Regional Permit should be provided through the use of infiltration- or retention-type devices. The San Mateo County Water Pollution Prevention Program is a member agency covered under the Municipal Regional Permit. The San Francisco RWQCB's preferential use of infiltration or retention devices is consistent with the Municipal Regional Permit. Infiltration devices are an approved Department BMP type, but retention devices are currently not an approved Department treatment BMP type. Retention devices typically include the use of engineered soil media and an underdrain facility; this soil media is specific to the San Francisco Bay region and an underdrain system is commonly used for treatment facilities within the Department statewide. The use of infiltration and retention devices allows for pollutant removal or reduction while promoting the effort to mimic predevelopment hydrology by reducing flow rates and velocity and allowing for groundwater recharge. The feasibility and determination of preferred treatment BMP type will be coordinated with the Department's District 4 Office of Water Quality Storm Water Coordination Branch to ensure both Department and regional requirements are met.

2.2.3 Geology/Soils/Seismic/Topography

2.2.3.1 Regulatory Setting

For geologic and topographic features, the key federal law is the Historic Sites Act of 1935, which establishes a national registry of natural landmarks and protects "outstanding examples of major geological features." Topographic and geologic features are also protected under the CEQA.

This section also discusses geology, soils, and seismic concerns as they relate to public safety and project design. Earthquakes are prime considerations in the design and retrofit of structures. The Department's Office of Earthquake Engineering is responsible for assessing the seismic hazard for Department projects. Structures are designed using the Department's Seismic Design Criteria (SDC). The SDC provides the minimum seismic requirements for highway bridges designed in California. A bridge's category and classification will determine its seismic performance level and which methods are used for estimating the seismic demands and structural capabilities. For more information, please see the Department's Division of Engineering Services, Office of Earthquake Engineering, Seismic Design Criteria.

2.2.3.2 Affected Environment

The following discussion is based on the *Preliminary Geotechnical Report* (URS 2015f) for the proposed project, which was completed in January 2015.

Site Geology

The project area is located in the central portion of the Coast Ranges geomorphic province of California. Northwest-southeast-trending valleys and ridges characterize the regional morphology of the Coast Ranges province. These topographic features are controlled by folds and faults that resulted from the collision of the Farallon and North American plates and subsequent predominantly strike-slip faulting along the San Andreas fault system between the Pacific and North American plates, after the Farallon plate was subducted beneath the Pacific plate. The San Francisco Bay block is a relatively stable, aseismic structural block separated from the Salinian block to the west by the active San Andreas Fault and separated from the East Bay block to the east by the active Hayward fault.

The US 101/Woodside Road interchange is located in the eastern edge of Redwood City. US 101 is above surrounding grade as it approaches the abutments on either side of Woodside Road, with the US 101 bridge deck ranging between elevations of approximately 30 feet and 32 feet. Woodside Road is at an elevation of approximately 8 feet where it passes under US 101. Regional geologic mapping indicates the relatively level project area is underlain predominantly by unconsolidated, fine-grained basin and Bay Mud deposits of clay, silt, and fine sand. Bay Mud covers the floor of San Francisco Bay and the bay margin to the north of the site. Basin deposits are present around the perimeter of this portion of the bay and separate the finer grained Bay Mud deposits from the generally coarser grained fluvial sediments that have been deposited by eastward flowing streams from the hills of the San Francisco peninsula. Artificial fill for freeway construction and business/industrial development has been placed over these natural deposits in the site vicinity.

Geologic Hazards

Surface Fault Rupture and Earthquake Shaking

The closest active faults to the project corridor are the San Andreas and San Gregorio faults. Two segments of the San Andreas Fault—the Peninsula segment and the Santa Cruz Mountain segment—are located 5.3 miles and 16 miles, respectively, from the project area. Both have a maximum moment magnitude of 8. The San Gregorio fault is located 13.8 miles from the project area and has a maximum moment magnitude of 7.4.

The project area is not crossed by any known active faults (CGS 2007); therefore, surface rupture due to faulting at the site is not expected to occur. However, the closest active fault, the San Andreas Fault, creates a high risk for strong ground shaking from fault movement. The intensity of the ground shaking is dependent upon the size of the earthquake, the distance of the epicenter from the site, the direction the earthquake propagates along the fault, and the site geologic conditions.

Landslides

No landslides are mapped on the flat land near or at the project area. Due to the gentle slopes in the vicinity, the site materials are not considered susceptible to landsliding, either seismically induced or otherwise.

Liquefaction and Lateral Spreading

Liquefaction is a process by which water-saturated sediment temporarily loses strength and acts as a fluid. This condition is caused by cyclic loading during earthquake shaking. The soil type most susceptible to liquefaction is loose, cohesionless, granular soil below the water table and within about 50 feet of the ground surface. Liquefaction can result in loss of foundation support and settlement of overlaying structures, ground subsidence and translation due to lateral spreading, lurch cracking, and differential settlement of affected deposits. Lateral spreading occurs when a layer liquefies at depth and causes horizontal movement of displacement of the overburden mass toward a free face such as a stream bank or excavation, or toward an open body of water.

In a regional study of the nine-county San Francisco Bay Area region for the U.S. Geological Survey (USGS), Witter et al. (2006) mapped the liquefaction susceptibility of the site soils in the project vicinity. The map indicates the project alignment generally contains soils with moderate to very high liquefaction susceptibility. In addition, the nearby marshlands and canals to the north of the project area may be susceptible to lateral spreading.

Subsidence and Settlement

Subsidence is a gradual settling or sudden sinking of the ground surface. Subsidence typically occurs as a result of subsurface fluid extraction (such as groundwater or petroleum) or compression of soft, geologically young sediments. Groundwater extraction for high-volume municipal and agricultural use has the potential to cause future ground subsidence in the region. Redwood City is located at the northern fringe of the area most influenced by the groundwater extraction. However, subsidence in the area ceased after the Santa Clara Valley Water District implemented groundwater recharge programs more than 50 years ago. Further north in the Redwood Shores Peninsula, the former tidal marsh area was diked off and used as pasture from 1910 until about 1950. During this period of drying, the high evaporation rate and low soil

hydraulic conductivity combined to lower the groundwater table, causing desiccation of the soils above the phreatic line and consolidation below the phreatic line. This also resulted in aerial surface subsidence on the order of 3 to 3.5 feet.

No active petroleum wells are present within many miles of the project alignment (California Division of Oil, Gas, and Geothermal Resources 2009).

Settlement can occur quickly when soil is loaded by a structure or by the placement of fill on top of soil, and it can also occur gradually when soil pore pressures, increased by vertical loading, gradually dissipate over time.

Groundwater Depth

Groundwater monitoring well data for 1101 Broadway Street in Redwood City indicates groundwater levels varied from elevation -1.6 to 3.9 feet between December 1999 and March 2013. This is consistent with original investigations from the separation and overhead structures in the immediate interchange vicinity. The relatively shallow groundwater levels are indicative of the close proximity of the project area to the San Francisco Bay. Redwood Creek, which crosses under US 101, is a tidal channel and is likely to have a strong influence on the fluctuations of groundwater levels.

2.2.3.3 Environmental Consequences

Surface Fault Rupture and Earthquake Shaking

The project area is not crossed by any known active faults; therefore, surface rupture due to faulting is not expected to occur. The proposed project would not increase the exposure of people or structures to potential substantial adverse effects from fault rupture.

The proposed project is in a seismically active area and has a reasonably high potential to experience strong earthquake shaking in the future. The potential exists for people or structures to be exposed to substantial adverse effects from seismic ground shaking. The project would add new flyover ramp structures as well as retaining walls and concrete barriers. Standard Department design measures would avoid or minimize the potential for adverse seismic effects to project-related structures. The risk for people or structures to be adversely affected from seismic ground shaking would be the same with the Build Alternatives and the No Build Alternative.

Landslides

The project area has a negligible potential for landslides.

Liquefaction and Lateral Spreading

Mapping indicates the project alignment generally contains soils with moderate to very high liquefaction susceptibility. In addition, lateral spreading has the potential to affect embankments in the project area but is expected to have a lesser effect on structures supported on deep foundations. The impact of the relatively thick deposits of potentially liquefiable sand and silt to embankment stability during earthquakes should be evaluated during the design phase. Ground improvement techniques such as cement deep soil mixing or stone columns should be considered. The risk for liquefaction would be the same or less with the Build Alternatives compared with the No Build Alternative.

Subsidence and Settlement

With the potential presence of soft Bay clays and the history of surface subsidence, impact of consolidation settlement due to fill placement will be addressed through geotechnical investigation at the design phase. The risk for subsidence would be the same or less with the Build Alternatives compared with the No Build Alternative. The avoidance and minimization measures described in Section 2.2.3.4 will minimize settlement impacts from the project.

Groundwater Depth

The groundwater levels encountered in the vicinity of the project area are relatively shallow. Therefore, foundation excavations of bridge support or retaining wall footings would likely encounter groundwater. The impact on groundwater would be the same with the Build Alternatives compared with the No Build Alternative. The avoidance and minimization measures described in Section 2.2.3.4 will minimize impacts to groundwater.

2.2.3.4 Avoidance, Minimization, and/or Mitigation Measures

The Department's design and construction guidelines incorporate engineering standards that address seismic risks. Project elements will be designed and constructed to meet seismic design requirements for ground shaking and ground motions, as determined for the project vicinity and site conditions (liquefaction, settlement, and corrosion). No further measures are needed to address seismic risks.

With the Build Alternatives, additional geotechnical subsurface and design investigations will be performed during the final project design and engineering phase. The investigations will include site-specific evaluation of subsurface conditions, including the potential for liquefaction and lateral spreading, at the location of proposed foundation features.

In addition, excavations in the existing embankment fills should not exceed a slope of 1.5:1 during construction. For locations where excavation with sloping sides is not viable because of space limitations or in areas where temporary slopes steeper than 1.5:1 are planned, shoring will be required. The Contractor should retain an experienced Registered Civil Engineer to design the shoring system.

To minimize impacts to groundwater, an evaluation of construction dewatering would be included as a part of the field investigation program. Approaches may include placement of groundwater monitoring wells along with in-situ permeability tests to evaluate the hydraulic conductivity of the subsurface soils, or equivalent methods. These data will provide the basis to evaluate construction dewatering schemes that would apply to either of the Build Alternatives.

No additional measures would be taken to address seismic risks under the No Build Alternative.

2.2.4 Paleontology

2.2.4.1 Regulatory Setting

Paleontology is a natural science focused on the study of ancient animal and plant life as it is preserved in the geologic record as fossils. A number of federal statutes specifically address paleontological resources, their treatment, and funding for mitigation as a part of federally authorized projects. The following laws apply to this project:

- 23 CFR 1.9(a) requires that the use of federal-aid funds must be in conformity with federal and state law.
- 23 USC 305 authorizes the appropriation and use of federal highway funds for paleontological salvage as necessary by the highway department of any state, in compliance with 16 USC 431-433 above and state law.
- Under California law, paleontological resources are protected by the CEQA.

2.2.4.2 Affected Environment

This section summarizes the *Paleontological Identification Report* (URS 2014a) prepared for the proposed project, which was completed in September 2014.

The project area is situated on Holocene-epoch Quaternary Alluvium and artificial fill, according to mapping by Brabb, Graymer, and Jones (1998). Subsurface testing conducted for the construction of the US 101/Woodside Road interchange shows that no other geologic units underlie the project area within the 70-foot depth of testing.

The University of California Museum of Paleontology (UCMP) online database was consulted to determine whether any paleontological resources have been recorded in the project area. All listings for Holocene-epoch fossils in San Mateo County were for localities on the Pacific Ocean side of the county, more than 12 miles from the project area.

The City's General Plan (City of Redwood City 2010b) states that no records of known fossil localities exist in the City. The closest recorded paleontological sites of any epoch are located approximately 2 miles to the south, in the City of Atherton.

2.2.4.3 Environmental Consequences

The geologic unit that underlies the project area is Holocene, which dates from approximately 10,000 to 12,000 years before present and is the era in which human civilization is generally considered to have begun. Sedimentary deposits of that age are not considered old enough to contain significant paleontological resources. Therefore, the geologic subunits that underlie the project area are considered to have no potential to yield fossils.

The maximum depth of vertical disturbance for the project would be approximately 65 feet, for the impact-driven piles that would support the abutment foundations for the Veterans Boulevard flyover ramps (Section 2.1.7.2). No project elements or excavations would extend to or below 70 feet, which was the depth of testing from original interchange construction. The proposed project is not expected to encounter older, fossil-bearing geologic units beneath the Holocene alluvium.

The No Build Alternative would not affect paleontological resources.

2.2.4.4 Avoidance, Minimization, and/or Mitigation Measures

Caltrans Standard Specification 14-7.02 will be implemented during project construction to avoid potential impacts to sensitive paleontological resources, if present. Standard Specification 14-7.02 states:

> If paleontological resources are discovered at the job site, do not disturb the material and immediately:
>
> 1. Stop all work within a 60-foot radius of the discovery
> 2. Protect the area
> 3. Notify the Engineer

The Department investigates and modifies the dimensions of the protected area if necessary. Do not move paleontological resources or take them from the job site. Do not resume work within the specified radius of the discovery until authorized.

2.2.5 Hazardous Waste/Materials

2.2.5.1 Regulatory Setting

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

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

- Community Environmental Response Facilitation Act (CERFA) of 1992;
- Clean Water Act;
- Clean Air Act;
- Safe Drinking Water Act;
- Occupational Safety and Health Act (OSHA);
- Atomic Energy Act;
- Toxic Substances Control Act (TSCA); and
- Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA).

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

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

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

2.2.5.2 Affected Environment

The following discussion is based on the *Initial Site Assessment* (URS 2014b) for the proposed project, which was completed in October 2014.

The *Initial Site Assessment* (URS 2014b) for the proposed project included the following:

- An Environmental Data Resources, Inc. (EDR) regulatory database search for known potential hazardous materials sites, including underground storage tanks (USTs); landfills; hazardous waste generation, treatment, storage, and disposal facilities; and subsurface contamination within an area extending up to 1 mile from the project area;
- A review of historical aerial photograph and topographic maps;
- A drive-by reconnaissance of the project area and vicinity on September 8, 2014;
- A review of available files from the EnviroStor and GeoTracker databases maintained by the California Department of Toxic Substances Control and San Francisco Bay RWQCB to obtain additional information on sites identified in the EDR report that are within or near the project area.

The purpose of the assessment was to review available information on the study area to identify potential risks and determine whether soil, groundwater, or other testing is needed.

Thirty-five potential hazardous contamination sites were identified within the study area (and shown in Table 2.2.5-1). Fifteen sites are in the project area, and 20 are within 1/8 mile upgradient of the project area. All 15 sites in the project area were reported to have releases that affected the subsurface. Eleven of the sites in the project area were identified as having a Leaking Underground Storage Tank (LUST).

Table 2.2.5-1: Potential Hazardous Materials Sites

Owner or Occupant (past or present)	Address	Description
Duolite International	800 Chestnut St.	The groundwater plume has co-mingled with downgradient plumes. Onsite contamination has been remediated, starting in 1996; long-term monitoring of offsite plume. Site has been completely redeveloped into an office park since ~2001. Contaminants: dichlorobenze, chloronezene, PCE, and trichloroethylene. Cleanup status: open - verification monitoring as of 12/1/1998.
Tydeman Machine Works	Broadway and Charter Street	An actively operating machine shop since 1951. Various hazardous substances are used or generated as part of the daily operations, including coolants, solvents, waste oil and metal dust. Prior to 1951, Heller Helicopters operated at the site. The clean-up status is no action required as of 12/22/2005.
Redwood General Tire Service Co	1630 Broadway	Contaminants - Hydrocarbon solvents. The facility had a LUST which was investigated and remediated under the RWQCB from April 1993 to December 1996.
San Mateo County Replacement Correctional Facility	70 Chemical Way	LQG. Contaminants - VOCs. Operations at the Site included storing, repackaging, mixing, and diluting of various chemicals. All chemical processing activities halted in 1993. Cleanup status: Certified O&M - land use restrictions only as of 8/11/2011(listed on ENVIROSTOR)/Open - site assessment as of 1/1/2003 (listed on GeoTracker).

Owner or Occupant (past or present)	Address	Description
Federal Mogul Corp	1301-1501 Broadway	Manufacturing operation activities ceased in 1970s. Substances released: trichloroethylene and diesel fuels, Released discovered in 1995, remediation activities began in 1999. Clean up status: Open - Remediation as of 7/1/2002.
Tyco Electronics Corp	2201 Bay Rd.	Manufacturing operation activities no longer performed at the site. Contaminant released: PCBs. Released discovered 1/1/2004. Remediation activities began in 2011 Clean up status: Open - Site assessment as of 4/2/2007. Land use restrictions in place.
Paramount Tool & Machine Works	900 Broadway	Currently an active machine shop. Site discovered in 1981 to have numerous 55 gallon drums not properly stored, lack of vegetation and oil on the ground. Contaminant of concern: TPH-motor oil. Clean up status: No action as of 12/22/2005.
Coors West	890 Broadway	LUST site. Contaminant of concern: gasoline. Clean up status: Completed - case closed as of 7/3/1995
Earl Scheib on Broadway	899 Broadway	LUST site. Contaminant of concern: gasoline. Clean up status: Completed - case closed.
Metals Heat Treating	1013 & 1061 Douglas Ave	LUST site. Contaminant of concern: gasoline. Discharge discovered 3/6/1987. Clean up status: Completed - case closed as of 7/25/2000
Peterson Precision	611 Broadway	Past activities included a machine shop. Contaminants of concern: PCE and trichloroethylene. Clean up status: No action required as of 6/24/2010.
Woodspring Center	800-898 Chestnut St	The Site was operated as a resin manufacturing facility from the 1940s to 1987. Contaminants of concern: benzene, PCE, and trichloroethylene. Clean up status: refer: RWQCB as of 8/30/2002. No details on GeoTracker.
Beeger Property	1135 Chestnut St	LUST discovered 2/4/1988 during tank closure activities. Contaminants released: Gasoline. Clean up status: Completed - case closed as of 1/1/1999.
Eggli Landscaping	19 Stein Am Rhein Court	LUST discovered 9/27/1995 during tank closure activities. Contaminants released: Gasoline. Clean up status: Completed - case closed as of 8/11/2008.
Malibu Grand Prix	320-340 Bloomquist St	LUST discovered 3/23/1989 during tank closure activities. Contaminants released: Gasoline. Clean up status: Open - Site assessment as of 11/12/2013.
Frontwerth Enterprises	1831 East Bayshore Rd	LUST site. Contaminants released: Chromium, lead, and PCBs. Clean up status: Open - Verification monitoring as of 11/18/2004.
Public Storage	1839-1841 Bayshore Rd	LUST site. Contaminants released: gasoline. Clean up status: case closed as of 4/15/1999.
Lyngso Garden Materials, Inc	19 Seaport Blvd	LUST site, discovered 7/22/1991. Contaminants released: gasoline. Clean up status: Completed - case closed as of 3/22/1996.
Beals & Martin Development	1757 East Bayshore Rd	LUST site, discovered 12/10/1987. Contaminants released: gasoline. Clean up status: Completed - case closed as of 9/20/1991.
Union Pacific Locomotive Release	10 S. Block Seaport Blvd	LUST site, discovered 12/1/2011. Contaminants released: diesel. Clean up status: Open - Assessment & interim remedial action as of 12/7/2011.
Beacon Mobil 10-K5E	1101 Broadway St	LUST discovered 9/14/1992 during tank closure activities. Contaminants released: Gasoline. Clean up status: Open - Eligible for closure as of 8/2/2013.
Redwood Plaza Shopping Center	1200 Broadway	LUST discovered 6/13/1994 during tank closure activities. Contaminants released: solvents. Clean up status: Open - Verification monitoring as of 10/1/1997.
Silva Property	836 Willow	LUST site, discovered 2/11/1999. Contaminants released: gasoline. Clean up status: Completed - case closed as of 6/6/2011.
Stuart Floors	1455 Veterans Blvd	LUST site, discovered 6/1/1990. Contaminants released: gasoline. Clean up status: Completed - case closed as of 1/29/1993.

Owner or Occupant (past or present)	Address	Description
Chevron	1603 Broadway St	LUST discovered 3/29/1991 during tank closure activities. Contaminants released: gasoline. Clean up status: Completed - case closed as of 6/20/2003.
Sheahan Trucking	955 Charter St	LUST discovered 3/29/1991 during tank closure activities. Contaminants released: gasoline. Clean up status: Completed - case closed as of 6/20/2003.
Eureka Federal Savings	2225 Spring St	LUST site, discovered 1/23/1990. Contaminants released: gasoline. Clean up status: Completed - case closed as of 9/26/1996.
Underground TK AT	2231 Spring St	LUST site, discovered 3/24/1995. Contaminants released: gasoline. Clean up status: Completed - case closed as of 11/19/1997.
Marsili Auto	2303 Spring St	LUST site, discovered 3/25/1991. Contaminants released: gasoline. Clean up status: Completed - case closed as of 9/27/1996.
Grant Yard S.M.C.	752 Chestnut St	LUST discovered 2/16/1999 during tank closure activities. Contaminants released: gasoline. Clean up status: Completed - case closed as of 5/19/2014.
Boswell, Richard	1661 Broadway	LUST site, discovered 3/11/2014. Contaminants released: gasoline. Clean up status: Open - Site assessment as of 3/17/2014.
Free-Flow Packaging	1050 Broadway & 1093 Charter St	SLIC site, UST present on site. Discharge discovered 11/9/2012. Clean up status: Completed: Case closed as of 6/13/2014.
Redwood City Rail Spur	Bay Road to Charter Street	SLIC site, Contaminants released: chlorinated hydrocarbons and PCBs. Clean up status: Open - Site assessment as of 7/13/2010.
AMPEX Property	401 Broadway	SLIC site. Unknown contaminants. Clean up status: Completed - cased closed as of 12/31/1995.
410 Blomquist LLC	410 Blomquist	LUST site, discovered 9/27/2013. Contaminants released: gasoline and diesel. Clean up status: Open - Site assessment as of 11/13/2013.

Notes: DCE - dichloroethylene; LQG - large quantity generator; NPL - National Priorities List; PCB - polychlorinated biphenyls; PCE - tetrachloroethylene; RWQCB - California Regional Water Quality Control Board; SLIC - Spills, Leaks, Investigations and Clean-ups Database; TPH - total petroleum hydrocarbons; VOCs - volatile organic compounds

2.2.5.3 Environmental Consequences

The 35 properties for which additional investigation is recommended are described in Table 2.2.5-1. Corrective actions have been conducted or are ongoing at most of the properties, and natural remediation and decomposition of hydrocarbon and other contaminants likely occurred since some of the releases were detected and remedial actions taken several years ago. Nonetheless, the risk of encountering contamination from these properties during project construction in soil and/or groundwater, or of purchasing properties with continued contamination, is judged to be medium to high. Properties currently not identified as having contaminant releases at the time of this report may be identified in the future.

One property requiring full acquisition to accommodate the project is also listed in Table 2.2.5-1 as a potential hazardous materials site. It contained a LUST that was cleaned up and monitored through 1997. The other two properties requiring full acquisition have not been identified as potential hazardous materials sites but have the potential to contain asbestos-bearing construction materials and leaded paint. Asbestos could also be present in concrete, electrical insulation, expansion joint material, sheet packing in girder joints, and textured paint. Demolition of any structures in the project area has the potential to release these contaminants as well as PCBs.

No naturally occurring serpentinite (asbestos containing) rock was mapped in the project area.

In addition to the facilities and sites listed above, construction activities could increase risk of exposure to airborne contaminants from materials in roadway structures and surface soils. Thermoplastic paint used for roadway striping in the project limits, particularly yellow paint, may contain high levels of lead. Vehicle tire and brake wear, oil, grease, and exhaust from vehicular traffic on US 101, Woodside Road, and other roads within the project area may have contaminated surface soils in the immediate vicinity with aerially deposited lead (ADL) and other heavy metals. Exposure to airborne contaminants from these materials could affect safety and health.

Gasoline, diesel fuel, oil, and lubricants for construction equipment are typically used, handled, and stored by contractors on roadway construction projects. In all construction projects, there is a potential for the accidental release of fuels or lubricants from construction equipment or vehicles. No specific risks related to such a release have been identified for the proposed project. Contractors are required to handle hazardous materials in accordance with applicable laws, including health and safety requirements. No acutely hazardous materials would be used or stored within the project limits during project construction.

The project would not create a significant new hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. During construction, some lane closures could be required on Woodside Road to lower the roadway profile and meet design standards for clearance under US 101. Freeway lane closures are not expected, but cannot be ruled out until design is completed. Lane closures would not prohibit emergency vehicle access. Implementation of the project's TMP, which would address measures to provide for continued access during construction, substantial impacts to emergency response or evacuation would be avoided.

The No Build Alternative would not involve ground disturbing activities, property acquisitions, or structure demolition. Therefore, it would not change the risk of public exposure to hazardous materials.

2.2.5.4 Avoidance, Minimization, and/or Mitigation Measures

Further investigation of the sites identified in Table 2.2.5-1 is recommended due to the potential presence of petroleum hydrocarbons, chlorinated hydrocarbons, solvents, and ADL in soil and/or groundwater. The following measures would be included in the project to identify the presence and extent of potential hazardous materials.

- If the project construction excavations will extend to groundwater, groundwater sampling, analysis, and characterization are recommended before the start of construction to investigate safety precautions for construction personnel. Furthermore, treatment and disposal options for extracted groundwater will need to be evaluated prior to any dewatering of excavations due to construction activities.

- If suspected petroleum hydrocarbon-impacted soils are encountered during soil excavation activities, soil should be sampled, tested, and characterized for petroleum hydrocarbons.

- If soil excavation activities are planned near properties where chlorinated compounds may be present, the soil and groundwater should be sampled, tested, and characterized for chlorinated compounds.

- Additionally, prior to the beginning of, and periodically during any soil excavation work, surface soils should be tested for aerially deposited lead to evaluate safety recommendations for construction workers and soil management options.
- Any proposed property acquisitions detailed in Table 2.1.2-1 requires further investigation of soil and/or groundwater, due to the potential for presence of petroleum hydrocarbons, solvents, and aerially deposited lead.

A qualified and licensed inspector should evaluate and sample the existing building and structures scheduled for demolition for the presence of potential asbestos-containing materials, lead-based paint, and PCBs. Further investigation will occur during the design phase.

2.2.6 Air Quality

2.2.6.1 Regulatory Setting

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

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

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

Conformity requirements apply only in nonattainment and "maintenance" (former nonattainment) areas for the NAAQS, and only for the specific NAAQS that are or were violated. U.S. EPA regulations at 40 CFR 93 govern the conformity process. Conformity requirements do not apply in unclassifiable/attainment areas for NAAQS and do not apply at all for state standards regardless of the status of the area.

Regional conformity is concerned with how well the regional transportation system supports plans for attaining the NAAQS for carbon monoxide, nitrogen dioxide, ozone, particulate matter, and in some areas (although not in California) sulfur dioxide. California has attainment or maintenance areas for all of these transportation-related "criteria pollutants" except sulfur dioxide, and also has a nonattainment area for lead; however, lead is not currently required by the Federal Clean Air Act to be covered in transportation conformity analysis. Regional conformity is based on emission analysis of RTPs and Federal Transportation Improvement Programs (FTIPs) that include all transportation projects planned for a region over a period of at least 20 years for the RTP) and 4 years (for the TIP). RTP and FTIP conformity uses travel demand and emission models to determine whether or not the implementation of those projects would conform to emission budgets or other tests at various analysis years showing that

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

Conformity analysis at the project-level includes verification that the project is included in the regional conformity analysis and a "hot-spot" analysis if an area is "nonattainment" or "maintenance" for carbon monoxide and/or particulate matter. A region is "nonattainment" if one or more of the monitoring stations in the region measures a violation of the relevant standard and the U.S. EPA officially designates the area nonattainment. Areas that were previously designated as nonattainment areas but subsequently meet the standard may be officially redesignated to attainment by U.S. EPA and are then called "maintenance" areas. "Hot-spot" analysis is essentially the same, for technical purposes, as CO or particulate matter analysis performed for NEPA purposes. Conformity does include some specific procedural and documentation standards for projects that require a hot-spot analysis. In general, projects must not cause the "hot-spot"-related standard to be violated, and must not cause any increase in the number and severity of violations in nonattainment areas. If a known CO or particulate matter violation is located in the project vicinity, the project must include measures to reduce or eliminate the existing violation(s) as well.

2.2.6.2 Affected Environment

This section summarizes the *Air Quality Impact Assessment* (URS 2015g) and *Mobile Source Air Toxics* (URS 2015h) technical reports completed for the project in October 2015 and May 2015, respectively.

The project area is in the San Francisco Bay Area Air Basin, which does not attain federal standards for ozone and fine particulate matter ($PM_{2.5}$). For the state standards, which are more stringent than the federal, the region does not attain the ozone, $PM_{2.5}$, or inhalable particulate matter (PM_{10}) standards. Table 2.2.6-1 shows the applicable standards and attainment status of criteria pollutants in the project area.

Due to its topographic diversity, the meteorology and climate of the Bay Area is often described in terms of different subregions and their microclimates. The proposed project is in the peninsula subregion, as defined by the Bay Area Air Quality Management District (BAAQMD).

The peninsula region of the Bay Area extends from the area northwest of San Jose to the Golden Gate. The Santa Cruz Mountains extend up the center of the peninsula, with elevations exceeding 2,000 feet at the south end, and gradually decreasing to 500 feet elevation in South San Francisco, where it terminates. On the west side of the mountains lie small coastal towns. On the east side of the mountain range lie the larger cities. Cities in the southeastern peninsula

Table 2.2.6-1: State and National Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[1]		National Standards[2]	
		Concentration	Attainment Status	Concentration[3]	Attainment Status
Ozone (O_3)	8 Hour	0.070 ppm (137 µg/m^3)	N[9]	0.070 ppm (137 µg/m^3)	N[4]
	1 Hour	0.09 ppm (180 µg/m^3)	N		See Footnote 5
Carbon Monoxide (CO)	8 Hour	9.0 ppm (10 mg/m^3)	A	9 ppm (10 mg/m^3)	A[6]
	1 Hour	20 ppm (23 mg/m^3)	A	35 ppm (40 mg/m^3)	A
Nitrogen Dioxide (NO_2)	1 Hour	0.18 ppm (339 µg/m^3)	A	0.100 ppm (see Footnote 11)	U
	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)	NA	0.053 ppm (100 µg/m^3)	A
Sulfur Dioxide (SO_2) (see Footnote 12)	24 Hour	0.04 ppm (105 µg/m^3)	A	0.14 ppm (365 µg/m^3)	A
	1 Hour	0.25 ppm (655 µg/m^3)	A	0.075 ppm (196 µg/m^3)	A
	Annual Arithmetic Mean	NA	NA	0.030 ppm (80 µg/m^3)	A
Particulate Matter (PM_{10})	Annual Arithmetic Mean	20 µg/m^3	N[7]	NA	NA
	24 Hour	50 µg/m^3	N	150 µg/m^3	U
Particulate Matter - Fine ($PM_{2.5}$)	Annual Arithmetic Mean	12 µg/m^3	N[7]	12 µg/m^3 (see Footnote 15)	U/A
	24 Hour	NA	NA	35 µg/m^3 (see Footnote 10)	N
Sulfates	24 Hour	25 µg/m^3	A	NA	NA
Lead (see Footnote 13)	Calendar Quarter	NA	NA	1.5 µg/m^3	A
	30 Day Average	1.5 µg/m^3	A	NA	A
	Rolling 3 Month Average	NA	NA	0.15 µg/m^3	See Footnote 14
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	U	NA	NA
Vinyl Chloride (chloroethene)	24 Hour	0.010 ppm (26 µg/m^3)	NIA	NA	NA
Visibility Reducing particles	8 Hour (10:00 to 18:00 PST)	See Footnote 10	U	NA	NA

Notes: A=Attainment, N=Nonattainment, NIA= No Information Available, U=Unclassified; mg/m^3=milligrams per cubic meter; ppm=parts per million; µg/m^3=micrograms per cubic meter, NA=Not Applicable, PST=Pacific Standard Time

1. California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1-hour and 24-hour), nitrogen dioxide, suspended particulate matter - PM_{10}, and visibility reducing particles are values that are not to be exceeded. The standards for sulfates, Lake Tahoe carbon monoxide, lead, hydrogen sulfide, and vinyl chloride are not to be equaled or exceeded. If the standard is for a 1-hour, 8-hour or 24-hour average (i.e., all standards except for lead and the PM_{10} annual standard), then some measurements may be excluded. In particular, measurements are excluded that CARB determines would occur less than once per year on the average. The Lake Tahoe CO standard is 6.0 ppm, a level one-half the national standard and two-thirds the state standard.
2. National standards shown are the "primary standards" designed to protect public health. National standards other than for ozone, particulates and those based on annual averages are not to be exceeded more than once a year. The 1-hour ozone standard is attained if, during the most recent 3-year period, the average number of days per year with maximum hourly concentrations above the standard is equal to or less than one. The 8-hour ozone standard is attained when the 3-year average of the 4th-highest daily concentrations is 0.075 ppm or less. The 24-hour PM_{10} standard is attained when the 3-year average of the 99th percentile of monitored concentrations is less than 150 µg/m^3. The 24-hour $PM_{2.5}$ standard is attained when the 3-year average of 98th percentiles is less than 35 µg/m^3. Except for the National particulate standards, annual standards are met if the annual average falls below the standard at every site. The National annual standard for PM_{10} is met if the 3-year average falls below the standard at every site. The annual $PM_{2.5}$ standard is met if the 3-year average of annual averages spatially-averaged across officially designed clusters of sites falls below the standard.
3. National air quality standards are set by USEPA at levels determined to be protective of public health with an adequate margin of safety.
4. In June 2004, the Bay Area was designated as a marginal nonattainment area of the National 8-hour ozone standard. USEPA lowered the national 8-hour ozone standard from 0.075 to 0.070 ppm (i.e., 70 ppb) effective October 26, 2015.
5. The National 1-hour ozone standard was revoked by USEPA on June 15, 2005.
6. In April 1998, the Bay Area was redesignated to attainment for the National 8-hour carbon monoxide standard.
7. In June 2002, CARB established new annual standards for $PM_{2.5}$ and PM_{10}.

8. Statewide VRP Standard (except Lake Tahoe Air Basin): Particles in sufficient amount to produce an extinction coefficient of 0.23 per kilometer when the relative humidity is less than 70 percent. This standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10-mile nominal visual range.
9. The 8-hour State ozone standard was approved by CARB on April 28, 2005, and became effective on May 17, 2006.
10. USEPA lowered the 24-hour $PM_{2.5}$ standard from 65 $\mu g/m^3$ to 35 $\mu g/m^3$ in 2006. USEPA designated the Bay Area as nonattainment of the PM2.5 standard on October 8, 2009. The effective date of the designation is December 14, 2009 and the Air District was given 3 years to develop a plan, called a State Implementation Plan (SIP), that demonstrates the Bay Area will achieve the revised standard by December 14, 2014. On November 7, 2012, the Air District adopted a $PM_{2.5}$ emissions inventory to fulfill federal air quality planning requirements, and transmitted the inventory to CARB for inclusion in the SIP. On January 9, 2013, the USEPA issued a final rule to determine that the San Francisco Bay Area has attained the 24-hour $PM_{2.5}$ NAAQS.11. To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 0.100 ppm (effective January 22, 2010).
12. On June 2, 2010, the USEPA established a new 1-hour SO2 standard, effective August 23, 2010, which is based on the 3-year average of the annual 99th percentile of 1-hour daily maximum concentrations. The existing 0.030 ppm annual and 0.14 ppm 24-hour SO2 NAAQS however must continue to be used until 1 year following USEPA initial designations of the new 1-hour SO2 NAAQS. USEPA expects to designate areas by June 2012.
13. CARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure below which there are no adverse health effects determined.
14. National lead standard, rolling 3-month average: final rule signed October 15, 2008. Final designations effective December 31, 2011.
15. USEPA issued the final rule for Air Quality Designations for the 2012 Primary Annual Fine Particle (PM2.5) National Ambient Air Quality Standards (NAAQS), in 40 CFR Part 81 on January 15, 2015. Available at: http://www.gpo.gov/fdsys/pkg/FR-2015-01-15/pdf/2015-00021.pdf#page=2. Accessed April 20, 2015. **Sources:** BAAQMD 2015 and USEPA 2015.

experience warmer temperatures and few foggy days, because the marine layer, with an average depth of 1,700 feet, is blocked by the 2,000 foot ridge to the west.

The blocking effect of the Santa Cruz Mountains can be seen in the summertime maximum temperatures. For example, at Half Moon Bay and San Francisco, the maximum daily temperatures in June through August are 62 to 64 degrees Fahrenheit (F), while on the eastern side at Redwood City; the maximum temperatures are in the low 80s for the same period. Daily maximum temperatures throughout the peninsula during the winter months are in the high 50s. Large temperature gradients are not seen in the minimum temperatures. Average minimum temperatures at Half Moon Bay are about 43 degrees in winter and 50 to 52 degrees in summer. The east peninsula, represented by Redwood City, reports winter minimum temperatures of 40 degrees, and summer minimum temperatures of 52 to 54 degrees.

Annual average wind speeds range from 5 to 10 mph throughout the peninsula. The tendency is for the higher wind speeds to be found along the western coast. However, winds on the east side of the peninsula can also be high in certain areas because low-lying areas in the mountain range, at San Bruno Gap and Crystal Springs Gap, commonly allow the marine layer to pass across the peninsula.

Rainfall amounts on the east side of the peninsula are somewhat lower than on the west side with San Francisco and Redwood City reporting an average of 19.5 inches per year.

Air pollution potential is highest along the southeastern portion of the peninsula because this area is most protected from the high winds and fog of the marine layer, the emission density is relatively high, and pollutant transport from upwind sites is possible (BAAQMD 2010).

2.2.6.3 Environmental Consequences

Air quality issues relate to a range of different pollutants. The evaluation of air quality impacts addressed in this section focuses on the project's conformity with the regional air quality framework and the project's potential to result in an adverse impact to the region's compliance with the relevant standards.

Regional Air Quality Conformity

The project is listed in the 2013 *Plan Bay Area* Regional Transportation Plan (ABAG and MTC 2013a, RTP ID 21603), which was found to conform by MTC on July 18, 2013, and FHWA and FTA made a regional conformity determination on August 12, 2013. The project is also included in MTC's financially constrained 2015 Transportation Improvement Program (MTC 2014, TIP ID SM-050027). The MTC's 2015 Transportation Improvement Program was found to conform by FHWA and FTA on December 15, 2014. The design concept and scope of the proposed project is consistent with the project description in the 2040 RTP, the 2015 TIP, and the open to traffic assumptions of the MTC's regional emissions analysis. As such, the project is in conformity with the SIP and will not otherwise interfere with timely implementation of any TCMs in the applicable SIP.

Permanent Impacts

Evaluation of Potential for Traffic-Related CO Impacts

Traffic-related CO effects were evaluated to determine whether the project would cause or contribute to any new localized CO violations. The CO impacts analysis followed the procedures in *Transportation Project-Level Carbon Monoxide Protocol* (CO Protocol; Garza, Graney, and Sperling 1997).

A quantitative hot-spot analysis was completed using peak hour traffic volumes and speeds from the traffic analysis for the opening year (2022) and design year (2042) (Fehr & Peers 2015). As the project would reconfigure an existing interchange and does not propose to add capacity to US 101 or to the surrounding roadway network, the traffic demand volumes on US 101 and adjacent interchanges and intersections were assumed to be the same for Alternatives 3 and 8B as for the No Build Alternative (Fehr & Peers 2015). Peak hour vehicle speeds on the US 101 mainline would be the same for both the Build and No Build Alternatives; however, with the Build Alternatives, speeds along Woodside Road would be higher than or similar to No Build. In addition, peak hour operations in terms of Level of Service (LOS) are projected to improve at most intersections with the Build Alternatives.

Four intersections in the project area were projected to operate at LOS F with the Build Alternatives at either the AM or PM peak hours in 2042 based on preliminary traffic data. These intersections would represent the maximum CO contribution from the project, as congestion and associated vehicle emissions would be highest.

Localized CO concentrations at those intersections were estimated using the California Line Source (CALINE4) model. The ambient CO concentrations were conservatively assumed to be equal to the highest recorded 1-hour and 8- hour CO concentrations recorded at the Redwood City monitoring station during the five most recent years of monitored data (2009–2013).Vehicle emission factors for 2022 and 2042 were obtained by running the EMFAC2011 model for the fleet-wide average for San Mateo County. EMFAC2011 provides emission factors only up to the year 2035. Although actual vehicle emissions have declined year after year, it is conservatively assumed that the emission factors used in this study would be the same as 2035 for the future years including the project's design year of 2042 (i.e., no decline in future emission rates was applied). The EMFAC2011 analysis is consistent with the methodology used for the regional emission analysis. Table 2.2.6-2 presents the worst-case CO concentrations for the No Build and Build Alternatives.

A project is considered not to have major impacts if it results in CO concentrations that exceed the 1 hour average State standard of 20 ppm, the 1 hour average Federal standard of 35 ppm and/or the 8 hour average standard of 9.0 ppm. As shown in Table 2.2.6-2, the estimated CO concentrations for the Build Alternatives (Alternatives 3and 8B) would be less than 50 percent of the applicable standards in both 2022 and 2042. The modeled data show very little difference between CO concentrations for the No Build Alternative and Alternatives 3 and 8B. The project would not have a considerable impact on 1-hour or 8-hour local CO concentrations at the intersections with the highest traffic volumes; subsequently, no adverse effect is anticipated to occur at any other locations in the study area. The proposed project would not contribute to a violation of standards through at least the project design year of 2042.

Table 2.2.6-2: CALINE4 CO Modeling Results for No Build and Build Alternatives, Including Background

Intersection	Peak Hour	1-hour Concentration (ppm)			8-hour Concentration (ppm)		
		No Build	Alternative 3	Alternative 8B	No Build	Alternative 3	Alternative 8B
Opening Year 2022							
Chestnut Street and Broadway	AM	4.4	4.4	4.4	2.0	2.0	2.0
	PM	4.6	4.6	4.6	2.0	2.1	2.1
Maple Street and Oddstad Drive	AM	4.2	4.2	4.2	1.9	1.9	1.9
	PM	4.3	4.3	4.3	1.9	1.9	1.9
Woodside Road and Middlefield Road	AM	5.1	5.1	5.1	2.4	2.4	2.4
	PM	5.6	5.6	5.6	2.7	2.7	2.7
Seaport Blvd and 101 NB on-ramp[a]	AM	-[a]	6.0	5.6	-[a]	2.6	2.6
	PM	-[a]	5.8	5.4	-[a]	2.5	2.5
California Standard (ppm)		20			9		
Federal Standard (ppm)		35			–		
Design Year 2042							
Chestnut Street and Broadway	AM	4.3	4.3	4.3	1.9	1.9	1.9
	PM	4.4	4.4	4.4	2.0	2.0	2.0
Maple Street and Oddstad Drive	AM	4.1	4.1	4.1	1.9	1.9	1.9
	PM	4.2	4.2	4.2	1.9	1.9	1.9
Woodside Road and Middlefield Road	AM	4.7	4.7	4.7	2.2	2.2	2.2
	PM	5.0	5.0	5.0	2.4	2.4	2.4
Seaport Blvd and 101 NB on-ramp[a]	AM	-[a]	5.1	4.9	-[a]	2.2	2.2
	PM	-[a]	5.0	4.8	-[a]	2.2	2.2
California Standard (ppm)		20			9		
Federal Standard (ppm)		35			–		

ppm – parts per million

- Total CO concentrations include background 1-hour and 8-hour concentrations of 4 and 1.8 ppm, respectively, based on the maximum values recorded during the past 5 years at the Redwood City monitoring station.
- Emission factors were obtained using EMFAC2011 model for San Mateo County and for winter (worst case for CO exhaust emissions).

[a] Future intersection that did not exist in the base year, 2014.

Particulate Matter "Hot-Spot" Analysis

A quantitative particulate matter hot-spot analysis is required for transportation projects that are determined to be a Project of Air Quality Concern (POAQC) as defined in Title 40 CFR Part 93, funded or approved by the FHWA or the FTA, and in Federal nonattainment or maintenance areas for PM_{10} or $PM_{2.5}$. This project is in an area that is unclassified for the Federal PM_{10} standards, so a PM_{10} hot-spot analysis is not required for project-level conformity purposes.

The USEPA designated the SFBAAB as a Federal nonattainment area for the 35 $\mu g/m^3$ $PM_{2.5}$ standard, effective December 14, 2009. Therefore, a $PM_{2.5}$ hot-spot analysis is required for any project that is determined to be a POAQC as defined in Title 40 CFR Part 93.

In June 2015, the City of Redwood City, as the project sponsor, initiated consultation with the Air Quality Conformity Task Force by submitting a Project Assessment Form for $PM_{2.5}$ Interagency Consultation. On July 23, 2015, the Task Force determined that the project is not a POAQC. A $PM_{2.5}$ hot-spot analysis is not required for this project. The project will conform to the SIP, including the localized impact analysis conducted with interagency consultation required by 40 CFR 93.116 and 93.123.

Public comment is requested regarding the Task Force's determination (Appendix F). Following the close of the public review and comment period for this IS/EA, all comments received on the air quality conformity determination will be included in an air quality conformity report to be submitted to FHWA. The final determination on project-level conformity will be made by FHWA.

Ozone

The BAAQMD adopted the 2010 Clean Air Plan to plan for and achieve compliance with the federal and state ozone standards. This project will not interfere with the strategy and will provide transportation benefits that reduce pollutant emissions, including precursors to the formation of ozone, by improving traffic operations and efficiency. This project is included in the Bay Area region's RTP, which has undergone regional evaluation for conformity with federal air quality standards, including ozone.

Mobile Source Air Toxics

In addition to the criteria air pollutants for which standards exist, the U.S. EPA also regulates air toxics. Most air toxics originate from human-made sources, including on-road mobile sources. Mobile source air toxics (MSATs) are a subset of the air toxics defined by the Clean Air Act. Some toxic compounds are present in fuel and are emitted to the air when the fuel evaporates or passes through the engine unburned. Other toxics are emitted from the incomplete combustion of fuels or as secondary combustion products. Metal air toxics also result from engine wear or impurities in oil or gasoline.

This section includes a basic quantitative analysis of the likely MSAT emission impacts of the proposed project. Available technical tools do not enable prediction of the project-specific health impacts of the emission changes associated with the No Build and Build alternatives. Evaluating the environmental and health impacts from MSATs on a proposed highway project would involve several key elements, including emissions modeling, dispersion modeling in order to estimate ambient concentrations resulting from the estimated emissions, exposure modeling in

order to estimate human exposure to the estimated concentrations, and final determination of health impacts based on the estimated exposure. Each of these steps is encumbered by technical shortcomings or uncertain science that prevents a more complete determination of the MSAT health impacts of the proposed project.

Traffic volume along the US 101 segment of the project is over 150,000 Annual Average Daily Traffic (AADT). Therefore, a quantitative MSAT analysis was performed for the seven priority MSATs—diesel particulate matter, formaldehyde, 1,3-butadiene, benzene, acrolein, naphthalene, and polycyclic organic matter (POM)—using the Department's program CT-EMFAC5. The purpose of the quantitative analysis was to identify and compare the potential differences among the priority MSAT emissions from the project alternatives. CT-EMFAC5 is a California-specific analysis tool for modeling MSAT emissions using the latest version of the California Mobile Source Emission and Inventory model, EMFAC20011. Total AM and PM peak period traffic data for existing conditions (2015), the projected opening year (2022), and the design year (2042) were obtained from Fehr & Peers.

For the Build and No Build alternatives, the amount of MSATs emitted would be proportional to the vehicle miles traveled, or VMT, if other variables such as fleet mix remain the same. As the project would reconfigure an existing interchange and does not propose to add capacity to US 101 or to the surrounding roadway network, VMT on US 101 and adjacent interchanges and intersections was assumed to be the same for Alternatives 3 and 8B as for the No Build Alternative (Fehr & Peers 2015). As such, the MSAT emissions would be the same for the Build and No Build Alternatives (Table 2.2.6-3). The modeled results indicate no change in MSAT emissions between the Build and No Build Alternatives for both opening and design year scenarios.

Table 2.2.6-3: Estimated MSAT Emissions

Scenario	Total Daily VMT	Total Daily Emissions (Tons)						
		Diesel PM	Formalde-hyde	Butadiene	Benzene	Acrolein	Naphthalene	POM
2014 – Existing	1,799,327	0.0076	0.0060	0.0011	0.0067	0.0003	0.0004	0.0001
2022 – No Build	1,909,146	0.0037	0.0034	0.0005	0.0037	0.0001	0.0004	0.0001
2022 – Build	1,909,146	0.0037	0.0034	0.0005	0.0037	0.0001	0.0004	0.0001
2042 – No Build	1,937,204	0.0036	0.0036	0.0005	0.0033	0.0001	0.0005	0.0001
2042 – Build	1,937,204	0.0036	0.0036	0.0005	0.0033	0.0001	0.0005	0.0001

Notes: VMT – Vehicle miles traveled; PM – particulate matter; POM – polycyclic organic matter

Emissions would generally be lower for all alternatives in the design year (2042) as compared to the existing year (2014) as a result of EPA's national control programs, which are projected to reduce MSAT emissions by 72 percent by 2020. Except for napthalene emissions, which would increase slightly in the design year (2042), emissions of the other MSATs would all decrease compared to the existing year (2014). The magnitude of the EPA-projected reductions from its national control programs is so great (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future in nearly all cases.

The Build Alternatives would not increase MSAT emissions compared to the No Build Alternative. Most MSAT emissions would decrease in the opening year (2022) and design year (2042) compared to the existing year (2014). The results from the model runs show that the project would not have an adverse impact on, or a substantial increase in, MSAT emissions.

Construction Impacts

The No Build Alternative would have no construction impacts that would affect air quality.

Temporary increases in emissions are defined as those which occur only during the construction phase and last 5 years or less at any individual site (40 CFR 93.123[c][5]). Project construction from either Build Alternative would take approximately 3 years. Because construction would last less than 5 years, construction emissions are not quantified and are expected to be minimal.

The Department's Special Provisions and Standard Specifications will include the requirement to minimize or eliminate dust through the application of water or dust palliatives. Implementation of additional measures will be considered during development of the project's Plans, Specifications, and Estimates. The BAAQMD considers any project's construction-related impacts to be less than significant if the appropriate measures for dust and combustion control are implemented. These measures are discussed further in Section 2.2.6.4.

Climate Change

Climate change is analyzed at the end of this chapter, in Section 2.5. Neither the U.S. EPA nor FHWA has issued explicit guidance or methods to conduct project-level greenhouse gas analysis. As stated on FHWA's climate change website (2015), climate change considerations should be integrated throughout the transportation decision-making process—from planning through project development and delivery. Addressing climate change mitigation and adaptation up front in the planning process will aid decision-making and improve efficiency at the program level, and will inform the analysis and stewardship needs of project-level decision-making. Climate change considerations can easily be integrated into many planning factors, such as supporting economic vitality and global efficiency, increasing safety and mobility, enhancing the environment, promoting energy conservation, and improving the quality of life.

Because there have been more requirements set forth in California legislation and executive orders on climate change, the issue is addressed in a separate CEQA discussion at the end of this chapter and may be used to inform the NEPA decision. The four strategies set forth by FHWA to lessen climate change impacts do correlate with efforts that the state has undertaken and is undertaking to deal with transportation and climate change; the strategies include improved transportation system efficiency, cleaner fuels, cleaner vehicles, and reduction in the growth of vehicle hours traveled.

2.2.6.4 Avoidance, Minimization, and/or Mitigation Measures

The Department's Special Provisions and Standard Specifications will include the requirement to minimize or eliminate dust through the application of water or dust palliatives. Control measures will be implemented as specified in Standard Specifications, Section 14-9.01 "Air Pollution Control" and Section 14-9.02 "Dust Control." Temporary construction-related impacts to air quality will be avoided or minimized through implementation of the following measures:

- Water all active construction areas daily.
- Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least 2 feet of freeboard.
- Pave, apply water daily, or apply (nontoxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites.
- Sweep daily (with water sweepers) all paved access roads, parking areas and staging areas at construction sites.
- Sweep streets adjacent to active construction areas daily (with water sweepers) if visible soil material is carried onto adjacent public streets.
- Hydroseed or apply (nontoxic) soil stabilizers to inactive construction areas (previously graded areas inactive for ten days or more).
- Enclose, cover, water twice daily or apply (nontoxic) soil binders to exposed stockpiles (dirt, sand, etc.)
- Limit traffic speeds on unpaved roads to 15 mph.
- Install sandbags or other erosion control measures at active construction areas to prevent silt runoff to public roadways.
- Replant vegetation in disturbed areas as quickly as possible.

In addition, pollutant emissions in construction equipment exhaust can be mitigated by the following:

- Keeping engines properly tuned;
- Limiting idling; and
- Avoiding unnecessary concurrent use of equipment.

2.2.7 Noise

2.2.7.1 Regulatory Setting

The NEPA of 1969 and the CEQA provide the broad basis for analyzing and abating highway traffic noise effects. The intent of these laws is to promote the general welfare and to foster a healthy environment. The requirements for noise analysis and consideration of noise abatement and/or mitigation, however, differ between NEPA and CEQA.

California Environmental Quality Act

CEQA requires a strictly baseline versus build analysis to assess whether a proposed project will have a noise impact. If a proposed project is determined to have a significant noise impact under CEQA, then CEQA dictates that mitigation measures must be incorporated into the project unless those measures are not feasible. The CEQA noise analysis is included at the end of this section.

National Environmental Policy Act and 23 CFR 772

For highway transportation projects with FHWA (and the Department, as assigned) involvement, the federal-Aid Highway Act of 1970 and the associated implementing regulations (23 CFR 772) govern the analysis and abatement of traffic noise impacts. The regulations require that potential noise impacts in areas of frequent human use be identified during the planning and design of a highway project. The regulations include noise abatement criteria (NAC) that are used to determine when a noise impact would occur. The NAC differ depending on the type of land use under analysis. For example, the NAC for residences (67 A-Weighted decibels [dBA]) is lower than the NAC for commercial areas (72 dBA). Table 2.2.7-1 lists the noise abatement criteria for use in the NEPA 23 CFR 772 analysis.

Figure 2.2.7-1 lists the noise levels of common activities to enable readers to compare the actual and predicted highway noise levels discussed in this section with common activities.

Table 2.2.7-1: Noise Abatement Criteria

Activity Category	NAC, Hourly A-Weighted Noise Level, $L_{eq}(h)$[1, 2]	Description of Activities
A	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B[1]	67 (Exterior)	Residential.
C[1]	67 (Exterior)	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52 (Interior)	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E	72 (Exterior)	Hotels, motels, offices, restaurants/bars, and other developed lands, properties, or activities not included in A–D or F.
F	No NAC—reporting only	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical, etc.), and warehousing.
G	No NAC—reporting only	Undeveloped lands that are not permitted.

Source: Caltrans 2011

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

[2] The $L_{eq[h]}$ activity criteria values are for impact determination only and are not design standards for noise abatement measures. All values are A-weighted decibels (dBA).

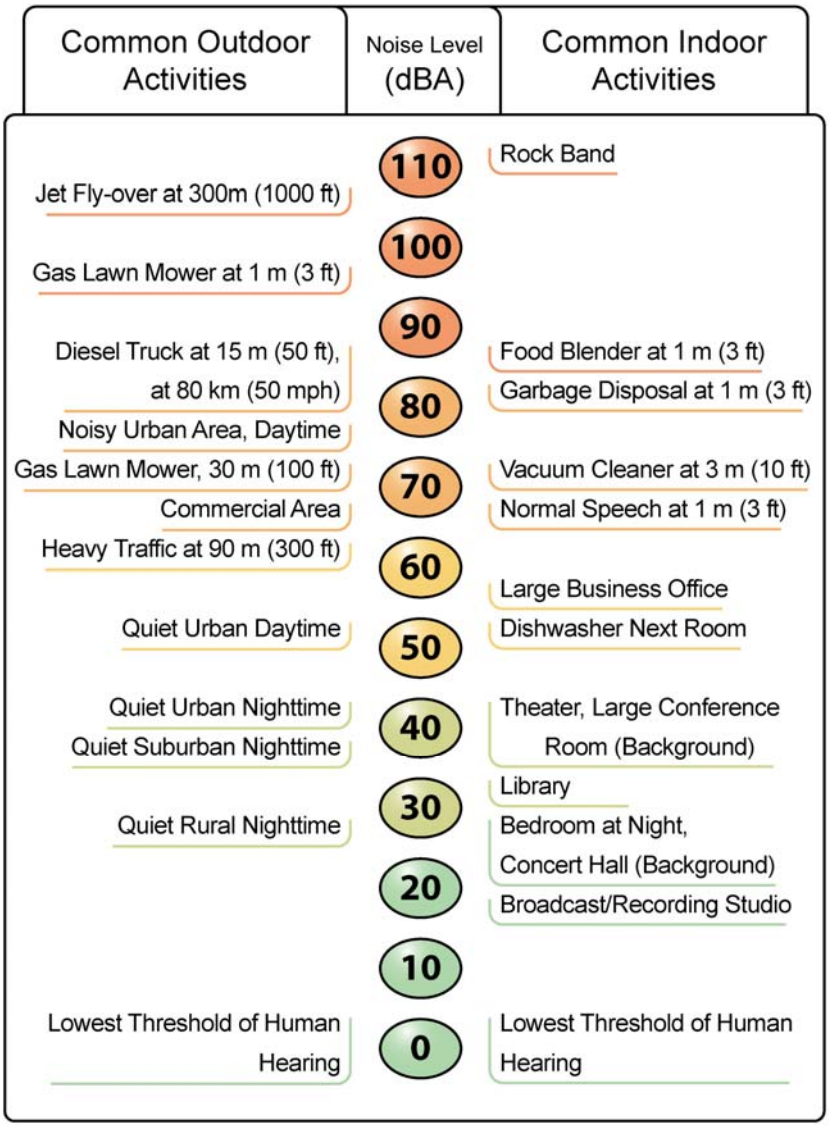


Figure 2.2.7-1. Noise Levels of Common Activities

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

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

The Protocol sets forth the criteria for determining when an abatement measure is reasonable and feasible. Feasibility of noise abatement is basically an engineering concern. A minimum 7 dBA

reduction in the future noise level must be achieved for an abatement measure to be considered feasible. Other considerations include topography, access requirements, other noise sources and safety considerations. The reasonableness determination is basically a cost-benefit analysis. Factors used in determining whether a proposed noise abatement measure is reasonable include: residents' acceptance and the cost per benefited residence.

Local Regulations and Policies

Typically, work taking place within the Department's right-of-way is not subject to local noise ordinances; however, the Department will work with the contractor to meet local requirements where feasible.

Section 24.32 of the Redwood City Noise Ordinance establishes that noise levels generated by construction are prohibited between the hours of 8:00 p.m. and 7:00 a.m. weekdays, or at any time on Saturdays, Sundays, and holidays. In addition, Section 24.31 of the Ordinance prohibits noise levels from exceeding 110 dBA for any item of machinery, equipment, or device used during construction in a residential district.

2.2.7.2 Affected Environment

The following summarizes the *Noise Study Report* (Illingworth and Rodkin 2015) and *Noise Abatement Decision Report* (URS 2015i), which were completed in October 2015 and December 2015, respectively.

The existing noise environment throughout the project area varies by location, depending on site characteristics such as proximity of receptors to major roadways or other significant sources of noise, the relative base elevations of roadways and receptors, and the presence of any intervening structures or barriers. Noise sensitive land uses in the project area include single-family and multi-family residences (Activity Category B); institutional uses, schools, and medical facilities (Activity Category C – exterior and Activity Category D – interior); trails, parks, and active sports areas (Activity Category C); commercial and undeveloped lands permitted for commercial use (Activity Category E); and parking lots (Activity Category F). These land uses vary in their sensitivity to freeway and road noise and are ranked by activity category in Table 2.2.7-1. The existing loudest-hour noise levels at short-term measurement locations range from 57 to 74 dBA $L_{eq[h]}$. Noise abatement criteria for these land uses are listed in Table 2.2.7-1 by activity category.

The study area currently contains one 12-foot-high noise barrier located along the edge of the shoulder of northbound US 101, between just west of Douglas Court and where the ramp splits from the freeway (the gore point) at the northbound off-ramp to Woodside Road.

Noise Study

In January 2015, noise measurements were conducted to document the noise environment at sensitive land uses within the project area. Measurements were made at locations throughout the project area and vicinity to represent a variety of uses. Each location is shown on the maps in Appendix E.

Following established methods for a traffic noise study, the short-term and long-term measurements, together with the measured traffic conditions, vehicle mix, and site-specific geographical information, were then used to determine future noise levels in the project area.

Calculated and measured noise levels were compared to assess any differences, to calibrate or validate the FHWA's Traffic Noise Model (TNM) for use in determining noise levels with and without the project, and to consider any applicable noise abatement measures.

Section 2.2.7.3 discusses the receptor locations where existing and/or future noise levels were estimated to approach or exceed the NAC.

2.2.7.3 Environmental Consequences

Long-Term Noise

The project would widen and add lanes to Woodside Road, reconstruct all ramp connections to US 101, and construct direct-connect flyover ramps between US 101 and Veterans Boulevard. The project would also construct additional pedestrian and bicycle facilities throughout the project area and improve several local intersections. As the proposed project would modify and add interchange ramps, it would qualify as a Type I project as defined in 23 CFR 772.7. Noise abatement must be considered for Type I projects if the project is predicted to result in a traffic noise impact. This section describes the results of the noise impact assessment.

A noise impact assessment is performed for the peak noise period. The noisiest hour is not necessarily the hour with peak traffic volumes. Congestion results in slower speeds, which substantially reduces traffic noise levels. The loudest hour is typically an hour where traffic flows freely at or near-capacity conditions.

Traffic Noise Modeling

Traffic volume inputs for the traffic noise model were taken from the traffic projections developed for this project (Fehr & Peers 2015). US 101 is forecast to operate at LOS D or worse during peak hours under existing and design year conditions. Free-flowing capacity traffic conditions were used for the traffic noise modeling of existing and future noise levels where demand volumes exceeded capacity. For this analysis, it is assumed that each highway lane has a maximum free-flowing capacity of 1,800 vehicles per hour (vph) at the design speed of the highway and each auxiliary lane or ramp lane has a maximum capacity of 1,000 vph.

Traffic mix information (percentage of truck classes versus autos) reported by the Department and compared with the *Traffic Operations Analysis Report* (Fehr & Peers 2015) was used for both existing and future scenarios. All freeway traffic was modeled at 65 mph for autos and light trucks, 60 mph for medium trucks and heavy trucks, and 45 mph for all on- and off-ramps.

Noise Level Predictions

Noise levels were measured and projected for the opening year (2022) and the future year (2042) at 13 measurement locations (four long-term [LT] and nine short-term [ST]) and 27 modeled receptor locations (R) throughout the project area. Each location is shown on the maps in Appendix E. Noise levels are based on the adjusted model results, using worst-case traffic conditions (in terms of noise generation) for the future No Build and Build scenarios.

As shown in Table 2.2.7-2, the loudest-hour noise levels at measured and modeled locations are calculated to range from 50 to 74 dBA $L_{eq[h]}$ under Existing conditions and from 51 to 74 dBA $L_{eq[h]}$ under 2042 No Build and 2042 Build Alternatives 3 and 8B. Noise level increases over

Existing conditions range from 0 to 3 dBA under the No Build and Build Alternatives. This is not considered a substantial project-related noise level increase with regard to the Department's Protocol (meaning it would be less than 12 dBA, as described in Section 2.2.7.1). However, some locations are predicted to experience noise levels that approach or exceed the NAC. Table 2.2.7-2 shows the modeled noise levels for the project area.

Year 2042 Alternatives 3 and 8B noise levels are predicted to approach or exceed the NAC at some ground-level front porches and outdoor use areas of the Marina Townhomes (R-13, R-13c, and R-13d); houseboats at the Docktown Marina (R-14); the Bay Trail (R-5); upper-level patios at Casa de Redwood senior apartments on Veterans Boulevard (R-6); an outdoor use area for Stanford Health Care (ST-8); upper-level patios at the Avenue 2 Apartments on Second Avenue (R-18); single-family residences on Hoover Street near its intersection with Second Avenue (R-19); backyards of first-row homes in the R.C. Mobile Park, La Mar Trailer Park, and Redwood Mobile Estates (R-11 and R-12); and the side yard of a home in the Harbor Village Mobile Home Park (R-16). Only the mobile home parks are currently shielded by a 12-foot-high noise barrier. Noise abatement in the form of new and replacement sound walls were considered for all of the impacted locations except the Casa de Redwood senior apartments, which does not contain ground-level outdoor use areas that would benefit from a sound wall. In addition, a sound wall would block driveway access to the apartments. Preliminary noise barriers were evaluated at the most acoustically effective locations within the State right-of-way.

Table 2.2.7-2: Modeled Noise Levels

Receptor ID	Location	Loudest-Hour Noise Levels, Leq[h] dBA				Noise Increase Over Existing			Activity Category (NAC)	Impact[1] (All Alt)
		2015 Ex.	2042 No Build	2042 Alt 3	2042 Alt 8B	2042 No Build	2042 Alt 3	2042 Alt 8B		
ST-1	East of Marina Townhomes	67	67	67	67	0	0	0	Calibr-ation Point	None
R-13	Marina Townhomes, Front Porch (632 True Wind Way)	67	67	67	67	0	0	0	B(67)	A/E
R-13a	Marina Townhomes, Front Porch (630 Bair Island Road)	64	59	59	59	-5[4]	-5[4]	-5[4]	B(67)	None
R-13b	Marina Townhomes (One Marina Building 2)	66	65	65	65	-1[4]	-1[4]	-1[4]	B(67)	None
R-13c	Marina Townhomes, Grassy Area (636 Fan Trail Way)	68	68	68	68	0	0	0	B(67)	A/E
R-13d	Marina Townhomes, Grassy Area (636 Fan Trail Way)	66	66	66	66	0	0	0	B(67)	A/E
ST-2	Docktown Marina	72	72	72	72	0	0	0	Calibr-ation Point	None
R-14	Houseboat at Docktown Marina	67	67	67	67	0	0	0	B(67)	A/E
R-14a	Houseboat at Docktown Marina	64	64	64	64	0	0	0	B(67)	None
R-14b	Houseboat at Docktown Marina	59	59	59	59	0	0	0	B(67)	None
R-15	Pool at One Marina Hotel (One Marina Way)	67	53	53	53	-13[4]	-13[4]	-13[4]	E(72)	None
R-1	Women's Correctional Center (1590 Maple Street)	56	56	56	56	0	0	0	C(67)	None

Receptor ID	Location	Loudest-Hour Noise Levels, Leq[h] dBA				Noise Increase Over Existing			Activity Category (NAC)	Impact[1] (All Alt)
		2015 Ex.	2042 No Build	2042 Alt 3	2042 Alt 8B	2042 No Build	2042 Alt 3	2042 Alt 8B		
R-2	Correctional Center Land	73	73	73	73	0	0	0	C(67)	None[2]
ST-3	Grassy Area Along Oddstad Drive	74	74	74	74	0	0	0	E(72)	None[3]
R-3	Harbor View Place	70	70	70	70	0	0	0	E(72)	None
LT-4	Harbor View Place	69	69	70	70	0	1	1	E(72)	None
R-4	Harbor View Place	64	64	65	65	0	1	1	E(72)	None
ST-4	Harbor View Place	63	63	63	63	0	0	0	E(72)	None
ST-5	Seaport Blvd & Stein Am Rhein Ct	62	62	64	64	0	2	2	F	None
R-5	Bay Trail	69	72	70	70	3	1	1	C(67)	A/E
R-6	Upper-level patios at Casa de Redwood senior apartments, 1280 Veterans Blvd	65	67	67	67	2	2	2	B(67)	A/E
R-7	Pool Area for Marymount Manor (1321 Marshall St)	50	51	51	51	1	1	1	B(67)	None
ST-6	County of San Mateo Parking Lot (Veterans Blvd)	65	66	65	65	1	0	0	F	None
LT-1	Hoover City Park (2100 Spring St) Parking Lot	69	70	72	72	1	3	3	F	None
R-8	Hoover City Park Basketball Court	59	59	60	60	0	1	1	C(67)	None
R-9	Hoover City Park Ball Field	54	55	55	55	1	1	1	C(67)	None
LT-2	Near Summit Preparatory Charter High School (890 Broadway)	65	65	65	65	0	0	0	F	None
R-10	Summit Preparatory Charter High School benches (890 Broadway)	61	61	62	62	0	1	1	C(67)	None
LT-3	Douglas Ct & E. Bayshore Rd	69	70	70	70	1	1	1	F	None
R-11	Backyard at R. C. Mobile Park (1903 E Bayshore Rd)	69	70	70	70	1	1	1	B(67)	A/E
ST-7	Redwood Mobile Estates (2053 E Bayshore Rd), #16	57	57	57	57	0	0	0	B(67)	None
ST-8	Stanford Health Care (450 Broadway)	69	69	69	69	0	0	0	C(67)	A/E
R-12	Redwood Mobile Estates (2053 E Bayshore Rd)	69	70	70	70	1	1	1	B(67)	A/E
ST-9	Redwood Mobile Estates (2053 E Bayshore Rd), #55	57	58	58	58	1	1	1	B(67)	None
R-16	Harbor Village Mobile Home Park (408 Rose Ave)[5]	70	70	70	70	0	0	0	B(67)	A/E
R-17	Avenue 2 Apartments pool (1107 Second Ave)	64	64	64	64	0	0	0	B(67)	None
R-18	Avenue 2 Apartments upper-level patios (1107 Second Ave)	70	70	70	70	0	0	0	B(67)	A/E
R-19	Backyard of 3001 Hoover St	67	67	67	67	0	0	0	B(67)	A/E

Receptor ID	Location	Loudest-Hour Noise Levels, Leq[h] dBA				Noise Increase Over Existing			Activity Category (NAC)	Impact[1] (All Alt)
		2015 Ex.	2042 No Build	2042 Alt 3	2042 Alt 8B	2042 No Build	2042 Alt 3	2042 Alt 8B		
R-20	Backyard of 3017 Hoover St	63	63	63	63	0	0	0	B(67)	None
R-21	Front yard of 3000 Hoover St	62	62	62	62	0	0	0	B(67)	None
R-22	Front yard of 3008 Hoover St	59	59	59	59	0	0	0	B(67)	None

[1] Impact Type: A/E = Approach or Exceed the NAC.
[2] This receptor is located on institutional land that is under construction with a correctional facility. The receptor is modeled without taking into account any potential shielding from project structures or buildings. At this time, it is not known if any outdoor areas of frequent human use that would benefit from a lowered noise level will be constructed with the project. Due to the land use, it is likely that any outdoor use areas would be well shielded from highway traffic noise by the correctional facility structures.
[3] There are no benches or other such landscaping to indicate that this is a location of frequent human use that would benefit from a lowered noise level.
[4] The future noise reduction indicated at these receptors is due to the construction of One Marina Hotel and not to project improvements.
[5] The address of Harbor Village Mobile Home Park is 3015 East Bayshore Road, but the address of receptor was recorded in the field as 408 Rose Avenue, which is just south of 2575 East Bayshore Road.

Short-Term (Construction) Noise

Industrial, commercial, and residential land uses surround the project area. Roadway construction activities typically occur for relatively short periods of time as construction proceeds along the project's alignment. Construction noise would mostly be of concern in areas where impulse-related noise levels from construction activities would be concentrated for extended periods of time, where noise levels from individual pieces of equipment are substantially higher than ambient conditions in noise sensitive areas, or when construction activities would occur during noise-sensitive early morning, evening, or nighttime hours.

Construction of the project is anticipated to occur during daytime and nighttime hours. In general, construction noise levels at receptors nearest the project alignment would not be substantially higher than ambient traffic noise levels during the day or night. Most construction phases would generate average noise levels that would exceed ambient daytime noise levels by 5 to 10 dBA $L_{eq[h]}$.[13] However, certain construction techniques such as pile driving would generate high, impulsive noise levels that would be substantially higher than existing traffic noise levels.

However, based on noise measures and modeling, construction noise levels would be in accordance with the Redwood City Noise Ordinance, which limits construction noise levels to 110 dBA as received on residential property. However, nighttime pile driving could exceed the absolute noise level limits established by the Department for nighttime hours, and all nighttime construction would occur outside of the allowable construction hours for Redwood City. Therefore, minimization measures to limit construction noise are described in Section 2.2.7.4.

[13] L_{eq} represents an average of the sound energy occurring over a specified period. In effect, L_{eq} is the steady-state sound level containing the same acoustical energy as the time-varying sound that actually occurs during the same period. The 1-hour A-weighted (dBA) equivalent sound level (L_{eq}[h]) is the energy average of A-weighted sound levels occurring during a one-hour period, and is the basis for NAC used by Caltrans and FHWA.

2.2.7.4 Avoidance, Minimization, and Abatement Measures

Traffic Noise Abatement Evaluation

Receptors that exceed either state or federal thresholds must be evaluated for potential abatement measures. Noise abatement is considered only where frequent human use occurs and where a lowered noise level would be of benefit. Noise abatement must be predicted to provide at least a 5-decibel (dB) minimum reduction at an impacted receptor to be considered feasible by the Department (i.e., the barrier would provide a noticeable noise reduction). Additionally, the Protocol acoustical design goal states that the noise barrier must provide at least 7 dB of noise reduction at one or more benefited receptors. Noise abatement measures that provide noise reduction of more than 5 dB are encouraged as long as they meet the reasonableness guidelines. The cost is based on a current allowance per benefited receptor of $71,000.

Potential noise abatement measures identified in the Protocol include:

- Avoiding the project impact by using design alternatives, such as altering the horizontal and vertical alignment of the project;
- Constructing noise barriers;
- Using traffic management measures to regulate types of vehicles and speeds;
- Acquiring property to serve as a buffer zone; and/or
- Acoustically insulating Activity Category D land uses (such as auditoriums, day care centers, hospitals, and libraries).

The chosen abatement type for this project would be the construction of noise barriers. A preliminary noise abatement analysis was conducted that identified the feasibility of constructing or replacing noise barriers to reduce traffic noise levels.

Four preliminary noise barriers were evaluated:

- Bay Trail (Barrier 1)
- Marina Townhomes and Docktown Marina Houseboats (Barrier 2)
- Stanford Health Care, upper-level patios at Avenue 2 Apartments, and residences along Hoover Street (Barriers 3A/3B)
- R.C. Mobile Park, La Mar Trailer Park, Redwood Mobile Estates, and Harbor Village Mobile Home Park (Existing Barrier A)

The existing 12-foot sound wall is located at the same location as the noise barrier evaluated for the R.C. Mobile Park, La Mar Trailer Park, Redwood Mobile Estates, and Harbor Village Mobile Home Park. The maximum height for a noise barrier is 16 feet. Raising the existing noise barrier by 4 feet was found to provide a reduction of 2 decibels, which does not meet the feasibility criteria. Table 2.2.7-3 summarizes the results of the preliminary noise abatement analysis for each receptor where future noise levels would approach or exceed the NAC (described in Section 2.2.7.3).

Table 2.2.7-3: Noise Abatement Analysis Results

Sound Wall ID: Receptor ID and Location	Existing (dBA)	Noise Level (dBA)			Predicted Noise Level (dBA) w/Abatement (by wall height [ft])					Total Reasonable-ness Allowance by Wall Height	Construction Cost by Wall Height	Reason-able and Feasible?
		No Build Alter-native	Alternative 3	Alternative 8B	8	10	12	14	16			
Proposed Barrier 1 (new wall)												
R-5 – Bay Trail	69	72	70	70	62	61	60	60	60	8 ft - $71,000 10 ft - $71,000 12 ft - $71,000 14 ft - $71,000 16 ft - $71,000	8 ft - $282,080 10 ft - $352,600 12 ft - $423,120 14 ft - $493,640 16 ft - $564,160	No
Proposed Barrier 2 (new wall)												
R-13 – Marina Townhomes, Front Porch (632 True Wind Way)	67	67	67	67	62	61	60	60	59	8 ft - $426,000 10 ft - $710,000 12 ft - $1,491,000 14 ft - $1,491,000 16 ft - $1,491,000	8 ft - $1,221,120 10 ft - $1,510,500 12 ft - $1,812,600 14 ft - $2,070,180 16 ft - $2,365,920	No
R-13a – Marina Townhomes, Front Porch (630 Bair Island Road)	64	59	59	59	55	54	52	51	51			
R-13b - Marina Townhomes (One Marina Building 2)	66	65	65	65	60	59	57	57	56			
R-13c – Marina Townhomes, Grassy Area (636 Fan Trail Way)	68	68	68	68	63	62	61	61	60			
R-13d – Marina Townhomes, Grassy Area (636 Fan Trail Way)	66	66	66	66	62	61	60	60	59			
R-14 – Houseboat at Docktown Marina	67	67	67	67	64	63	62	61	61			
R-14a – Houseboat at Docktown Marina	64	64	64	64	60	60	59	59	58			
R-14b – Houseboat at Docktown Marina	59	59	59	59	57	56	56	55	55			
R-15 – Pool at One Marina Hotel (One Marina Way)	67	53	53	53	53	52	52	52	51			
Proposed Barrier 3A												
ST-8 – Stanford Health Care	69	69	69	69	64	64	62	61	60	8 ft - $142,000 10 ft - $284,000 12 ft - $355,000 14 ft - $781,000 16 ft - $781,000	8 ft - $1,069,200 10 ft - $1,320,000 12 ft - $1,584,000 14 ft - $1,801,800 16 ft - $2,059,200	No
R-17 – Avenue 2 Apartments pool (1107 Second Ave)	64	64	64	64	62	61	60	59	58			
R-18 – Avenue 2 Apartments upper level patios (1107 Second Ave)	70	70	70	70	65	64	64	62	61			
R-19 – Backyard of 3001 Hoover St	67	67	67	67	64	62	61	60	59			
R-20 – Backyard of 3017 Hoover St	63	63	63	63	61	60	59	58	58			
R-21 – Frontyard of 3000 Hoover St	62	62	62	62	60	60	58	57	57			
R-22 – Frontyard of 3008 Hoover St	59	59	59	59	58	57	56	55	55			

Sound Wall ID: Receptor ID and Location	Existing (dBA)	Noise Level (dBA)			Predicted Noise Level (dBA) w/Abatement (by wall height [ft])					Total Reasonable-ness Allowance by Wall Height	Construction Cost by Wall Height	Reason-able and Feasible?
		No Build Alter-native	Alternative 3	Alternative 8B	8	10	12	14	16			
Proposed Barrier 3B												
ST-8 – Stanford Health Care	69	69	69	69	67	65	64	63	62	8 ft - $0 10 ft - $0 12 ft - $284,000 14 ft - $355,000 16 ft - $568,000	8 ft - $0 10 ft - $0 12 ft - $1,440,000 14 ft - $1,638,000 16 ft - $1,872,000	No
R-17 – Avenue 2 Apartments pool (1107 Second Ave)	64	64	64	64	64	63	62	60	59			
R-18 – Avenue 2 Apartments upper level patios (1107 Second Ave)	70	70	70	70	68	66	65	64	63			
R-19 – Backyard of 3001 Hoover St	67	67	67	67	65	64	62	61	60			
R-20 – Backyard of 3017 Hoover St	63	63	63	63	62	61	60	59	58			
R-21 – Frontyard of 3000 Hoover St	62	62	62	62	61	61	60	58	58			
R-22 – Frontyard of 3008 Hoover St	59	59	59	59	59	58	57	56	56			
Existing Barrier A (increase height of existing wall)												
LT-3 – Douglas Ct. and E. Bayshore Rd.	69	70	70	70	[a]	[a]	[a]	69	69	NA	NA	No
R-11 – Backyard at R. C. Mobile Park (1903 E. Bayshore Rd)	69	70	70	70	[a]	[a]	[a]	70	70			
ST-7 – Redwood Mobile Estates #16	57	57	57	57	[a]	[a]	[a]	56	55			
R-12 – Redwood Mobile Estates #55	69	70	70	70	[a]	[a]	[a]	70	70			
ST-9 – Redwood Mobile Estates #55	57	58	58	58	[a]	[a]	[a]	57	56			
R-16 – Harbor Village Mobile Home Park (408 Rose Ave)	70	70	70	70	[a]	[a]	[a]	70	70			

[a] – Already protected by a 12-foot sound wall
NA – Not applicable; noise reduction goal not met, so construction cost not estimated

Table 2.2.7-3 also lists noise levels with and without the project, the corresponding sound walls that were studied to provide noise abatement for those receptors, the wall heights analyzed, and the predicted noise levels at each receptor if the walls were constructed. The potential sound wall locations are depicted in Appendix E. For each sound wall that met the Protocol acoustical design goal (at least 7 dB of noise reduction at one or more benefited receptors), Table 2.2.7-3 also identifies the total reasonableness allowance for the sound wall and the estimated construction cost.

All four new sound wall segments analyzed had at least one wall height that would meet the noise reduction design goal of a 7 dB noise reduction at a minimum of one receptor location. The total reasonableness allowance[14] for each feasible sound wall ranged from $71,000 to $1,491,000, depending on the wall height and number of benefited receptors. In all cases, the estimated construction costs[15] of the walls well exceeded the combined reasonableness allowance for the benefited receptors.

None of the sound walls evaluated meet both the feasibility and reasonableness criteria described at the beginning of Section 2.2.7.1. However, the final decision on the noise abatement will be made upon completion of the project design and the public involvement processes.

Short-Term (Construction) Noise

The following measures will be implemented to minimize or reduce the potential for noise impacts resulting from project construction:

- Restrict overly loud construction activities to between 7:00 a.m. and 8:00 p.m., weekdays (except on holidays), where feasible.
- Limit pile driving activities to daytime hours only, where feasible.
- Equip all internal combustion engine driven equipment with intake and exhaust mufflers that are in good condition and appropriate for the equipment.
- Use “quiet” air compressors and other “quiet” equipment where such technology exists.
- Prohibit unnecessary idling of internal combustion engines within 100 feet of residences.
- Avoid staging of construction equipment within 200 feet of residences and locate all stationary noise-generating construction equipment, such as air compressors, portable power generators, or self-powered lighting systems as far practical from noise sensitive residences.
- Require all construction equipment to conform to Section 14-8.02, Noise Control, of the latest Department Standard Specifications.

[14] **Total reasonableness allowance** was calculated based on the allowance of $71,000 per benefited receptor, which is set by the Protocol.

[15] **Estimated construction cost** was calculated based on the square footage of the analyzed wall multiplied by an estimated construction cost of $93-$96 per square foot. The estimated construction cost ranges based on the length and height of the analyzed wall.

2.2.7.5 CEQA Noise Analysis

The significance of a noise impact under CEQA is evaluated based on the difference between the baseline noise level and Build noise level. This assessment entails looking at the setting of the noise impact and how large or perceptible any noise increase would be in the given area.

The noise analysis described in Section 2.2.7.3 considered the noise setting of several receptor locations along the project corridor, which are identified by development type in Section 2.2.7.2. The analysis found that the differences between the baseline noise level and Build noise level ranged from 0 to 3 dBA. An increase of 3 dBA is considered to be barely detectable to the human ear. Therefore, under CEQA, changes in traffic noise from the project would not result in a significant impact. (As described in Section 2.2.7.4, however, noise abatement has been considered under NEPA and 23 CFR 772.)

2.3 Biological Environment

2.3.1 Natural Communities

This section of the document discusses natural communities of concern. The focus of this section is on biological communities, not individual plant or animal species. This section also includes information on wildlife corridors and habitat fragmentation. Wildlife corridors are areas of habitat used by wildlife for seasonal or daily migration. Habitat fragmentation involves the potential for dividing sensitive habitat and thereby lessening its biological value.

Habitat areas that have been designated as critical habitat under the Federal Endangered Species Act (FESA) are discussed below in the Threatened and Endangered Species (Section 2.3.4). Wetlands and other waters are discussed below in Section 2.3.2.

2.3.1.1 Affected Environment

This section is summarized from the *Natural Environment Study* (URS 2015j) for the proposed project, which was completed in October 2015.

A biological study area (BSA) was established to evaluate the effects of the proposed project on natural communities and other biological resources. The BSA, similar to the project area, includes the areas that could be directly and indirectly affected by the proposed project (Figure 1.1.1-1). The BSA encompasses an area of approximately 178 acres, the majority of which is existing hardscape and developed areas. The BSA boundary in most locations aligns with the Department's right-of-way boundary. At the US 101/Woodside Road interchange, the right-of-way widens to cover the median areas between the roadways and freeway ramps along with adjacent commercial properties.

No habitat conservation plans or natural community conservation plans exist for the project area (URS 2015a).

Vegetation Communities

The BSA is located in the San Francisco Bay area, a floristic sub-region of the California Floristic Province's Central Western California region. A majority of the BSA contains pavement, urban development, and landscaping. The BSA contains approximately 24 acres of landscaped and naturally occurring vegetation communities. Most of the vegetation (87.6 percent) in the BSA is composed of landscaped vegetation (ornamental trees, ornamental shrubbery, and eucalyptus groves). Naturally occurring vegetation comprises 12.4 percent of the vegetation within the BSA and includes tidal marsh mudflats, pickleweed mats, smooth/Chilean cordgrass, cattail stands, and ruderal vegetation.

Undeveloped areas and roadsides containing ruderal vegetation consist mainly of black mustard (*Brassica nigra*), sweet fennel (*Foenicum vulgare*), bromes (*Bromus* spp.), Jersey cudweed (*Pseudognaphalium luteoalbum*), wild oats (*Avena* spp.), spotted spurge (*Chamaecyce maculata*), and horseweeds (*Erigeron bonariensis*). Invasive species in the BSA are described further in Section 2.3.5.

Migratory Corridors and Fish Passage

No wildlife migratory corridors have been identified in the BSA.

Fish passage was evaluated at Redwood Creek, the only stream crossing through the BSA with anadromous fish. Although support piers are located within the creek, these structures do not impede fish movement. The hydrologic conditions are similar to the upstream and downstream portions of the creek. No fish passage barrier was identified at this crossing in the CDFW California Fish Passage Database (CDFW 2014). Therefore, the existing creek crossing appears to be completely passable to anadromous fish.

Redwood Creek is the only water crossing within the BSA that may support Essential Fish Habitat. No construction activities would occur near Redwood Creek.

2.3.1.2 Environmental Consequences

Vegetation Communities

Construction activities associated with both Build Alternatives would have temporary and permanent impacts to ruderal and landscaped vegetation within the BSA. Alternative 3 would result in a temporary loss of 2.27 acres and a permanent loss of 15.22 acres of ruderal and landscaped vegetation. Alternative 8B would result in a temporary loss of 2.31 acres and a permanent loss of 12.17 acres of ruderal and landscaped vegetation. Neither Build Alternative would have any temporary or permanent impacts to a natural community of concern.

Approximately 251 trees were identified in the BSA. Both alternatives are very similar in construction area access and staging requirements, and follow similar alignments along Woodside Road and it's intersections with local roads. Both alternatives would likely require removal of the same trees and vegetation. The total number of trees that would be affected as a result of the proposed project would be determined once the Preferred Alternative is identified.

No vegetation removal would occur with the No Build Alternative.

Migratory Corridors and Fish Passage

No wildlife migratory corridors exist in the project area. The project would not introduce barriers to fish passage or affect Essential Fish Habitat.

2.3.1.3 Avoidance, Minimization, and/or Mitigation Measures

Existing landscaping affected by the project would be replaced, as discussed in Section 2.1.6.4. Landscaping would include the use of native species where possible.

2.3.2 Wetlands and Other Waters of the United States

2.3.2.1 Regulatory Setting

Wetlands and other waters are protected under a number of laws and regulations. At the federal level, the Clean Water Act (33 USC 1344), is the primary law regulating wetlands and waters. One purpose of the Clean Water Act is to regulate the discharge of dredged or fill material into waters of the U.S., including wetlands. Waters of the United States include navigable waters, interstate waters, territorial seas and other waters that may be used in interstate or foreign commerce. To classify wetlands for the purposes of the Clean Water Act, a three-parameter approach is used that includes the presence of hydrophytic (water-loving) vegetation, wetland hydrology, and hydric soils (soils subject to saturation/inundation). All three parameters must be present, under normal circumstances, for an area to be designated as a jurisdictional wetland under the Clean Water Act.

Section 404 of the Clean Water Act establishes a regulatory program that provides that no discharge of dredged or fill material can be permitted if a practicable alternative exists that is less damaging to the aquatic environment or if the nation's waters would be significantly degraded. The Section 404 permit program is run by the USACE with oversight by the U.S. EPA.

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

Ordinarily, projects that do not meet the criteria for a Nationwide Permit may be permitted under one of USACE's Standard permits. There are two types of Standard permits: Individual permits and Letters of Permission. For Standard permits, the USACE decision to approve is based on compliance with U.S. EPA's Section 404(b)(1) Guidelines (U.S. EPA 40 CFR Part 230), and whether permit approval is in the public interest. The Section 404 (b)(1) Guidelines (Guidelines) were developed by the U.S. EPA in conjunction with the USACE, and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative which would have less adverse effects. The Guidelines state that the USACE may not issue a permit if there is a least environmentally damaging practicable alternative to the proposed discharge that would have lesser effects on waters of the U.S., and not have any other significant adverse environmental consequences.

The Executive Order for the Protection of Wetlands (EO 11990) also regulates the activities of Federal agencies with regard to wetlands. Essentially, this EO states that a Federal agency such as the FHWA cannot undertake or provide assistance for new construction located in wetlands unless the head of the agency finds: 1) that there is no practicable alternative to the construction and 2) the proposed project includes all practicable measures to minimize harm.

At the state level, wetlands and waters are regulated primarily by the SWRCB, the RWQCB and the CDFW. In certain circumstances, the Coastal Commission (or BCDC) may also be involved. Sections 1600-1607 of the California Fish and Game Code require any agency that proposes a project that will substantially divert or obstruct the natural flow of or substantially change the bed or bank of a river, stream, or lake to notify the CDFW before beginning construction. If the

CDFW determines that the project may substantially and adversely affect fish or wildlife resources, a Lake or Streambed Alteration Agreement will be required. CDFW jurisdictional limits are usually defined by the tops of the stream or lake banks, or the outer edge of riparian vegetation, whichever is wider. Wetlands under jurisdiction of the USACE may or may not be included in the area covered by a Streambed Alteration Agreement obtained from the CDFW.

The RWQCBs were established under the Porter-Cologne Water Quality Control Act to oversee water quality. Discharges under the Porter-Cologne Water Quality Control Act are permitted by Waste Discharge Requirements (WDRs) and may be required even when the discharge is already permitted or exempt under the Clean Water Act. In compliance with Section 401 of the Clean Water Act, the RWQCBs also issue water quality certifications for activities which may result in a discharge to waters of the U.S. This is most frequently required in tandem with a Section 404 permit request. See Section 2.2.2 for additional details.

2.3.2.2 Affected Environment

This section is summarized from the *Natural Environment Study* (URS 2015j) and *Jurisdictional Delineation* (URS 2015k) for the proposed project, which were completed in October 2015 and August 2015, respectively.

The BSA contains potentially jurisdictional other waters and wetlands of the U.S., hereafter called potential jurisdictional waters. The total area delineated as potential jurisdictional waters (under Section 404 of the Clean Water Act) within the BSA is 2.18 acres. Approximately 0.16 acre was delineated as other waters, and 2.02 acres were delineated as wetlands or wetlands within waters. Potential jurisdictional wetlands in the BSA function as perennial drainages and roadside ditches, often with emergent and tidally influenced wetlands occurring within the ordinary high water mark or mean high tide line.

Two drainage ditches with no apparent nexus to traditional navigable waters were mapped in the BSA. Both of these drainage ditches are engineered features along roadsides. Although these features are not jurisdictional waters of the U.S., they are considered waters of the State.

2.3.2.3 Environmental Consequences

Project impacts would be the same for both Build Alternatives 3 and 8B, and the No Build Alternative would be same as the existing environment. No temporary or permanent impacts are anticipated to potentially jurisdictional waters of the U.S. (jurisdictional wetlands and other waters of the U.S.). Construction activities for both Build Alternatives would permanently impact 0.02 acre of non-jurisdictional drainage ditches, which are considered waters of the State and have no apparent nexus to traditional navigable waters. The affected ditches are located along Woodside Road and Veterans Boulevard near Broadway and Veterans Boulevard near Chestnut Street. It was assumed that the entire extent of these ditches would be affected by the widening of Woodside Road and construction of the Class I bikeway on Veterans Boulevard. Table 2.3.2-1 summarizes the impacts to features located in the BSA.

Table 2.3.2-1: Impacts to Potential Jurisdictional Waters in the BSA

Type of Feature	Present in the BSA (acre)	Potential Project Impact (acre)
Jurisdictional Wetlands	2.02	0.00
Other Waters of the U.S.	0.16	0.00
Waters of the State/Non-Jurisdictional Waters	0.02	0.02

Impacts on Functions and Values

As discussed in Section 2.3.2.2, wetlands and waters located in the BSA function as perennial drainages and roadside ditches. An area near the Seaport Boulevard/East Bayshore Road/Blomquist Street intersection supports emergent and tidally influenced wetlands but would not be affected by either Build Alternative.

Although potential jurisdictional wetlands and waters of the U.S are present within the project area, impacts to these features would not occur. Construction activities would permanently affect 0.02 acre of potential waters of the State. Because these features are manmade and do not support sufficient vegetation to be classified as wetlands, this impact would be considered minor.

Construction activities could cause temporary impacts to water quality. These impacts would be avoided and minimized with implementation of the measures described in Section 2.3.2.4.

2.3.2.4 Avoidance, Minimization, and/or Mitigation Measures

Avoidance and Minimization

The General Construction Permit will require the Contractor to submit a SWPPP. This plan must meet the standards and objectives to minimize storm water pollution impacts set forth in Section 13.37 of the Department's Standard Specifications. The SWPPP must also comply with the goals and restrictions identified in the RWQCB's Basin Plan. Any additional measures included in the Water Quality Certification will be implemented. The contractor will also comply with the following standards/BMPs, including but not limited to the following:

1. Where work areas encroach on wetlands, RWQCB-approved physical barriers will be constructed to prevent the flow or discharge of sediment into these systems.
2. Discharge of sediment into culverts and storm drains will be held to a minimum during construction of the barriers.
3. RWQCB-approved measures will be used to keep sediment from leaving the project construction area.
4. All off-road construction equipment should be cleaned of potential noxious weed sources (mud and vegetation) before entering the project area and after entering a potentially infested area before moving on to another area. The contractor will employ whatever cleaning methods (typically spraying with a high-pressure water hose) are necessary to ensure that equipment is free of noxious weeds.
5. Equipment should be considered free of soil, seeds, and other such debris when a visual inspection does not disclose such material. Disassembly of equipment components or

specialized inspection tools is not required. Equipment washing stations will be placed in areas that afford easy containment and monitoring (preferably outside of the project area) and that do not drain into sensitive (riparian, wetland, etc.) areas.

Upon completion of the project, all temporarily affected areas will be restored to approximately the original site conditions.

Mitigation

Because the project will not impact waters of the U.S., compensatory mitigation will not be needed. The Department and the City will adhere to all conditions pursuant to permits required by state and federal regulatory agencies.

2.3.3 Animal Species

2.3.3.1 Regulatory Setting

Many state and federal laws regulate impacts to wildlife. The USFWS, the National Marine Fisheries Service (NMFS), and the CDFW are responsible for implementing these laws. This section discusses potential impacts and permit requirements associated with wildlife not listed or proposed for listing under the federal or state Endangered Species Act. Species listed or proposed for listing as threatened or endangered are discussed in Section 2.3.4. All other special-status animal species are discussed here, including CDFW fully protected species and species of special concern, and USFWS or NMFS candidate species.

Federal laws and regulations relevant to wildlife include the following:

- National Environmental Policy Act;
- Migratory Bird Treaty Act (MBTA); and
- Fish and Wildlife Coordination Act.

State laws and regulations relevant to wildlife include the following:

- California Environmental Quality Act;
- Sections 1600–1603 of the California Fish and Game Code; and
- Section 4150 and 4152 of the California Fish and Game Code.

2.3.3.2 Affected Environment

This section is summarized from the *Natural Environment Study* (URS 2015j) for the proposed project, which was completed in October 2015.

A wide variety of shorebirds and waterfowl use the aquatic resources in and adjacent to the BSA for migratory stopovers, overwintering grounds, or year-round residence. Wildlife observed during field surveys were primarily shorebirds and waterfowl and included mallards (*Anas* sp.), California gulls (*Larus occidentalis*), snowy egrets (*Egretta thula*), great herons (*Ardea albus*), and western sandpipers (*Calidris mauri*). Wildlife species common to urban habitats and degraded ruderal vegetation communities are also expected to inhabit the BSA. These species include raccoons (*Procyon lotor*) and fox squirrels (*Sciurus niger*). Special-status animals with potential to occur in the BSA are described below.

Special-Status Birds

The only special-status birds with potential to occur in the BSA are Alameda song sparrow (*Melospiza melodia pusillula*), nesting raptors (protected under California Fish and Game Code Section 3503.5), and migratory birds (protected under the MBTA).

Alameda Song Sparrow

The Alameda song sparrow, a state species of concern, is one of nine subspecies of song sparrow found in California. The Alameda song sparrow may use habitat occurring along a marsh-upland interface. They may nest in shrubs and tall vegetation that occurs above the point of highest

inundation and feed primarily on seeds. No Alameda song sparrow occurrences have been documented in the BSA. The nearest CNDDB occurrence was recorded in 2004 along the eastern portion of Smith Slough (CDFW 2015). The species was not observed during habitat assessments in the BSA. Marginal foraging habitat and nesting is present along the tidal marsh and adjacent berm near the Seaport Boulevard/East Bayshore Road/Blomquist Street intersection. The area is immediately adjacent to a pedestrian/bike path, busy roadways, and other urban development.

Nesting Raptors

Nesting raptors including the white-tailed kite (*Elanus leucurus*) and the American peregrine falcon (*Falco peregrinus anatum*) are protected under California Fish and Game Code Section 3503.5. In addition, the white-tailed kite is a California fully protected species, and the American peregrine falcon is a California endangered species. The white-tailed kite and American peregrine nest in dense areas that are adjacent to open foraging areas that support their prey base of small mammals (CDFG 2005). The American peregrine falcon generally feeds and nests near water. Although they prefer to nest on protected cliff ledges, or within woodland and forested areas, they are known to nest on man-made structures (CDFG 2005).

No individual nesting raptors were seen during site visits or reported in the CNDDB in or near the BSA. The CDFW range map for the white-tailed kite shows the BSA within the species' year-round range. The American peregrine falcon may occasionally forage in the BSA and has been known to nest nearby on the Dumbarton Bridge, approximately 6 miles east of the BSA. Mature trees and elevated structures in and adjacent to the project area could provide potential nesting habitat for these species.

Other Migratory Birds

All migratory birds, including the Alameda song sparrow, white-tailed kite and American peregrine falcon, within the BSA are protected by the MBTA. Many species of migratory birds may inhabit the BSA at a time and will typically use similar resources. No nesting activities or evidence of nesting was observed during the field reviews. Migratory birds observed during the surveys were grouped into two categories: those that only forage and those that might potentially nest in and adjacent to the BSA.

Migratory birds that fall into the "foragers" category are migratory shorebirds and waterfowl that may stop by during their migrations between the northern and southern hemisphere or may overwinter in the Bay Area yearly. Hundreds of species of migratory shorebirds and waterfowl have been documented to occur in the Bay Area regularly (Takekawa et al. 2006). The tidal marsh north of the Seaport Boulevard/East Bayshore Road/Blomquist Street intersection supports marginal foraging habitat for migratory birds, and trees and other project area structures could provide nesting habitat.

Mammals

Salt Marsh Wandering Shrew

The salt marsh wandering shrew is a state species of special concern. This species occurs only within salt marsh areas bordering the south arm of the San Francisco Bay (Williams 1986). They are cover-dependent and are associated with salt marshes that contain pickleweed mats.

There are no records of salt marsh wandering shrew occurrences in the BSA. The nearest CNDDB record for a salt marsh wandering shrew is from 1985 at Bair Island, approximately 2.7 miles northwest of the BSA. The marsh habitat and associated ruderal uplands along the berm offer limited protective cover for nesting, foraging, and resting in an area exposed to pedestrian and vehicle traffic and associated noise.

Bats

The pallid bat (*Antrozous pallidus*), a state species of special concern, the hoary bat (*Lasiurus cinereus*), and the Townsend's big-eared bat (*Corynorhinus townsendii*) all have the potential to occur within the BSA. The pallid bat typically roosts in the dense foliage of trees and emerges at night to hunt for food, such as small mammals. Although the hoary bat and Townsend's big-eared bat tend to roost in trees or crevices, they are known to roost on man-made structures and feed on small insects.

No roosting bats or signs of roosting bats were found during reconnaissance surveys, but potential roosting bat sites are present in the trees and human-made structures that exist in the BSA.

2.3.3.3 Environmental Consequences

Unless otherwise specified, the impacts listed apply to both Build Alternatives. The No Build Alternative would not affect special-status animal species.

Special-Status Birds

Construction activities would occur adjacent to but not within the tidal marsh near the Seaport Boulevard/East Bayshore Road/Blomquist Street intersection. The proposed project would result in the permanent loss of a small area of marginal foraging and nesting habitat located along the berm. Because this area is routinely exposed to pedestrian and vehicle traffic and associated noise, this impact would be considered minor. In addition, the loss of habitat would be minimal compared to the amount foraging and nesting habitat available in the project vicinity.

The project would have no direct impacts to nesting raptors, including the white-tailed kite, American peregrine falcon, or migratory birds with implementation of the avoidance and minimization measures listed in Section 2.3.3.4. Raptors and migratory birds, if present in the project area, could experience temporary loss of foraging habitat from avoiding the project area during construction. However, the potential loss of habitat use would be minimal compared to the amount of foraging habitat available in the project vicinity. The measures discussed in Section 2.3.3.4 would prevent disturbance of nesting activities, including take of individual special status bird species, or their nestlings or eggs.

Salt Marsh Wandering Shrew

Potential direct impacts, such as injury or mortality, on individual salt marsh wandering shrew would be avoided through the implementation of the avoidance and minimization measures discussed in Section 2.3.4.4 (including for salt marsh harvest mouse). Both of the Build Alternatives would result in the permanent loss of a small area (0.18 acre) of marginally suitable ruderal upland habitat located along the berm adjacent to the tidal marsh near the Seaport Boulevard/East Bayshore Road/Blomquist Street intersection. Temporary loss of habitat during construction may also occur. This area contains marginal potential foraging, nesting, and resting

habitat that is routinely exposed to pedestrian and vehicle traffic and associated noise, and therefore this impact is considered minor.

The salt marsh wandering shrew may be sensitive to loud noises. The area with potential habitat is affected by noise from the nearby busy Seaport Boulevard/East Bayshore Road/Blomquist Street intersection, and construction would not cause a discernable increase in noise levels.

Bats

Implementation of the proposed project could result in the disturbance of suitable roosting and nesting sites for special-status and high priority bat species, specifically on the underside of bridges. Disruption of suitable roosting and nesting sites would potentially have a temporary negative effect on bats. Although the proposed project would result in the partial removal of three bridges and the full removal of two bridges, impacts to bats are not expected to occur with the implementation of the avoidance and minimization measures described in Section 2.3.3.4. As a result, there would be no long-term negative effect on bats.

2.3.3.4 Avoidance, Minimization, and/or Mitigation Measures

Special-Status Birds

To avoid mortality of birds protected under the MBTA, the following avoidance and minimization measures are proposed:

Migratory Birds

1. If construction is scheduled during the nesting season for migratory birds (February 1 through August 31), structures in the project area, including the remaining trees, will be surveyed for nesting migratory birds no more than three days prior to the start of ground disturbing activities. The overcrossing will be inspected weekly for signs of nesting activity from the start of the nesting season until the end of the season, or until the existing overcrossing has been removed, depending upon which event occurs first.

2. If nests are identified in trees or under the overcrossing structure during preconstruction surveys, the following measures will be implemented:

    i. Buffers will be established around active migratory bird nests found in trees or on the ground. The size of the buffer may vary for different species and will be determined in coordination with CDFW. A qualified biologist will delineate the buffer using ESA fencing, pin flags, and/or yellow caution tape. The buffer zone will be maintained around all active tree-nest sites until the young have fledged and are foraging independently. In the event that an active tree-nest is found after the completion of preconstruction surveys and after construction begins, all construction activities will be stopped until a qualified biologist has evaluated the nest and erected the appropriate buffer around it.

    ii. A qualified biologist will work with CDFW before the start of nesting season (February 1) to determine and implement appropriate techniques to discourage migratory birds from developing new nests on the underside of the overcrossing for the duration of construction, and remove any existing

nests. Strategies may include installing exclusionary netting underneath the bridge and plugging drain holes with wire mesh prior to nesting season. In the event that nesting birds are present and attempt to build nests during construction, a biologist will work with CDFW to implement a strategy to prevent nests from becoming established.

Raptors

1. Schedule vegetation removal during nonbreeding season: To avoid disruption or impacts to nesting raptors and other nesting birds, removal of vegetation (trees and ground cover) in the project's construction area should occur between September 1 and October 15, outside of the bird nesting season and prior to the rainy season.

2. If construction is scheduled during the nesting season (February 1 through August 31), the remaining trees in the BSA, the Broadway overcrossing, and the pedestrian overcrossing within 500 feet of the construction area will be surveyed no more than 3 days prior to ground-disturbing activities. If an active nest is found, a qualified biologist will determine the appropriate buffer size through consultation with CDFW.

3. If nesting activity is identified within the project's construction area, a qualified biologist will check the nest area weekly for potential disturbances associated with construction. Construction within the buffer is prohibited until the biologist determines the nest is no longer active. If an active nest is found after the completion of the preconstruction surveys and after construction begins, all construction activities will stop until the qualified biologist has evaluated the nest and an appropriate buffer has been established around the nest. Construction work will be excluded from the buffer area until the nesting activity is complete. If establishment of the buffer is not feasible, CDFW will be contacted for further avoidance and minimization guidelines. These requirements apply only to nesting activity.

Bats

Disturbance of bats is of particular concern during the maternity roosting season (April 15 through August 31), when bats are likely to be raising young. The following measures will be implemented to avoid and minimize impacts on bats:

1. No more than three days prior to the start of ground disturbing activities, a qualified biologist will survey the trees and human-made structures in the BSA for evidence of bat roosts (e.g., bat guano). If bat roosts are located during preconstruction surveys, the roosts will be flagged and avoided during construction. To the extent possible, night work will be limited in areas where roosts are observed.
2. If roosts cannot be avoided during construction, exclusionary strategies will be developed through coordination with CDFW.

2.3.4 Threatened and Endangered Species

2.3.4.1 Regulatory Setting

The primary Federal law protecting threatened and endangered species is the FESA: 16 USC Section 1531, et seq.; see also 50 CFR Part 402. This act and later amendments provide for the

conservation of endangered and threatened species and the ecosystems upon which they depend. Under Section 7 of the FESA, Federal agencies such as FHWA are required to consult with the USFWS and NMFS to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat. Critical habitat is defined as geographic locations critical to the existence of a threatened or endangered species. The outcome of consultation under Section 7 may include a Biological Opinion (BO) with an Incidental Take statement, a Letter of Concurrence and/or documentation of a No Effect finding. Section 3 of the FESA defines take as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect or any attempt at such conduct."

California has enacted a similar law to FESA at the state level, the CESA (California Fish and Game Code, Section 2050 et seq.). The CESA emphasizes early consultation to avoid potential impacts to rare, endangered, and threatened species and to develop appropriate planning to offset project-caused losses of listed species populations and their essential habitats. The CDFW is the agency responsible for implementing CESA. Section 2081 of the California Fish and Game Code prohibits take of any species determined to be an endangered species or a threatened species. Take is defined in Section 86 of the California Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." CESA allows for take incidental to otherwise lawful development projects; for these actions an incidental take permit is issued by CDFW. For projects requiring a Biological Opinion under Section 7 of the FESA, the CDFW may also authorize impacts to CESA species by issuing a Consistency Determination under Section 2080.1 of the California Fish and Game Code.

Another federal law, the Magnuson-Stevens Fishery Conservation and Management Act of 1976, was established to conserve and manage fishery resources found off the coast, as well as anadromous species and Continental Shelf fishery resources of the United States, by exercising (A) sovereign rights for the purposes of exploring, exploiting, conserving, and managing all fish within the exclusive economic zone established by Presidential Proclamation 5030, dated March 10, 1983, and (B) exclusive fishery management authority beyond the exclusive economic zone over such anadromous species, Continental Shelf fishery resources, and fishery resources in special areas.

2.3.4.2 Affected Environment

This section is summarized from the *Natural Environment Study* (URS 2015j) and the Biological Assessment (URS 2015l), which were completed in October 2015 and August 2015, respectively.

USFWS species records were reviewed prior to the surveys for the project and periodically thereafter, most recently on October 23, 2015 (see Appendix F). The CNDDB (CDFW 2015) and CNPS online Inventory of Rare and Endangered Vascular Plant of California (CNPS 2014) were used to identify state-listed threatened and endangered species. Wildlife habitat assessments and rare plant surveys were conducted on November 4, 2015.

Based on the literature review and the field surveys, five species that are federally and/or state listed as threatened or endangered were identified with the potential to occur in the BSA:

California black rail, Ridgway's rail, bank swallow, California least tern, and salt marsh harvest mouse.

Endangered species consultation with the USFWS is necessary when a project has the potential to affect federally listed species and/or destroy or adversely modify designated critical habitat. The Department, as assigned by the FHWA, will initiate Section 7 consultation with the USFWS regarding Ridgway's rail, California least tern, and salt marsh harvest mouse.

Aquatic habitat that could support the federally threatened Central California Coast steelhead (*Oncorhynchus mykiss*) Distinct Population Segment (DPS) and southern green sturgeon DPS (*Acipenser medirostris*) is present in the BSA in Redwood Creek. Because no construction activities would occur near Redwood Creek, there would be no impacts to these species. These species are therefore not discussed further.

Endangered species consultation with the CDFW is necessary when a project may result in the take of a state-list species. The project would not result in the take under CESA of California black rail, Ridgway's rail, bank swallow, California least tern, or salt marsh harvest mouse.

California Black Rail

The California black rail is a state-listed threatened and fully protected species. The species is included in the *Recovery Plan for Tidal Marsh Ecosystems of Northern and Central California* (USFWS 2013). The California black rail is not a federally listed species and therefore does not have designated critical habitat.

This species prefers undiked tidal salt marshes dominated by dense pickleweed, with escape cover at or above the mean high water level (Evens and Page 1983; CDFG 2004). The species is also known to use freshwater and brackish marshes (Evens et al. 1991). A dense canopy that provides optimal cover for nesting and movement is essential to protect the species from predation by herons, egrets, northern harriers, short-eared owls, and rats and other mammals. The majority of breeding rails in the Bay Area are in the San Pablo Bay system (Evens et al. 1991). Breeding populations have also been identified in Suisun Marsh but are uncommon in the Central and South Bays.

No California black rail occurrences have been documented in the BSA. The nearest CNDDB occurrence was recorded in Redwood Shores in 1972, approximately 4.7 miles from the BSA. The species was not observed during 1977 surveys documented in the CNDDB. This could be attributed to the high marsh habitat that prevents nesting in the area (CDFW 2015). The species was not observed during habitat assessments in the BSA.

Poor to marginal foraging habitat is present within the tidal marsh near the intersection of Seaport Boulevard/East Bayshore Road/Blomquist Street. The tidal marsh is immediately adjacent to a pedestrian/bike path, busy roadways, and other urban development. The area is vegetated with sparse, short stands of pickleweed (*Salicornia* sp.) and salt grass (*Distichlis spicata*) that do not offer sufficient protective cover for the species. Because the water depth fluctuates seasonally, the tidal marsh does not provide nesting habitat.

Ridgway's Rail

The USFWS listed the California clapper rail as an endangered species on October 13, 1970 (35 Federal Register 16047, 16048). In 2014, the clapper rail designation was split into three distinct

species based on population and genetics. As a result, the California clapper rail is now called the Ridgway's rail (San Francisco Bay National Bay National Wildlife Refuge Complex 2014). The species is included in the *Recovery Plan for Tidal Marsh Ecosystems of Northern and Central California* (USFWS 2013). The Ridgway's rail is also a state listed endangered species and fully protected species.

Critical habitat for the Ridgway's rail has not been designated by the USFWS. In the south and central San Francisco Bay and along the perimeter of San Pablo Bay, Ridgway's rails typically inhabit salt marshes dominated by pickleweed and Pacific cordgrass (*Spartina foliosa*). Ridgway's rails are most active in early morning and late evening, when they forage in marsh vegetation in and along creeks and mudflat edges. They often roost at high tide during the day (USFWS 2006a), relying on the surrounding wetland mud and water for protection and isolation from predators.

No Ridgway's rail occurrences have been documented in the BSA. The nearest CNDDB occurrence was a 2006 record for a small Ridgway's rail population at Greco Island, approximately 2 miles north of BSA. The species was not observed during habitat assessments in the BSA.

The habitat requirements for the Ridgway's rail are similar to those of the California black rail. As discussed above, the tidal marsh near the Seaport Boulevard/East Bayshore Road/Blomquist Street intersection is exposed to constant vehicular traffic and lacks the dense pickleweed canopy that the species needs for foraging habitat. Due to the sparse distribution of Pacific cordgrass stands, this area does not support nesting habitat for this species.

Bank Swallow

The bank swallow is a state-listed threatened species. The bank swallow is not a federally listed species and therefore does not have designated critical habitat.

The bank swallow is a colonial nester that is found in a wide variety of nesting habitat located in lowland river banks and coastal bluffs (Bent 1942). These habitats include sea cliffs or hard consolidated sand, river banks of sand and sandy earth, and actively worked sand and gravel pits (Hickling 1959). Nesting habitat is characterized by a fine-textured or sandy banks or cliffs along vertical surfaces that occur usually near water.

No bank swallows have been documented in the BSA. The nearest CNDDB occurrence was recorded at Coyote Hill Regional Park, which is located across the San Francisco Bay from the BSA (CDFW 2015). The species was not observed during habitat assessments in the BSA; however, the BSA contains potential foraging habitat and nesting habitat for the species. Despite the high level of disturbance in the area, cracks and ledges on the underside of bridge structures provide potential nest sites.

California Least Tern

The California least tern was listed by the USFWS as endangered in 1970 (35 Federal Register 16047), due primarily to a loss of foraging habitat or coastal nesting habitat (USFWS 1985). It is a migratory bird that nests along the Pacific coast from southern Baja Mexico to the San Francisco Bay in lagoons, mouths of bays, and shallow estuaries (Peterson 1990; Zeiner *et al*. 1990). The species is included in the *Recovery Plan for Tidal Marsh Ecosystems of Northern and*

Central California (USFWS 2013). The California least tern is a state listed endangered species and fully protected species. Critical habitat for the California least tern has not been designated by the USFWS.

The California least tern nest in colonies on bare or sparsely vegetated flat substrates near open water. Least terns nests are ground depression called "scrapes" (USFWS 2006b), which they readily abandon when disturbed (Zeiner et al. 1990). Least terns forage over shallow water to deep waters for fish.

The nearest CNDDB occurrence (25707) was a 1976 record of several pairs in the salt crystallizer beds immediately adjacent to the BSA. Although the polygon associated with this record overlaps with a small portion of the tidal marsh located with the BSA, the record states that the observation was made within the salt crystallizer beds. In addition, the record noted the area may serve as a post breeding haunt (CDFW 2015). The species was not observed during habitat assessments in the BSA.

Poor to marginal foraging habitat is present along the tidal marsh and adjacent berm near the Seaport Boulevard/East Bayshore Road/Blomquist Street intersection. Although the berm is sparsely vegetated, it does not provide the open, sandy or gravelly substrate that the species prefers to nest upon (CDFG 2005). As such, the berm is not the flat substrate the species prefers to nest upon.

Salt Marsh Harvest Mouse

The salt marsh harvest mouse (*Reithrodontomys raviventris*) was listed as an endangered species by the USFWS in October 1970. The reason for listing was the loss of suitable foraging habitat. The species is included in the *Recovery Plan for Tidal Marsh Ecosystems of Northern and Central California* (USFWS 2013). The salt marsh harvest mouse is a state listed endangered species and fully protected species. No critical habitat has been designated for the salt marsh harvest mouse.

The salt marsh harvest mouse is a cover-dependent species that inhabits tidal and diked salt marshes characterized by dense stands of pickleweed or the peripheral halophyte zone. Some daily movement from marsh to high-elevation grasslands may occur in spring or summer or when adjacent grasslands provide protection from predators during high tide or flood events (California Coastal Conservancy 2006). Salt marsh harvest mice are thought to feed on seed, grass, and forbs, including pickleweed and saltgrass (California Coastal Conservancy 2006).

There are no records of salt marsh harvest mouse occurrences in the BSA. The nearest CNDDB record for a salt marsh harvest mouse dates from 1985 that is approximately 1.3 miles north of the BSA in a marshland owned by Ideal Cement Marsh. At that location, no additional salt marsh harvest mice were caught in subsequent night trapping efforts performed in 1989 (CDFW 2015).

The maximum distance the salt marsh harvest mouse has been observed to move through brackish or freshwater marsh vegetation cover is approximately 656 feet (Shellhammer 1982, H.T. Harvey & Associates 2005). Salt marsh harvest mice have not been documented to move more than 16.4 feet across water or bare ground (Bias 1994; Geissel et al. 1988). The BSA is well beyond the maximum movement range from any known occurrences.

However, according to the Recovery Plan for *Tidal Marsh Ecosystems of Northern and Central California* (USFWS 2013), the tidal marsh near the Seaport Boulevard/East Bayshore Road/Blomquist Street intersection is located within the mapped distribution of the species. Based on the field observations, the marsh habitat and associated ruderal uplands along the adjacent berm offer limited protective cover for nesting, foraging, and resting in an area exposed to pedestrian and vehicle traffic and associated noise (USFWS 2013).

2.3.4.3 Environmental Consequences

Unless otherwise noted, the impacts described apply to both Build Alternatives. The No Build Alternative would not affect threatened or endangered species that might occur in the project area.

California Black Rail

No permanent impacts to California black rail are anticipated to occur from either Build Alternative. Construction activities would occur adjacent to but not within the tidal marsh near the Seaport Boulevard/East Bayshore Road/Blomquist Street intersection. Construction activities at this location may include clearing and grubbing, grading, paving, curb and gutter and sidewalk construction, drainage construction, and striping and signing work. Work would be confined to the existing pavement and ruderal vegetation located along the roadside. No work would occur within the tidal marsh.

Potential temporary indirect impacts to the California black rail would be limited to noise caused by construction. The proposed project would be constructed in the immediate vicinity of US 101, a major freeway. The sound environment is dominated by existing traffic noise. The three main categories of noise impacts on birds are (1) hearing damage and temporary threshold shift; (2) masking of communication signals; and (3) other physiological and behavioral responses (Dooling and Popper 2007). According to Dooling and Popper (2007), the noise level at which masking occurs is above 93 dBA, although lower noise levels can still affect behavior where an introduced noise source is above ambient levels.

The closest pile driving activities, with either of the Build Alternatives, would occur approximately 1,270 feet southwest of the tidal marsh. In the area immediately adjacent to the tidal marsh, the loudest piece of equipment is expected to be a jackhammer. At a distance of 50 feet, the noise of a jackhammer would be 88 dBA and an impact pile hammer would be 101 dBA (Dooling and Popper 2007).

Jackhammering and pile driving would take place within 46 feet and 1,270 feet, respectively, of marginal California black rail foraging habitat. At these distances, jackhammering noise levels at the tidal marsh where the marginal habitat is present would be slightly (1 dBA) higher than at the 50-foot reference distance, and pile driving noise would be 28 dBA lower than at the reference distance. Jackhammering and pile driving noise levels at the tidal marsh are not expected to exceed the masking threshold of 93 dBA. While the noise level at the Seaport Boulevard/East Bayshore Road/Blomquist Street intersection could potentially increase by 1 dBA as a result of construction activities, this increase would not be discernable by the species given the project is located in a highly urbanized area. Temporary noise from loud construction activities such as pile driving and jack hammering is expected to have a discountable effect on the species.

Implementation of the measures described in Sections 2.3.2.4, 2.3.3.4, and 2.3.4.4 would serve to avoid potential impacts to California black rails and their habitat.

Ridgway's Rail

No permanent impacts to Ridgway's rail are anticipated to occur. As discussed above, the only area with potential to support this species occurs in the tidal marsh located near the intersection of Seaport Boulevard/East Bayshore Road/Blomquist Street. Project construction would be outside of the marsh and confined to the proposed project area, which contains existing pavement and ruderal vegetation located along the roadside. As a result, there would be no impacts to the marginal habitat that may support foraging activities.

Temporary construction noise is not expected to result in indirect impacts to Ridgway's rails if they are present. As described above, noise from pile driving and other loud construction activities would diminish to levels that do not exceed the 93 dBA masking threshold. Temporary noise from loud construction activities such as pile driving and jack hammering is expected to have a discountable effect on the species.

With the implementation of the measures described in Sections 2.3.2.4, 2.3.3.4, and 2.3.4.4, the project may affect, but is not likely to adversely affect, Ridgway's rail.

Bank Swallow

Implementation of the proposed project could result in the disturbance of suitable nesting habitat that occurs on the underside of bridge structures. Disruption of suitable nesting sites would potentially have a temporary negative effect on bank swallows. Although the proposed project would result in the partial removal of three bridges and the full removal of two bridges, with the implementation of the avoidance and minimization measures identified in Sections 2.3.2.4, 2.3.3.4, and 2.3.4.4, impacts to the bank swallow are not expected to occur.

Temporary construction noise is not expected to result in indirect impacts to bank swallows if they are present. As described above, noise from pile driving and other loud construction activities would diminish to levels that do not exceed the 93 dBA masking threshold. As a result, there would be no long-term negative effect on bank swallows.

California Least Tern

No permanent impacts to California least tern would occur. Construction activities would occur adjacent to but not within the tidal marsh near the Seaport Boulevard/East Bayshore Road/Blomquist Street intersection. Construction activities may impact up to 0.18 acre of the berm adjacent to the tidal marsh, which may support marginal foraging habitat. However, this area does not contain breeding habitat for the species. Therefore, impacts to this area would not constitute an impact to the species.

As discussed above, temporary noise from loud construction activities such as pile driving and jack hammering is expected to have a discountable effect on the species. Noise from pile-driving and other loud construction activities would not exceed the 93 dBA masking threshold.

With the implementation of the measures described in Sections 2.3.2.4, 2.3.3.4, and 2.3.4.4, the project may affect, but is not likely to adversely affect, California least tern.

Salt Marsh Harvest Mouse

Both of the Build Alternatives would result in the permanent loss of a small area (0.18 acre) of marginally suitable ruderal upland habitat located along the berm adjacent to the tidal marsh near the Seaport Boulevard/East Bayshore Road/Blomquist Street intersection. Because this area contains marginal potential foraging, nesting, and resting habitat that is routinely exposed to pedestrian and vehicle traffic and associated noise, this impact is considered a minor effect. Exclusion fencing would be installed along the edge of the berm during low tide. Except during extreme high tides, the salt marsh harvest mouse is not expected to occur within the area. Therefore, installation of the exclusion fencing would not result in direct impacts to species habitat or individuals.

Some small mammals could be subject to hearing loss if exposed to high noise levels. As discussed above, the noise level at the Seaport Boulevard/East Bayshore Road/Blomquist Street intersection could potentially increase by 1 dBA as a result of construction activities, but this increase would not be discernable because the project is located in a highly urbanized area. Temporary pile-driving noise is expected to have a discountable effect on the species.

With the implementation of the avoidance and minimization measures described in Section 2.3.4.4, the proposed project may affect, but is not likely to adversely affect, the salt marsh harvest mouse.

2.3.4.4 Avoidance, Minimization, and/or Mitigation Measures

Implementing the following avoidance and minimization measures, in conjunction with the general measures described in Section 2.3.2.4 and 2.3.3.4, will avoid direct impacts to California black rail, Ridgway's rail, bank swallow, California least tern, and salt marsh harvest mouse:

General Conservation Measures

1. Prior to initiation of the proposed action, the qualifications of the biological monitor(s) will be submitted to USFWS and CDFW for approval. Such approved biologists are hereafter referred to as the "USFWS-approved biologist(s)."

2. USFWS-approved biologist(s) (knowledgeable about sensitive species and habitats in the action area) or designee(s) will conduct pre-construction surveys to examine the BSA for occurrences of special-status wildlife species. In the event that occupied nests or other habitats are found, the USFWS-approved biologist(s) will adhere to the measures set forth by the USFWS. If the situation is otherwise unique, the USFWS-approved biologist will discuss the situation with a Department biologist who will contact the USFWS and CDFW to determine how to avoid or relocate the resident animal(s).

3. All proposed construction will be limited to the existing and proposed right-of-way. Environmentally Sensitive Areas (ESAs) will be identified on contract plans and discussed in the Special Provisions. The ESAs will include areas designated in the environmental document and biological reports that support wetlands, waters, and/or habitats that potentially support listed species, and have been specifically identified to avoid during construction. ESA provisions may include, but are not limited to, the use of temporary orange fencing to delineate the proposed limit of work in areas adjacent to sensitive resources, or to delineate and exclude sensitive resources from potential

construction impacts. Contractor encroachment into ESAs will not be allowed without a USFWS-approved biologist(s) or designee(s) being present. This includes staging/operation of heavy equipment or casting of excavation materials. ESA provisions will be implemented as a first order of work and remain in place until all construction is completed.

4. No debris, soil, silt, sand, bark, slash, sawdust, cement, concrete, washings, petroleum products or other organic or earthen material shall be allowed to enter into or be placed where it may be washed by rainfall or runoff into waters of the United States or drainages. No discharges of excessively turbid water will be allowed, and all equipment will be well-maintained and free of leaks.

5. Before the onset of construction and within 3 days of any new worker arrival, a USFWS-qualified biologist will conduct an education program for all construction personnel. At a minimum, the training will include a description of the salt marsh harvest mouse, California black rail, Ridgway's rail, and California least tern, and other listed species and their habitats; the potential occurrence of these species within the project area; an explanation of the status of these species and protection under the FESA, CESA, and all other federal, state, and local regulatory requirements; the measures to be implemented to conserve listed species and their habitats as they relate to the work site; and boundaries within which construction may occur. A fact sheet conveying this information will be prepared and distributed to all construction crews and project personnel entering the project area. Upon completion of the program, personnel will sign a form stating that they attended the program and understand all of the avoidance and minimization measures and implications of the FESA, CESA, and all other federal, state, and local regulatory requirements.

6. Erosion control. Temporary erosion control and slope stabilization BMPs will be installed before the start of the wet season (October 15 through April 15). Erosion control measures may include silt fencing, straw wattles, straw bales, coir blankets, sediment traps, and other protective measures to minimize the potential for erosion of sediment beyond the work area or degradation of water quality in adjacent aquatic habitats.

7. Upon project completion, all temporarily disturbed areas will be restored to pre-construction conditions.

Salt Marsh Harvest Mouse

1. Preconstruction Surveys. Preconstruction surveys will be conducted prior to the installation of the temporary mouse barrier.

2. Temporary Mouse Barrier. Prior to the start of construction work near the Seaport Boulevard/East Bayshore Road/Blomquist Street intersection, a temporary mouse barrier will be erected to prevent the potential movement of individuals into the construction zone. The mouse barrier fence will consist of corrugated metal fencing a minimum of 1 foot taller than adjacent herbaceous and shrub vegetation and buried 1 foot deep into the soil to prevent mice from burrowing under the fence. ESA fencing on the construction side of the mouse-proof barrier will increase visibility and awareness of the protected area. To ensure proper exclusion, the mouse barrier must terminate at permanent passage

barriers (i.e. permanent water, high levee) at both ends. The mouse barrier will be installed in such a manner that it will not exclude salt marsh harvest mice from upland refugia areas. In addition, the mouse barrier will be placed so that individuals would not become trapped within the mouse-proof barrier area.

3. Construction Monitoring. A USFWS-approved biologist(s) or designee(s) will monitor for potential salt marsh harvest mice presence prior to construction, and through installation of the previously described barrier. Following installation, the barrier will be inspected periodically along its margins as needed to maintain its integrity, and repaired within 24 hours. The USFWS-approved biologist(s) or designee(s) will have the authority to stop work if deemed necessary for any reason to protect the species. If a salt marsh harvest mouse is observed in the project area, work will be stopped immediately by the USFWS-approved biologist(s) or designee(s) until the salt marsh harvest mouse leaves the project area on its own volition. If the salt marsh harvest mouse does not leave the project area, work will not resume until after the USFWS and CDFW have been contacted and a decision is reached on how construction activities should proceed. The project resident engineer will consult with the USFWS-approved biologist(s) or designee(s) on how to proceed.
4. Erosion Control. Erosion control and other SWPPP measures will be installed to prevent materials from entering the tidal marsh.

Compensatory Mitigation

With implementation of avoidance and minimization measures noted in Sections 2.3.2.4, 2.3.3.4, and above, compensatory mitigation is not proposed.

2.3.5 Invasive Species

2.3.5.1 Regulatory Setting

On February 3, 1999, President William J. Clinton signed EO 13112 requiring Federal agencies to combat the introduction or spread of invasive species in the United States. The order defines invasive species as "any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem whose introduction does or is likely to cause economic or environmental harm or harm to human health." FHWA guidance issued August 10, 1999, directs the use of the state's invasive species list maintained by the California Invasive Species Council to define the invasive plants that must be considered as part of the NEPA analysis for a proposed project.

2.3.5.2 Affected Environment

This section is summarized from the *Natural Environment Study* (URS 2015j) for the proposed project, which was completed in October 2015.

The BSA supports a number of non-native species. Some of these species are invasive (that is, species that are not indigenous to the area where they are found and adversely affect the habitat in that area). Invasive species in the BSA are those designated as high risk by the California Invasive Plant Council. These species include pampas grass (*Cortadeira selloana*), English ivy (*Hedera helix*), and sweet fennel (*Foeniculum vulgare*). Bunches of pampas grass and small stands of sweet fennel are established along both sides of US 101. English ivy grows extensively throughout the BSA on both sides of US 101, into the canopies of large eucalyptus trees. Species in the BSA that are nonnative but not invasive include crimson bottlebrush (*Callistemon citrinus*) and purple cork trees that were planted in the Department's right-of-way.

2.3.5.3 Environmental Consequences

None of the identified species on the California list of noxious weeds is used by the Department for erosion control or landscaping. However, project construction activities could have the potential to inadvertently spread these species. The No Build Alternative would not contribute to the introduction or spread of invasive species.

2.3.5.4 Avoidance, Minimization, and/or Mitigation Measures

In compliance with the Executive Order on Invasive Species, EO 13112, and guidance from the Federal Highway Administration, the landscaping and erosion control included in the project will not use species listed as noxious weeds. The following measures will also reduce the spread of invasive nonnative plant species and minimize the potential for construction disturbance to decrease palatable vegetation for wildlife to the greatest degree possible:

- No disposal of soil and plant materials should be allowed from areas that support invasive species to areas dominated by native vegetation;
- All off-road construction equipment should be cleaned of potential noxious weed sources (mud and vegetation) before entering the project area and after entering a potentially infested area before moving on to another area. The contractor will employ whatever

cleaning methods (typically spraying with a high-pressure water hose) are necessary to ensure that equipment is free of noxious weeds.

- Equipment will be regularly cleaned and inspected to minimize the spread of soil, seeds, and other such debris. Equipment washing stations will be placed in easily accessible areas (preferably outside of the project area) and kept from draining into sensitive (riparian, wetland, etc.) areas.

2.4 Cumulative Impacts

2.4.1 Regulatory Setting

Cumulative impacts are those that result from past, present, and reasonably foreseeable future actions, combined with the potential impacts of this proposed project. A cumulative effect assessment looks at the collective impacts posed by individual land use plans and projects. Cumulative impacts can result from individually minor but collectively substantial impacts taking place over a period of time.

Cumulative impacts to resources in the project area may result from residential, commercial, industrial, and highway development, as well as from agricultural development and the conversion to more intensive agricultural cultivation. These land use activities can degrade habitat and species diversity through consequences such as displacement and fragmentation of habitats and populations, alteration of hydrology, contamination, erosion, sedimentation, disruption of migration corridors, changes in water quality, and introduction or promotion of predators. They can also contribute to potential community impacts identified for the project, such as changes in community character, traffic patterns, housing availability, and employment.

CEQA Guidelines Section 15130 describes when a cumulative impact analysis is necessary and what elements are necessary for an adequate discussion of cumulative impacts. The definition of cumulative impacts under CEQA can be found in Section 15355 of the CEQA Guidelines. A definition of cumulative impacts under the NEPA can be found in 40 CFR, Section 1508.7 of the Council on Environmental Quality (CEQ) Regulations.

2.4.2 Cumulative Impact Analysis

The Department's eight-step approach was used as a guideline for identifying and assessing cumulative impacts from the proposed project. Table 2.1.1-1 lists reasonably forseeable projects within one mile of the project area. The proposed project would have no impact on the following resources, and therefore would not contribute to a cumulative impact. They are not discussed further.

- Growth
- Farmlands/Timberlands
- Community Character and Cohesion
- Existing and Future Land Use
- Consistency with State, Regional and Local Plans and Programs
- Environmental Justice
- Paleontology
- Plant Species

The following summarizes the review of the project alternatives for cumulative impacts. Unless otherwise noted, the No Build alternative would not have, or contribute to, cumulative impacts.

Parks and Recreation Facilities: The proposed project would have no impact on parks and would therefore not contribute to a cumulative impact. The project would result in a *de minimis* use of the Bay Trail recreation facility by temporarily closing access for construction along Seaport Boulevard at the intersection of Blomquist Street (as described in Section 2.1.3 and

Appendix B). These effects would be temporary and would not extend beyond the project area. No other identified projects would overlap with this segment of the Bay Trail. In addition, the TMP will minimize the impact on the Bay Trail from the proposed project. No long-term effects would result from any temporary closures, and no cumulative impact would occur.

Relocations and Real Property Acquisition: Acquisition is limited to a restaurant and a county-owned parking lot. These property acquisitions do not contribute to a cumulative impact. In addition, the Caltrans RAP required by District policy would ensure the continued health of the resource.

Utilities/Emergency Services: The proposed project would require relocation of utilities, but no expansion of services or capacity would be needed. Access through the interchange will be maintained during construction, including for emergency response vehicles, and would not be affected by any of the other projects listed in Table 2.1.1-1. Any impact would be limited to this project and would not contribute to a cumulative impact.

Traffic and Transportation/Pedestrian and Bicycle Facilities: The proposed project would contribute to a cumulative benefit to bicycle and pedestrian access in the project area by including new connections and facilities, as described in Section 1.3.1. The traffic analysis presented in Section 2.1.7 accounts for current and future proposed projects in the future estimates and is considered a cumulative impact analysis; refer to that section for a discussion of the differences in impacts between the Build and No Build Alternatives.

Visual/Aesthetics: The proposed project would remove landscaping, including mature trees, in the right-of-way. The project would re-landscape most of the interchange following construction. Other projects identified in Table 2.1.1-1 may impact landscaping or vegetation, but would be required by the City to include landscaping. This is expected to minimize the potential for cumulative impacts.

Hydrology and Floodplain: The proposed project would widen the roadway around the Seaport Boulevard/East Bayshore Road/Blomquist Road intersection and construct a Class I bikeway and a retaining wall adjacent to the UPRR tracks, portions of which are in the 100-year floodplain. The project would also add up to 5.03 acres of impervious surfaces. This has the potential to contribute incrementally to a cumulative impact. Other probable projects could also construct features and add impervious surfaces in the 100-year floodplain. The proposed project would provide permanent storm water treatment of 100 percent of the net added and reworked impervious surfaces, offsetting the project changes.

Water Quality and Storm Water Runoff: Construction of the proposed project has the potential to contribute water quality impacts to Redwood Creek, which discharges to the South San Francisco Bay (3.3 miles downstream of the project area). As discussed in Section 2.2.2.2, South San Francisco Bay is listed as an impaired water body. Construction of other probable projects also has the potential to increase runoff and therefore temporarily affect water quality. All projects with ground disturbance higher than one acre are required to implement a SWPPP to avoid and minimize impacts to water quality. The measures described in Section 2.2.2.4 will mitigate impacts to water quality from the proposed project and it would not contribute to a cumulative impact.

Geology/Soils/Seismicity/Topography: The proposed project is located within a seismically active region dominated by the San Andreas fault. Because the project area has the potential to experience strong earthquake shaking, liquefaction and lateral spreading, and subsidence and settlement, the project will be designed and constructed to avoid and minimize damage from geologic hazards. Other projects will have to comply with the same standards and requirements to meet seismic safety, independent of this project. Groundwater elevations, estimated at about 4 feet below surface at the project, should not be affected by the project, and no cumulative impacts would occur. Therefore, the project would not contribute to a cumulative impact.

Hazardous Waste/Materials: Project construction could encounter petroleum hydrocarbons, chlorinated hydrocarbons, solvents, and ADL in soil and/or groundwater as well as asbestos-containing materials, leaded paint, and PCBs in structures. Further testing will take place prior to construction to verify potential hazards. The Department would implement BMPs and standard specifications for handling potential pollutants during construction. Therefore, there is low risk of environmental exposure. Compliance with these same specifications must be observed by other projects as well, therefore, no cumulative impacts would occur from hazardous waste or materials.

Air Quality: The project is included in regional transportation plans that have been cumulatively evaluated for maintaining or attaining Federal and State air quality standards. Project construction would result in a temporary increase of emissions. Other foreseeable projects would also include temporary emissions increases from construction. However, this project and all other projects must comply with applicable air quality requirements, such as the Department's Special Provisions and Standard Specifications that requires the minimization or elimination of dust through the application of water or dust palliatives. Therefore, the project would not contribute to a major impact.

Noise: The proposed project is anticipated to increase long-term noise levels by 0 to 3 dBA, which is not considered a substantial project-related noise level increase with regard to the Department's Protocol. The evaluation was based on cumulative traffic conditions (including this project and future traffic growth) that would generate worst-case noise levels. The project would not contribute cumulatively to a long-term noise impact. Construction-related noise levels are generally anticipated to be in accordance with Redwood City Noise Ordinance during the day. Nighttime construction noises from piling driving could contribute to a cumulative impact but would be temporary. Other probable projects have the potential to include nighttime work in and around the project area. The portion of the cumulatively considerable impact attributable to the proposed project would be minimized by the measures described in Section 2.2.7.4 such as limiting piling driving to daytime hours. With these measures, the project would not contribute to a cumulative impact.

Natural Communities: The proposed project would not affect natural communities of concern, wildlife migratory corridors, fish barriers, or Essential Fish Habitat. The project's removal of ruderal vegetation and landscaping would not contribute to a cumulative impact to natural communities.

Wetlands and Other Waters of the United States: Construction of the proposed project would affect 0.02 acres of water of the State. The affected features are roadside drainages and do not support wetland vegetation. Like other projects in the area that may affect waters of the State, the proposed project is required to adhere to conditions issued by the RWQCB as part of the permitting process. Project contributions to cumulative impacts would be minor.

The proposed project would not affect waters of the United States; therefore, no cumulative impacts on wetlands and waters of the U.S. would occur.

Animal Species: The proposed project would result in the permanent loss of a small area of marginal foraging and nesting habitat. However, implementation of the avoidance and minimization measures described in Section 2.3.3.4 will minimize impacts to special-status and other wildlife species. Other foreseeable projects could have construction-related impacts to similar quality habitat. This project will include replacement landscaping, where possible, that will mature to provide a similar quality of habitat to existing conditions. The project would not contribute to a cumulative long-term impact.

Threatened and Endangered Species: Three threatened or endangered species were identified with the potential to occur within the biological study area for this project. Each are discussed below with respect to cumulative effects.

California black rail (state-listed threatened and fully protected species) prefers undiked tidal salt marshes dominated by dense pickleweed, with escape cover at or above the mean high water level. The majority of breeding rails in the Bay Area are in the San Pablo Bay system and are uncommon in the Central or South Bay. If they occur within the project area, they may be affected by construction noise. Other projects listed in Table 2.1.1-1 are further distant from the Bay shoreline, and would not contribute to a cumulative impact. The measures described in Sections 2.3.2.4, 2.3.3.4, and 2.3.4.4 will avoid impacts to California black rail from the proposed project and would not contribute to a cumulative impact.

Bank swallow (state-listed threatened species) is found in a wide variety of nesting habitat located in lowland river banks and coastal bluffs, including surfaces with cracks and ledges. The underside of bridge structures can provide potential nest sites. The proposed project may temporarily affect bank swallow from disturbance of suitable nesting habitat under bridge structures. No other probable projects involve work on bridges, so it is unlikely that this project would contribute to a cumulative impact. However, the measures described in Sections 2.3.2.4, 2.3.3.4, and 2.3.4.4 will avoid impacts to bank swallow and the project would not contribute to a cumulative impact.

Salt marsh harvest mouse (federally endangered species) is a cover-dependent species that inhabits tidal and diked salt marshes characterized by dense stands of pickleweed or the peripheral halophyte zone, and do not move far from their nests. Even though the BSA is well beyond the maximum movement for any known occurrences, the tidal marsh near the Seaport Boulevard/East Bayshore Road/Blomquist Street intersection is located within the mapped distribution of the species. The proposed project would remove 0.18 acre of habitat for the salt marsh harvest mouse. Other probable projects have the potential to remove additional suitable habitat contributing to a cumulative impact. The measures described in Sections 2.3.2.4, 2.3.3.4,

and 2.3.4.4 will mitigate impacts to salt marsh harvest mouse. Therefore, the project would not contribute to a cumulative impact.

Invasive Species: No invasive species have been identified in the project area, but construction activities for the proposed project and all probable projects have the potential to contribute to a cumulative impact on native species by the spread of invasive species. The proposed avoidance, minimization and mitigation measures described in Section 2.3.5.4 would minimize the project's potential to contribute to a cumulative impact.

2.5 Climate Change (CEQA)

Climate change refers to long-term changes in temperature, precipitation, wind patterns, and other elements of the earth's climate system. An ever-increasing body of scientific research attributes these climatological changes to greenhouse gas (GHG) emissions, particularly those generated from the production and use of fossil fuels.

While climate change has been a concern for several decades, the establishment of the Intergovernmental Panel on Climate Change (IPCC) by the United Nations and World Meteorological Organization in 1988 has led to increased efforts devoted to GHG emissions reduction and climate change research and policy. These efforts are primarily concerned with the emissions of GHGs generated by human activity including carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), tetrafluoromethane, hexafluoroethane, sulfur hexafluoride (SF_6), HFC-23 (fluoroform), HFC-134a (s, s, s, 2-tetrafluoroethane), and HFC-152a (difluoroethane).

In the U.S., the main source of GHG emissions is electricity generation, followed by transportation. In California, however, transportation sources (including passenger cars, light duty trucks, other trucks, buses, and motorcycles make up the largest source of GHG-emitting sources. The dominant GHG emitted is CO_2 mostly from fossil fuel combustion.

There are typically two terms used when discussing the impacts of climate change: "Greenhouse Gas Mitigation" and "Adaptation". "Greenhouse Gas Mitigation" is a term for reducing GHG emissions to reduce or offset the impacts of climate change. "Adaptation" refers to the effort of planning for and adjusting to impacts resulting from climate change (such as adjusting transportation design standards to withstand more intense storms and higher sea levels)[16].

There are four primary strategies for reducing GHG emissions from transportation sources: 1) improving the transportation system and operational efficiencies, 2) reducing travel activity, 3) transitioning to lower GHG-emitting fuels, and 4) improving vehicle technologies/efficiency. To be most effective, all four strategies should be pursued cooperatively.[17]

2.5.1 Regulatory Setting

This section outlines state and federal efforts to comprehensively reduce GHG emissions from transportation sources.

State

With the passage of several pieces of legislation including State Senate and Assembly bills and Executive Orders, California launched an innovative and proactive approach to dealing with GHG emissions and climate change.

Assembly Bill 1493 (AB 1493), Pavley, Vehicular Emissions: Greenhouse Gases, 2002: This bill requires the California Air Resources Board (ARB) to develop and implement regulations to reduce automobile and light truck GHG emissions. These stricter emissions standards were designed to apply to automobiles and light trucks beginning with the 2009-model year.

[16] http://climatechange.transportation.org/ghg_mitigation/
[17] http://www.fhwa.dot.gov/environment/climate_change/mitigation/

Executive Order S-3-05 (June 1, 2005): The goal of this EO is to reduce California's GHG emissions to 1) year 2000 levels by 2010, 2) year 1990 levels by 2020 and 3) 80 percent below the year 1990 levels by 2050. In 2006, this goal was further reinforced with the passage of AB 32.

Assembly Bill 32 (AB 32), Nunez and Pavley, The Global Warming Solutions Act of 2006: AB 32 sets the same overall GHG emissions reduction goals as outlined in EO S-3-05, while further mandating that ARB create a scoping plan and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases."

Executive Order S-20-06 (October 18, 2006): This order establishes the responsibilities and roles of the Secretary of the California Environmental Protection Agency (Cal/EPA) and state agencies with regard to climate change.

Executive Order S-01-07 (January 18, 2007): This order sets forth the low carbon fuel standard for California. Under this EO, the carbon intensity of California's transportation fuels is to be reduced by at least 10 percent by 2020.

Senate Bill 97 (SB 97), Chapter 185, 2007, Greenhouse Gas Emissions: This bill required the Governor's Office of Planning and Research (OPR) to develop recommended amendments to the CEQA Guidelines for addressing GHG emissions. The amendments became effective on March 18, 2010.

Senate Bill 375 (SB 375), Chapter 728, 2008, Sustainable Communities and Climate Protection: This bill requires the ARB to set regional emissions reduction targets from passenger vehicles. The Metropolitan Planning Organization for each region must then develop a "Sustainable Communities Strategy" that integrates transportation, land-use, and housing policies to plan for the achievement of the emissions target for their region.

Senate Bill 391 (SB 391) Chapter 585, 2009 California Transportation Plan: This bill requires the state's long-range transportation plan to meet California's climate change goals under AB 32.

Federal

Although climate change and GHG reduction are a concern at the federal level, currently no regulations or legislation have been enacted specifically addressing GHG emissions reductions and climate change at the project level. Neither the U.S. EPA nor the FHWA has issued explicit guidance or methods to conduct project-level GHG analysis.[18] FHWA supports the approach that climate change considerations should be integrated throughout the transportation decision-making process–from planning through project development and delivery. Addressing climate change mitigation and adaptation up front in the planning process will assist in decision-making and improve efficiency at the program level, and will inform the analysis and stewardship needs of project-level decision-making. Climate change considerations can be integrated into many planning factors, such as supporting economic vitality and global efficiency, increasing safety and mobility, enhancing the environment, promoting energy conservation, and improving the quality of life.

[18] To date, no national standards have been established regarding mobile source GHGs, nor has U.S. EPA established any ambient standards, criteria or thresholds for GHGs resulting from mobile sources.

The four strategies outlined by FHWA to lessen climate change impacts correlate with efforts that the state is undertaking to deal with transportation and climate change; these strategies include improved transportation system efficiency, cleaner fuels, cleaner vehicles, and reduction in travel activity.

Climate change and its associated effects are also being addressed through various efforts at the federal level to improve fuel economy and energy efficiency, such as the "National Clean Car Program" and EO 13514- Federal Leadership in Environmental, Energy and Economic Performance.

Executive Order 13514 (October 5, 2009): This order is focused on reducing greenhouse gases internally in federal agency missions, programs and operations, but also directs federal agencies to participate in the Interagency Climate Change Adaptation Task Force, which is engaged in developing a national strategy for adaptation to climate change.

U.S. EPA's authority to regulate GHG emissions stems from the U.S. Supreme Court decision in Massachusetts v. EPA (2007). The Supreme Court ruled that GHGs meet the definition of air pollutants under the existing Clean Air Act and must be regulated if these gases could be reasonably anticipated to endanger public health or welfare. Responding to the Court's ruling, U.S. EPA finalized an endangerment finding in December 2009. Based on scientific evidence it found that six greenhouse gases (carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride) constitute a threat to public health and welfare. Thus, it is the Supreme Court's interpretation of the existing Act and EPA's assessment of the scientific evidence that form the basis for EPA's regulatory actions. U.S. EPA in conjunction with NHTSA issued the first of a series of GHG emission standards for new cars and light-duty vehicles in April 2010.[19]

U.S. EPA and the National Highway Traffic Safety Administration (NHTSA) are taking coordinated steps to enable the production of a new generation of clean vehicles with reduced GHG emissions and improved fuel efficiency from on-road vehicles and engines. These next steps include developing the first-ever GHG regulations for heavy-duty engines and vehicles, as well as additional light-duty vehicle GHG regulations.

The final combined standards that made up the first phase of this national program apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. The standards implemented by this program are expected to reduce GHG emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012-2016).

On August 28, 2012, U.S. EPA and NHTSA issued a joint Final Rulemaking to extend the National Program for fuel economy standards to model year 2017 through 2025 passenger vehicles. Over the lifetime of the model year 2017-2025 standards this program is projected to save approximately four billion barrels of oil and two billion metric tons of GHG emissions.

The complementary U.S. EPA and NHTSA standards that make up the Heavy-Duty National Program apply to combination tractors (semi-trucks), heavy-duty pickup trucks and vans, and

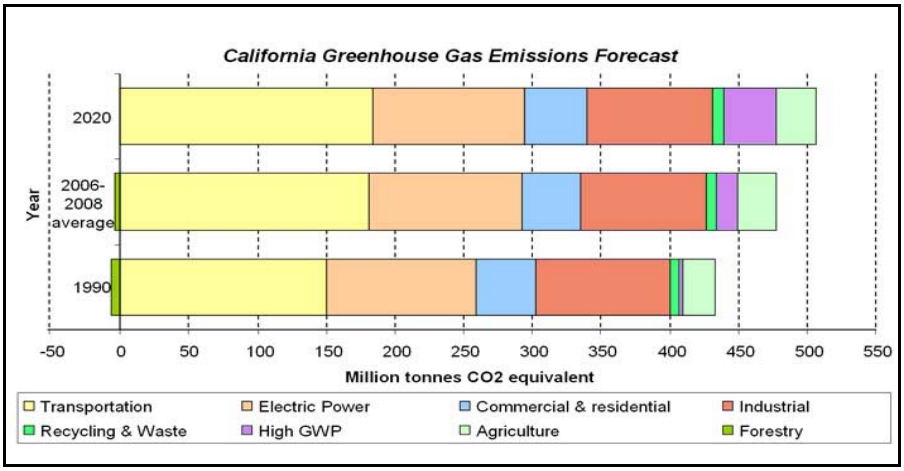
[19] http://www.c2es.org/federal/executive/epa/greenhouse-gas-regulation-faq

vocational vehicles (including buses and refuse or utility trucks). Together, these standards will cut greenhouse gas emissions and domestic oil use significantly. This program responds to President Barack Obama's 2010 request to jointly establish greenhouse gas emissions and fuel efficiency standards for the medium- and heavy-duty highway vehicle sector. The agencies estimate that the combined standards will reduce CO_2 emissions by about 270 million metric tons and save about 530 million barrels of oil over the life of model year 2014 to 2018 heavy duty vehicles.

2.5.1.1 Project Analysis

An individual project does not generate enough GHG emissions to significantly influence global climate change. Rather, global climate change is a cumulative impact. This means that a project may contribute to a potential impact through its *incremental* change in emissions when combined with the contributions of all other sources of GHG.[20] In assessing cumulative impacts, it must be determined if a project's incremental effect is "cumulatively considerable" (CEQA Guidelines Sections 15064(h)(1) and 15130). To make this determination the incremental impacts of the project must be compared with the effects of past, current, and probable future projects. To gather sufficient information on a global scale of all past, current, and future projects to make this determination is a difficult, if not impossible, task.

The AB 32 Scoping Plan mandated by AB 32 includes the main strategies California will use to reduce GHG emissions. As part of its supporting documentation for the Draft Scoping Plan, the ARB released the GHG inventory for California (forecast last updated: October 28, 2010). The forecast is an estimate of the emissions expected to occur in 2020 if none of the foreseeable measures included in the Scoping Plan were implemented (see Figure 2.5.1-1). The base year used for forecasting emissions is the average of statewide emissions in the GHG inventory for 2006, 2007, and 2008.



Source: http://www.arb.ca.gov/cc/inventory/data/forecast.htm

Figure 2.5.1-1. California Greenhouse Gas Forecast

[20] This approach is supported by the Association of Environmental Professionals: *Recommendations by the Association of Environmental Professionals on How to Analyze GHG Emissions and Global Climate Change in CEQA Documents* (March 5, 2007), as well as the South Coast Air Quality Management District (Chapter 6: The CEQA Guide, April 2011) and the US Forest Service (Climate Change Considerations in Project Level NEPA Analysis, July 13, 2009).

The Department and its parent agency, the Transportation Agency, have taken an active role in addressing GHG emission reduction and climate change. Recognizing that 98 percent of California's GHG emissions are from the burning of fossil fuels and 40 percent of all human made GHG emissions are from transportation, the Department has created and is implementing the Climate Action Program at the Department that was published in December 2006.[21]

Guidance for Congestion Relief Projects and Other Capacity Increasing Projects

One of the main strategies in the Department's Climate Action Program to reduce GHG emissions is to make California's transportation system more efficient. The highest levels of CO_2 from mobile sources, such as automobiles, occur at stop-and-go speeds (0-25 miles per hour) and speeds over 55 mph; the most severe emissions occur from 0-25 miles per hour (see Figure 2.5.1-2 below). To the extent that a project relieves congestion by enhancing operations and improving travel times in high congestion travel corridors GHG emissions, particularly CO_2, may be reduced.

The project has been designed to alleviate peak-hour congestion at the US 101/Woodside Road interchange and to improve traffic operations and pedestrian and bicycle access in the interchange area, thus providing alternative modes of transportation.

The project is also included in the 2013 RTP and 2015 TIP, which contain adopted strategies for greenhouse gas emissions from transportation sources. Specifically, RTP reference number 230550, "Climate Policy Initiatives," is an ongoing program for the Bay Area region that aims to

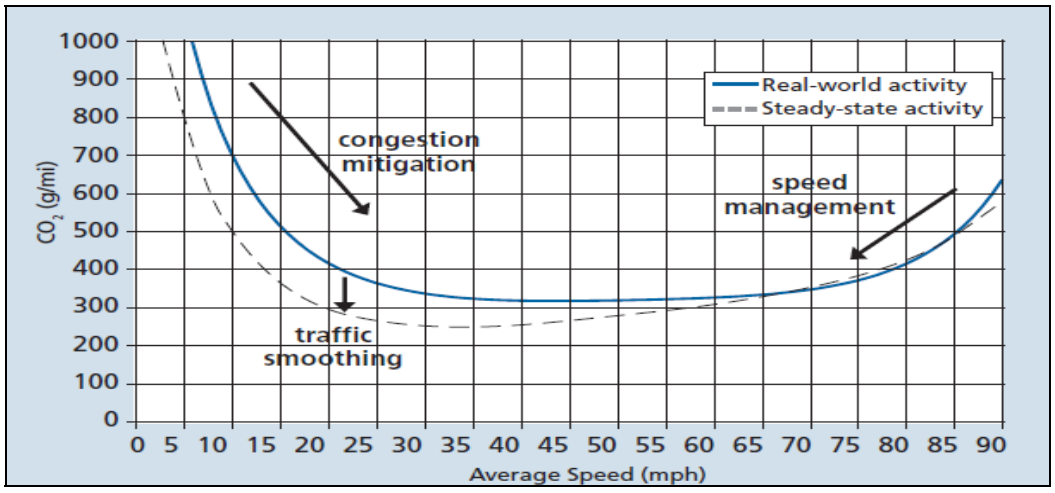


Figure 2.5.1-2. Possible Effect of Traffic Operation Strategies in Reducing On-Road CO_2 Emission[22]

reduce GHG emissions by funding programs that test new technologies, different policies, or promote behavior changes. The program involves outreach and education for GHG reduction, promotion of Transportation Demand Management strategies, safe routes to school and to transit,

[21] Caltrans Climate Action Program is located at the following web address: http://www.dot.ca.gov/hq/tpp/offices/ogm/key_reports_files/State_Wide_Strategy/Caltrans_Climate_Action_Program.pdf

[22] Traffic Congestion and Greenhouse Gases: Matthew Barth and Kanok Boriboonsomsin (TR News 268 May-June 2010)<http://onlinepubs.trb.org/onlinepubs/trnews/trnews268.pdf>

bike sharing, and funding for "clean air" vehicles. The adopted TIP also demonstrates that the region will remain below all approved "vehicle emission budgets" through the RTP study year.

CO_2 emissions were estimated using the overall VMT for the project corridor for existing year 2014 and for the No Build and Build Alternatives for opening year 2022 and design year 2042. Because the impact of GHG emissions is global, the use of overall VMT for the project is appropriate for this analysis. CO_2 emissions are the primary GHG of concern, as vehicle operation does not result in appreciable amounts of other greenhouse gases.

As the project would reconfigure an existing interchange and does not propose to add capacity to US 101 or to the surrounding roadway network, the daily and annual project corridor VMT was assumed to be the same for all alternatives (Fehr & Peers 2015). The average daily speeds for the corridors would be higher with both Build Alternatives than with the No Build scenario (both Build Alternatives provide the same benefits). Project-related CO_2 emissions for existing conditions and for the No Build and Build Alternatives were estimated using the annual average emission factors from EMFAC2011 for San Mateo County, in combination with average daily speeds within the project corridor. The results are shown in Table 2.5.1-1.

As shown in Table 2.5.1-1, in 2022 and 2042, both Build Alternatives and the No Build scenario would have higher CO_2 emissions than in the existing (2014) scenario. However, in both 2022 and 2042, operational CO_2 emissions would be lower with the proposed Build Alternatives than with the No Build scenario.

Table 2.5.1-1: Annual CO_2 Emissions for Existing (2014) and Future No Build and Build Alternatives (Opening Year [2022] and Design Year [2042])

Analysis Year/ Scenario	Scenario	Average Daily Speeds (mph)	Annual VMT (miles)	Annual Emissions (Metric tons/year)	
				CO_2	CO_2 (Pavley I + LCF) [a,b]
Existing Year (2014)	Existing	37.0	624,366,469	257,603	239,036
Opening Year (2022)	No Build	34.3	662,473,662	271,156	199,427
	Build Alternatives	34.7	662,473,662	270,155	199,052
Design Year (2042)	No Build	31.2	672,209,788	283,471	187,204
	Build Alternatives	32.3	672,209,788	280,880	186,922

mph – miles per hour; VMT – vehicle miles traveled; LCF – low carbon fuel

[a] Assembly Bill 1493, also known as Pavley I, includes stricter standards to reduce greenhouse gas emissions from automobiles and light trucks, model years 2017-2025.

[b] LCF: California Assembly Bill AB 32 calls for a reduction of at least 10 percent in the carbon intensity of California's transportation fuels by 2020.

Emission factors obtained from EMFAC2011 for fleet mix in San Mateo County, in combination with the average daily speeds for each analyzed scenario. Annual VMTs were used to calculate annual GHG emissions.

It should be noted that while the CO_2 emission factor assumes certain reductions in vehicle emissions due to future vehicle models operating more efficiently, additional reductions in vehicle emissions would also occur in response to new and stricter legislated standards (such as

AB 1493) as they become implemented. The numbers are not necessarily an accurate reflection of what the true CO_2 emissions will be, because CO_2 emissions also depend on other factors that are not part of the model such as the fuel mix (EMFAC model emission rates are only for direct engine-out CO_2 emissions not full fuel cycle; fuel cycle emission rates can vary dramatically depending on the amount of additives like ethanol and the source of the fuel components), rate of acceleration, and the aerodynamics and efficiency of the vehicles.

The last column of Table 2.5.1-1 presents estimated operational emissions of greenhouse gases for all modeled scenarios with implementation of two important California rules/standards, AB 1493 (Pavley) and AB 32, which establish stricter standards to reduce greenhouse gas emissions from passenger cars and light duty trucks. These emissions were estimated using EMFAC2011 (in CT-EMFAC5), which includes data for CO_2 emissions for the fleet mix with implementation of these new standards. With these standards in place, both Build Alternatives and the No Build scenario would have lower CO_2 emissions than in the existing (2014) scenario, and the Build Alternatives would have lower CO_2 emissions than No Build (Table 2.5.1-1).

Construction Emissions

Greenhouse gas emissions for transportation projects can be divided into those produced during construction and those produced during operations. Construction GHG emissions include emissions produced as a result of material processing, emissions produced by on-site construction equipment, and emissions arising from traffic delays due to construction. These emissions would be produced at different levels throughout the construction phase; their frequency and occurrence can be reduced through innovations in plans and specifications and by implementing better traffic management during construction phases.

In addition, with innovations such as longer pavement lives, improved traffic management plans, and changes in materials, the GHG emissions produced during construction can be mitigated to some degree by longer intervals between maintenance and rehabilitation events.

Measures to reduce construction emissions are listed in Section 2.2.6.4 and include maintenance of construction equipment and vehicles, limiting of construction vehicle idling time, and scheduling and routing of construction traffic to reduce engine emissions.

CEQA Conclusion

While project construction may result in a slight, temporary increase in GHG emissions during construction, it is anticipated that any increase in GHG emissions due to construction would be offset by the improvement in operational GHG emissions compared with the No Build scenario. While it is the Department's determination that in the absence of further regulatory or scientific information related to GHG emissions and CEQA significance, it is too speculative to make a significance determination regarding the project's direct impact and its contribution on the cumulative scale to climate change, the Department is firmly committed to implementing measures to help reduce GHG emissions. These measures are outlined in the following section.

2.5.1.2 Greenhouse Gas Reduction Strategies

The Department continues to be involved on the Governor's Climate Action Team as the ARB works to implement Executive Orders S-3-05 and S-01-07 and help achieve the targets set forth in AB 32. Many of the strategies the Department is using to help meet the targets in AB 32

come from then-Governor Arnold Schwarzenegger's Strategic Growth Plan for California. The Strategic Growth Plan targeted a significant decrease in traffic congestion below 2008 levels and a corresponding reduction in GHG emissions, while accommodating growth in population and the economy. The Strategic Growth Plan relies on a complete systems approach to attain CO_2 reduction goals: system monitoring and evaluation, maintenance and preservation, smart land use and demand management, and operational improvements as shown in Figure 2.5.1-3: The Mobility Pyramid.

The Department is supporting efforts to reduce vehicle miles traveled by planning and implementing smart land use strategies: job/housing proximity, developing transit-oriented communities, and high-density housing along transit corridors. The Department works closely with local jurisdictions on planning activities, but does not have local land use planning authority. The Department assists efforts to improve the energy efficiency of the transportation sector by increasing vehicle fuel economy in new cars, light and heavy-duty trucks; the Department is doing this by supporting ongoing research efforts at universities, by supporting legislative efforts to increase fuel economy, and by participating on the Climate Action Team. It is important to note, however, that control of fuel economy standards is held by the USEPA and ARB.

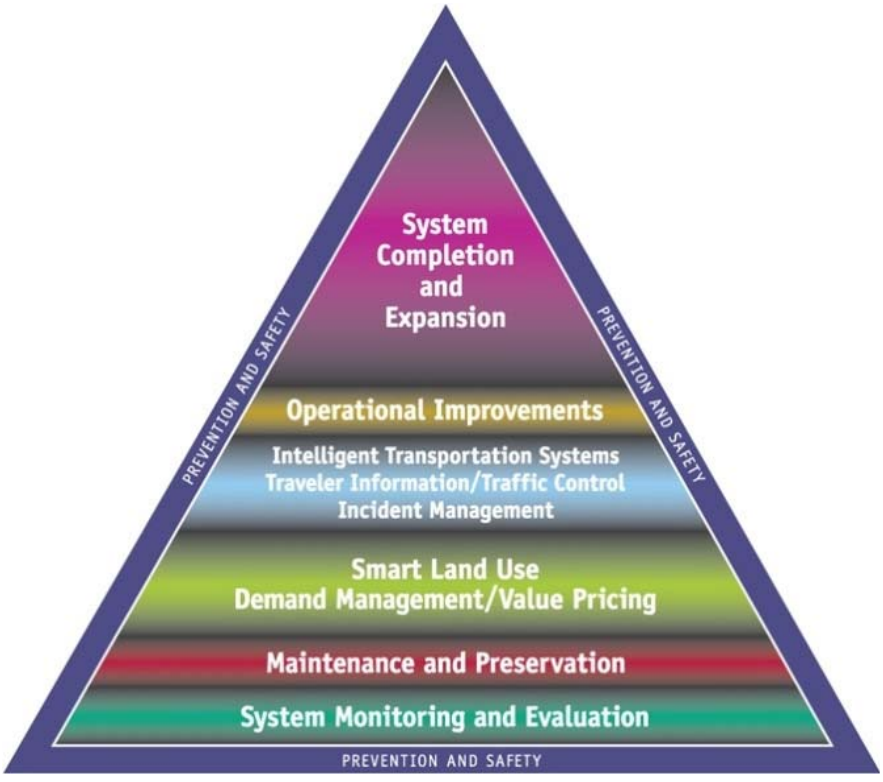


Figure 2.5.1-3. The Mobility Pyramid

The Department is also working towards enhancing the State's transportation planning process to respond to future challenges. Similar to requirements for regional transportation plans under Senate Bill (SB) 375 (Steinberg 2008), SB 391(Liu 2009) requires the State's long-range transportation plan to meet California's climate change goals under AB 32.

The California Transportation Plan (CTP) is a statewide, long-range transportation plan to meet our future mobility needs and reduce GHG emissions. The CTP defines performance-based goals, policies, and strategies to achieve our collective vision for California's future, statewide, integrated, multimodal transportation system.

The purpose of the CTP is to provide a common policy framework that will guide transportation investments and decisions by all levels of government, the private sector, and other transportation stakeholders. Through this policy framework, the CTP 2040 will identify the statewide transportation system needed to achieve maximum feasible GHG emission reductions while meeting the State's transportation needs.

Table 2.5.1-2 summarizes the Departmental and statewide efforts that the Department is implementing to reduce GHG emissions. More detailed information about each strategy is included in the Climate Action Program at the Department (December 2006).

Table 2.5.1-2: Climate Change/CO_2 Reduction Strategies

Strategy	Program	Partnership		Method/Process	Estimated CO_2 Savings Million Metric Tons(MMT)	
		Lead	Agency		2010	2020
Smart Land Use	Intergovernmental Review	Caltrans	Local governments	Review and seek to mitigate development proposals	Not Estimated	Not Estimated
	Planning Grants	Caltrans	Local and regional agencies & other stakeholders	Competitive selection process	Not Estimated	Not Estimated
	Regional Plans and Blueprint Planning	Regional Agencies	Caltrans	Regional plans and application process	0.975	7.8
Operational Improvements & Intelligent Transportation System Deployment	Strategic Growth Plan	Caltrans	Regions	State Intelligent Transportation System; Congestion Management Plan	0.07	2.17
Mainstream Energy & GHG into Plans and Projects	Office of Policy Analysis & Research; Division of Environmental Analysis	Interdepartmental effort		Policy establishment, guidelines, technical assistance	Not Estimated	Not Estimated
Educational & Information Program	Office of Policy Analysis & Research	Interdepartmental, Cal/EPA, ARB, CEC		Analytical report, data collection, publication, workshops, outreach	Not Estimated	Not Estimated
Fleet Greening & Fuel Diversification	Division of Equipment	Department of General Services		Fleet Replacement B20 B100	0.0045	0.0065 0.045 0.0225
Non-vehicular Conservation Measures	Energy Conservation Program	Green Action Team		Energy Conservation Opportunities	0.117	0.34
Portland Cement	Office of Rigid Pavement	Cement and Construction Industries		2.5 % limestone cement mix 25% fly ash cement mix > 50% fly ash/slag mix	1.2 0.36	4.2 3.6
Goods Movement	Office of Goods Movement	Cal/EPA, ARB, Business, Transportation and Housing, MPOs		Goods Movement Action Plan	Not Estimated	Not Estimated
Total					2.72	18.18

Notes: Cal/EPA = California Environmental Protection Agency, ARB = California Air Resources Board, CEC = California Energy Commission, MMT = million metric tons, MPO = Metropolitan Planning Organization (Metropolitan Transportation Commission in the Bay Area).

Department Director's Policy 30 Climate Change (June 22, 2012): is intended to establish a Department policy that will ensure coordinated efforts to incorporate climate change into Departmental decisions and activities.

The Department's Activities to Address Climate Change (April 2013)[23] provides a comprehensive overview of activities undertaken by the Department statewide to reduce greenhouse gas emissions resulting from agency operations.

The following measures will also be included in the project to reduce the GHG emissions and potential climate change impacts from the project:

1. The Department and the California Highway Patrol are working with regional agencies to implement intelligent transportation systems to help manage the efficiency of the existing highway system. Intelligent transportation systems are commonly referred to as electronics, communications, or information processing used singly or in combination to improve the efficiency or safety of a surface transportation system.
2. US 101 in the project area is part of the Bay Area high occupancy vehicle lane network, and the MTC and other agencies actively encourage ridesharing (e.g., the "511.org" ridesharing information link provides resources for ride sharing and trip planning). Ridesharing, or carpooling, reduces vehicle trips and their associated emissions.
3. The project will utilize energy efficient lighting, which will be defined during final design.

2.5.1.3 Adaptation Strategies

"Adaptation strategies" refer to how the Department and others can plan for the effects of climate change on the state's transportation infrastructure and strengthen or protect the facilities from damage. Climate change is expected to produce increased variability in precipitation, rising temperatures, rising sea levels, variability in storm surges and intensity, and the frequency and intensity of wildfires. These changes may affect the transportation infrastructure in various ways, such as damage to roadbeds from longer periods of intense heat; increasing storm damage from flooding and erosion; and inundation from rising sea levels. These effects will vary by location and may, in the most extreme cases, require that a facility be relocated or redesigned. There may also be economic and strategic ramifications as a result of these types of impacts to the transportation infrastructure.

At the federal level, the Climate Change Adaptation Task Force, co-chaired by the White House CEQ, the Office of Science and Technology Policy, and the National Oceanic and Atmospheric Administration, released its interagency task force progress report on October 28, 2011[24], outlining the federal government's progress in expanding and strengthening the Nation's capacity to better understand, prepare for, and respond to extreme events and other climate change impacts. The report provides an update on actions in key areas of federal adaptation, including: building resilience in local communities, safeguarding critical natural resources such as freshwater, and providing accessible climate information and tools to help decision-makers manage climate risks.

Climate change adaptation must also involve the natural environment as well. Efforts are underway on a statewide level to develop strategies to cope with impacts to habitat and

[23] http://www.dot.ca.gov/hq/tpp/offices/orip/climate_change/projects_and_studies.shtml
[24] http://www.whitehouse.gov/administration/eop/ceq/initiatives/adaptation

biodiversity through planning and conservation. The results of these efforts will help California agencies plan and implement mitigation strategies for programs and projects.

On November 14, 2008, then-Governor Arnold Schwarzenegger signed EO S-13-08, which directed a number of state agencies to address California's vulnerability to sea level rise caused by climate change. This EO set in motion several agencies and actions to address the concern of sea level rise.

In addition to addressing projected sea level rise, the California Natural Resources Agency was directed to coordinate with local, regional, state and federal public and private entities to develop The *California Climate Adaptation Strategy* (Dec. 2009)[25], which summarizes the best-known science on climate change impacts to California, assesses California's vulnerability to the identified impacts, and outlines solutions that can be implemented within and across state agencies to promote resiliency.

The strategy outline is in direct response to EO S-13-08 that specifically asked the California Natural Resources Agency to identify how state agencies can respond to rising temperatures, changing precipitation patterns, sea level rise, and extreme natural events. Numerous other state agencies were involved in the creation of the Adaptation Strategy document, including the California Environmental Protection Agency; Business, Transportation and Housing; Health and Human Services; and the Department of Agriculture. The document is broken down into strategies for different sectors that include: Public Health; Biodiversity and Habitat; Ocean and Coastal Resources; Water Management; Agriculture; Forestry; and Transportation and Energy Infrastructure. As data continues to be developed and collected, the state's adaptation strategy will be updated to reflect current findings.

The National Academy of Science was directed to prepare a *Sea Level Rise Assessment Report*[26] to recommend how California should plan for future sea level rise. The report was released in June 2012 and included:

- Relative sea level rise projections for California, Oregon and Washington taking into account coastal erosion rates, tidal impacts, El Niño and La Niña events, storm surge and land subsidence rates;
- The range of uncertainty in selected sea level rise projections;
- A synthesis of existing information on projected sea level rise impacts to state infrastructure (such as roads, public facilities and beaches), natural areas, and coastal and marine ecosystems; and
- A discussion of future research needs regarding sea level rise.

In 2010, interim guidance was released by The Coastal Ocean Climate Action Team as well as the Department as a method to initiate action and discussion of potential risks to the states infrastructure due to projected sea level rise. Subsequently, the Coastal Ocean Climate Action

[25] http://www.energy.ca.gov/2009publications/CNRA-1000-2009-027/CNRA-1000-2009-027-F.PDF
[26] Sea Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future (2012) is available at http://www.nap.edu/catalog.php?record_id=13389.

Team updated the sea level rise guidance to include information presented in the National Academies of Science study.

All state agencies that are planning to construct projects in areas vulnerable to future sea level rise are directed to consider a range of sea level rise scenarios for the years 2050 and 2100 to assess project vulnerability and, to the extent feasible, reduce expected risks and increase resiliency to sea level rise. Sea level rise estimates should also be used in conjunction with information on local uplift and subsidence, coastal erosion rates, predicted higher high water levels, storm surge and storm wave data.

The San Francisco Bay includes approximately 1,000 miles of shoreline and thus is vulnerable to a range of natural hazards, including storms, extreme high tides, and projected rising sea levels. According to several sea level rise projection maps, sea level rise in the next century may potentially inundate the land uses and roadway infrastructure in the Bay Area. The potential for projected sea level rise within the proposed project vicinity in 2050 and 2100 may exacerbate existing natural hazards within the project area that will need to be addressed on a regional level through collaboration between Caltrans and local agencies with land use authority.

An assessment of sea level rise was performed for the proposed project. Sea level rise effects have been evaluated and mapped by the California Natural Resources Agency and California Energy Commission through the Cal-Adapt program (2015) and by the National Oceanic and Atmospheric Administration (NOAA 2015). These programs identify an area of risk for future inundation along US 101 within most of San Mateo County. In the project area, at 2 to 3 feet of sea level rise, inundation is predicted to cross part of Seaport Boulevard and occur in the area along the UPRR corridor. At 4 feet of sea level rise, Seaport Boulevard would be inundated, as well as land uses on both sides of US 101. At 5 feet of inundation, US 101 would impassible to the south of the Woodside Road interchange.

Improvements that address or incorporate sea level rise in the project would need to plan for the 2022 to 2042 design period, or beyond. Sea level rise projections based on Ocean Protection Council-adopted estimates indicate a 7-inch (in 2030) to 14-inch (in 2050) minimum increase in the expected inundation elevation within that period of time. Because of the low elevation of the Woodside Road undercrossing at US 101, the US 101 overpass would require reconstruction to accommodate a 7- to 14-inch increase in the inundation elevation. Reconstruction of the US 101 overpass is not considered practicable to include in this project, and the remainder of US 101 and Seaport Drive would still be subject to inundation, leaving these routes impassible under moderate to high sea level rise conditions.

Executive Order S-13-08 also directed the Business, Transportation, and Housing Agency to prepare a report to assess vulnerability of transportation systems to sea level affecting safety, maintenance and operational improvements of the system and economy of the state. The Department continues to work on assessing the transportation system vulnerability to climate change, including the effect of sea level rise.

Currently, the Department is working to assess which transportation facilities are at greatest risk from climate change effects. However, without statewide planning scenarios for relative sea level rise and other climate change effects, the Department has not been able to determine what change, if any, may be made to its design standards for its transportation facilities. Once statewide planning scenarios become available, the Department will be able review its current

design standards to determine what changes, if any, may be needed to protect the transportation system from sea level rise.

Climate change adaptation for transportation infrastructure involves long-term planning and risk management to address vulnerabilities in the transportation system from increased precipitation and flooding; the increased frequency and intensity of storms and wildfires; rising temperatures; and rising sea levels. The Department is an active participant in the efforts being conducted in response to EO S-13-08 and is mobilizing to be able to respond to the National Academy of Science Sea Level Rise Assessment Report.

Chapter 3 Comments and Coordination

Early and continuing coordination with the general public and public agencies is an essential part of the environmental process. It helps planners determine the necessary scope of environmental documentation, the level of analysis required, and to identify potential impacts and avoidance, minimization and/or mitigation measures and related environmental requirements. Agency consultation and public participation for this project have been accomplished through a variety of formal and informal methods, including project development team meetings, interagency coordination meetings, and public outreach. This chapter summarizes the results of the Department's efforts to fully identify, address and resolve project-related issues through early and continuing coordination.

3.1 Public Scoping and Participation

The Department began planning for the US 101/Woodside Road interchange improvements in 2000. In 2004, the project was included in the Transportation Expenditure Plan for the reauthorization of San Mateo County Measure A, which in 1988 authorized a half cent sales tax to fund the creation of the SMCTA and improvements to transportation and transit. Coordination between the Department, SMCTA, and the City Council as part of the early alternatives evaluation process began in 2006. Formal public involvement for the proposed project began in 2014 and consists of stakeholder meetings and City Council Study Sessions, community meetings, and environmental document meetings.

3.1.1 Stakeholder and Coordination Meetings

Meetings were held, or contact was made, with groups, organizations, or other project representatives to gain input or understanding of potential land use and traffic changes. These groups and organizations are listed below (additional meetings will continue to be conducted).

- Chamber Transportation and Housing Committee (January 9, 2014)
- Inner Harbor Task Force (March 11, 2014)
- Post Office (March 24, 2014)
- Sequoia Union High School District (March 24, 2014)
- North Fair Oaks Council (March 27, 2014)
- PG&E (July 30, 2014)
- Redwood City Downtown Business Association (August 5, 2014)
- Redwood City Fun-After-Fifty (August 19, 2014)
- Jay Paul Development (August 22, 2014)
- Seaport Industrial Association (September 9, 2014)
- Redwood City Chamber Transportation & Housing Committee (September 11, 2014)
- SMCTA Citizen Advisory Committee (March 1, 2016)
- SMCTA Board Meeting (March 3, 2016)

3.1.2 Community Meetings

Two community meetings were held during the preparation of this IS/EA for public review, and are described below.

On March 31, 2014, a public workshop was held from 6:30 to 8:00 PM, in the Downtown Library Community Room, 1044 Middlefield Road, Redwood City. The purpose of the meeting was to introduce the project, project area and existing conditions, roles and funding, draft purpose and need statement, and overall project schedule. Presentations about the project were given every half hour, and interactive stations were available throughout the evening. The meeting was noticed through bilingual Spanish and English flyers distributed at various stakeholder meetings and placed at City Hall; a mailing of the notice to property owners and tenants within 300 feet of the project area; through e-blasts from the Redwood City Public Information Officer to the city e-blast distribution list, a special e-blast to the Redwood City Neighborhood Associations; and postings on the City's website. Approximately 75 people attended.

A second public workshop was held on July 29, 2014, from 6:30 to 8:00 PM, also in the Downtown Library Community Room, 1044 Middlefield Road, Redwood City. The purpose of the meeting was to present information and gather specific feedback on the alternatives screening process and the alternatives still under consideration. The meeting format included both informal open house style interactions with the project team at map stations as well as a more formal presentation with a question-and-answer session. The meeting was noticed through bilingual Spanish and English flyers distributed at City Hall and the library; a mailing of the notice to property owners and tenants within 300 feet of the project area; through eNews announcements from the Redwood City Public Information Officer to the City at large (a special distribution was directed to project stakeholders including the Postmaster, Stanford University, Kaiser Permanente, the school districts, the yacht clubs, Seaport Industrial Association, property management staff, the Downtown Association, and the Chamber of Commerce); and postings on the project web page on the City's website. Approximately 70 people attended.

Public input on the project will continue to be solicited during the review period for IS/EA, as discussed further in Section 3.3.

3.1.3 Environmental Document Meetings

Two meetings provided the public with opportunities to learn about and give feedback on the environmental document: (1) a scoping meeting, held before the draft environmental document (DED) was written; and (2) a DED review meeting, held during the public review period for the document.

The scoping meeting was held on November 20, 2014, from 6:30 to 8:30 PM at the City Hall Council Chamber and Lobby, 1017 Middlefield Road, Redwood City. The purpose of the meeting was to solicit community input on the issues to be addressed in the environmental document. The project team provided a presentation, display boards, a handout, and a self-repeating animation on potential interchange alternatives to help attendees understand the proposed project, the scope of the environmental document, and the environmental effects to be studied. The meeting was noticed through newspaper advertisements; a bilingual Spanish and English flyer mailed to more than 6,000 addresses, as well as previous meeting attendees, the

City's project e-mail list, and all stakeholders with whom project team members met; City eNews announcements, and a Department press release. Approximately 30 people attended.

As part of the scoping process, the public was invited to submit written comments on the scope and content of the environmental document for a 30-day period that began on November 20, 2014, and ended on December 20, 2014. Thirty-five comments were submitted during the scoping period. Most comments pertained to pedestrian and bicycle access, trucks, planned development and transit improvements, elements of the project design, environmental issues to consider, and the Build Alternatives. Comments received during the scoping period were reviewed and summarized, and these materials have been made available on the City's website[27]. During the public review period for the DED, the public will have a minimum of 45 days to comment on the document, and a meeting will be held; please refer to the cover sheet for information on the public meeting and review period.

3.1.4 City Council Study Sessions

The City Council Study Sessions are intended to provide Council Members with opportunities to receive project updates and provide comments. Council Study Sessions were held on January 27 and September 22, 2014. Additional sessions will be held periodically through project approval.

3.2 Consultation and Coordination with Public Agencies

3.2.1.1 Federal Agencies

- U.S. Fish and Wildlife Service: A USFWS species list was obtained on October 23, 2015, and used to identify target species for reconnaissance-level surveys for terrestrial plants and animals (Appendix F). Three endangered species described in Section 2.3.4 were included on the list: Ridgway's rail (formerly California clapper rail) (*Laterallus jamaicensis coturniculus*), California least tern (*Sternula antillarum browni*), and salt marsh harvest mouse (*Reithrodontomys raviventris*).The project will not directly affect habitat for these species. The Department has requested technical assistance with USFWS to determine and complete the consultation process.

- Federal Highway Administration: After public circulation of this IS/EA, the project's air quality studies will be submitted to FHWA for a project-level conformity determination.

- The proposed project would not affect jurisdictional wetlands or waters of the U.S., as defined in Section 404 of the CWA. As a result, a Section 404 permit from the USACE will not be required.

- Consultation with NMFS under Section 7 of FESA is not anticipated because the project would not affect any listed species that fall within NMFS jurisdiction.

3.2.1.2 Tribal Entities

Native American consultation is described in Section 2.1.7.2.

[27] http://www.redwoodcity-docs.org/bit/transportation/101.84.Interchange/101.html

3.2.1.3 State Agencies

- California Department of Fish and Wildlife: No work is anticipated within or along the banks of Redwood Creek, which is the only potential jurisdictional resource within the project area. A Lake and Streambed Alteration Agreement from CDFW pursuant to Section 1600 of the Fish and Game codes will therefore not be required. The project would not result in the take of a state listed species as defined by the CESA. Coordination with CDFW may be necessary if active nests of predatory or migratory birds are found during preconstruction surveys.

- State Historic Preservation Officer: The project's cultural resource studies were submitted to SHPO on August 26, 2015 for concurrence of a determination of resources that are not eligible for the NRHP, and notification of the Department's finding of "No Historic Properties Affected" under the Section 106 Programmatic Agreement. SHPO's concurrence, received on October 8, 2015, and is included in Appendix F.

3.2.1.4 Regional Agencies

- Bay Area Air Quality Conformity Task Force: The project team initiated consultation with the Air Quality Conformity Task Force by submitting a Project Assessment Form for $PM_{2.5}$ Interagency Consultation. On July 23, 2015, following a presentation by the team, the Task Force determined that the project is not a project of air quality concern.

- Public comment is requested regarding the information in the Project Assessment Summary for $PM_{2.5}$ Interagency Consultation and the Task Force's determination (see Appendix F). Following the close of the public review and comment period for the IS/EA, all comments received on the air quality conformity determination will be included in an air quality conformity report to be submitted to FHWA. The final determination on project-level conformity will be made by FHWA.

- San Francisco Bay Regional Water Quality Control Board: Roadway widening would affect 0.02 acre of waters of the State. Pursuant to Section 401 of the CWA, a Notice of Intent will be submitted to the RWQCB and will include suitable mitigation for impacts to waters of the State. The project would implement any general Waste Discharge Requirements issued by the RWQCB.

3.3 Circulation, Review, and Comment on the Draft Environmental Document

Public input on the project is requested during the 45-day review period for this IS/EA. Notification of the availability of the IS/EA involved several methods, including postings on the Department and City of Redwood City websites and a mailed announcement to interested agencies and individuals. The review period, public meeting, and instructions for submitting comments are included on the first page of this document. All formal comments will be addressed and responses published in the Final IS/EA. If the Final IS/EA is approved, a Negative Declaration and a Finding of No Significant Impact will be signed and included with the Final IS/EA.

Chapter 4 List of Preparers

This document and its related technical studies were prepared under the supervision of Caltrans District 4. The Project Development Team (PDT) was responsible for oversight of the project and consists of representatives from the Department and City of Redwood City.

Key PDT Members Involved in Project Management

- Eddie Barrios, Senior Traffic Engineer, Fehr & Peers
- Abhijeet Bhoi, Engineering Project Manager, URS Corporation
- Stuart Goodson, Transportation Engineer, Caltrans District 4
- Lance Hall, Senior Transportation Engineer, Caltrans District 4
- Ramsey Hissen, Principal-in-Charge, URS Corporation
- Scott Kelsey, Senior Engineering Project Manager, URS Corporation
- Paul Krupka, Consultant Team Manager, City of Redwood City
- Brian C. Ly, Transportation Engineer, Caltrans District 4
- Jessica Manzi, City Transportation Coordinator, City of Redwood City
- Lynn McIntyre, Environmental Manager, URS Corporation
- Larry Moore, Caltrans District 4 Design Reviewer, Caltrans Headquarters
- Yolanda Rivas, District Branch Chief, Caltrans District 4, Office of Environmental Analysis
- Leahnora Romaya, Associate Environmental Planner, Caltrans District 4, Office of Environmental Analysis
- Mohammad Suleiman, Project Manager, Caltrans District 4
- Amir H. Sanatkar, Senior Transportation Engineer, Caltrans District 4
- Azin Zarei, Project Engineer, Caltrans District 4
- Jeff Zimmerman, Senior Environmental Manager, URS Corporation

Individuals Involved in the Department's Oversight of the Environmental Studies (Review Role/Responsibility)

- Myla Ablog, Associate Environmental Planner, Caltrans District 4, Office of Biological Sciences and Permits (Natural Environment Study, Wetlands, Biological Assessment)
- Jennifer Blake, Associate Environmental Planner – Archaeology, Caltrans District 4, Office of Cultural Resource Studies (Archaeological Survey Report, Historic Properties Survey Report, Extended Phase I Report)

- Ray Boyer, Acting Office Chief, Caltrans District 4, Office of Environmental Engineering (Air Quality Impact Assessment/Mobile Source Air Toxics)
- Douglas Bright, Architectural Historian, Caltrans District 4, Office of Cultural Resource Studies (Historic Resources Evaluation Report)
- Matthew Gaffney, Engineering Geologist, Caltrans District 4, Office of Geotechnical Design (Paleontological Identification Report)
- Elizabeth Krase Greene, Branch Chief, Architectural History/Built Resources Unit, Caltrans District 4, Office of Cultural Resources Studies (Historic Properties Survey Report, Historic Resources Evaluation Report)
- Jeanne Gorham, Landscape Architect, Caltrans District 4, Office of Landscape Architecture (Visual Impact Assessment)
- Lance Hall, Senior Transportation Engineer, Caltrans District 4 (Traffic Operations Analysis Report)
- Potin Leung, Civil Engineer, Caltrans District 4 (Location Hydraulic Study)
- Chris Wilson, Branch Chief, Caltrans District 4, Office of Environmental Engineering (Initial Site Assessment)
- Frances Malamud-Roam, Senior Environmental Planner, Caltrans District 4, Office of Biological Sciences and Permits (Natural Environment Study, Jurisdictional Delineation, Biological Assessment)
- Christopher Risden, Branch Chief, Caltrans District 4, Office of Geotechnical Design (Paleontological Identification Report)
- Yolanda Rivas, District Branch Chief, Caltrans District 4, Office of Environmental Analysis (environmental technical studies and environmental document)
- Leahnora Romaya, Associate Environmental Planner, Caltrans District 4, Office of Environmental Analysis (environmental technical studies and environmental document)
- Kathryn Rose, Branch Chief, Caltrans District 4, Office of Cultural Resource Studies (Archaeological Survey Report, Historic Properties Survey Report, Extended Phase I)
- Aprile Smith, Caltrans District 4, Community Planning & Pedestrian and Bicycle Planning
- Nandini Vishwanath, Professional Engineer, Caltrans District 4, Office of Environmental Engineering (Initial Site Assessment)
- Kimberley White, Landscape Architect, Caltrans District 4, Office of Landscape Architecture (Visual Impact Assessment)
- Shiang Yang, P.E., Acting District Branch Chief, Office of Environmental Engineering (Noise Study Report and Noise Abatement Decision Report, Air Quality Impact Assessment/Mobile Source Air Toxics)

- Connie Yip, Landscape Architect, Caltrans District 4, Office of Landscape Architecture (Visual Impact Assessment)

Individuals Involved in Technical Studies and Environmental Document Preparation

The following consulting team staff members were responsible for the preparation of the environmental technical studies and the environmental document:

- Joe Bandel, Biologist, URS Corporation, B.S., Wildlife, Fish and Conservation Biology. Contribution: Jurisdictional Delineation.
- Eddie Barrios, Senior Traffic Engineer, Fehr & Peers. Contribution: Traffic Operations and Analysis Report.
- Nasrin Behmanesh, URS Corporation, Ph.D., Chemical Engineering; M.S. Chemical Engineering. Contribution: Air Quality Impact Assessment and Mobile Source Air Toxics Report updates.
- Matthew Bettelheim, URS Corporation, B.S. Ecology, Behavior, and Evolution. Contribution: Natural Environment Study and Biological Assessment.
- Catherine Clark, URS Corporation, M.P.P., Environmental Public Policy; B.S., Biology/Environmental Science. Contribution: Environmental document preparation, Community Impact Assessment.
- Leah Haygood, Landscape Architect, Haygood & Associates. Contribution: Visual Impact Assessment.
- Kathleen Kubal, URS Corporation, M.A., Cultural Resource Management. Contribution: Archaeological Survey Report, Historic Properties Survey Report, and Extended Phase I Report.
- David Joe, URS Corporation, M.S., Civil and Environmental Engineering. Contribution: Air Quality Impact Assessment and Mobile Source Air Toxics Report updates.
- Rosemary Laird, URS Corporation, M.S., Marine Science; B.S., Conservation Resource Studies. Contribution: Jurisdictional Delineation.
- Dana Lodico, Illingworth & Rodkin, M.S., Architectural Acoustics. Contribution: Noise Study Report.
- Garrett Low, WRECO, B.S., Civil Engineering and Material Science. Contribution: Location Hydraulic Study, Water Data Report, Water Quality Study
- Lynn McIntyre, URS Corporation, B.A., Journalism. Contribution: Environmental document preparation/review, environmental project manager, Community Impact Assessment, Paleontological Identification Report.
- Christopher McMorris, JRP Historical Consulting LLP, M.S., Historic Preservation. Contribution: Historical Resources Evaluation Report.

- Chandra Miller, JRP Historical Consulting LLP, M.A., Public History. Contribution: Historical Resources Evaluation Report.
- Suzanne Nase, URS Corporation, B.S., M.S., Geology. Contribution: Initial Site Assessment.
- Ivan Parr, URS Corporation, B.S., Environmental Science. Contribution: Natural Environment Study and Biological Assessment.
- Jay Rehor, URS Corporation, M.A., Cultural Resource Management. Contribution: Geoarchaeological study.
- Nicole Rucker, URS Corporation, M.S, Environmental Sciences; B.S., Biology. Contribution: Natural Environment Study, Biological Assessment, Jurisdictional Delineation.
- Andrew Sekioka, WRECO, B.S., Civil Engineering. Contribution: Drainage Impact Study.
- Michael Thill, Illingworth & Rodkin, B.S., Environmental Studies. Contribution: Noise Study Report.
- Jeff Zimmerman, URS Corporation, B.S., Conservation of Natural Resources. Contribution: Environmental document preparation/review, senior environmental project manager.

Chapter 5 Distribution List

The following agencies, organizations, and individuals received printed or electronic copies of this document. Agency names marked with an asterisk (*) received copies through the State Clearinghouse.

Federal Agencies

Director
National Marine Fisheries Services
777 Sonoma Avenue, Suite 325
Santa Rosa, CA 95404

Federal Highway Administration
California Division
650 Capitol Mall, Suite 4-100
Sacramento, CA 95814

Regulatory Chief, Calvin Fong
United States Army Corps of Engineers
1455 Market Street
San Francisco, CA 94103

U.S. EPA Region 9
75 Hawthorne Street
San Francisco, CA, 94105

Executive Director, Wayne White
United States Fish and Wildlife Service
2800 Cottage Way, Room 2605
Sacramento, CA 95825

U.S. Department of Agriculture
Natural Resources Conservation Service
430 G Street, #4164
Davis, CA 95616

Director, Office of Environmental Policy and Compliance
Department of the Interior
1849 C Street, NW (MS-2462)
Washington, DC 20240

State Agencies

Executive Director
Office of Planning and Research
State Clearinghouse
1400 Tenth Street
Sacramento, CA 95814

California Department of Conservation*
801 K Street, MS 24-01
Sacramento, CA 95814

Regional Manager, Scott Wilson
California Department of Fish and Wildlife*
Bay Delta Region
P.O. Box 47
Yountville, CA 94599

State Historic Preservation Officer
Office of Historic Preservation*
1725 23rd Street, Suite 100
Sacramento, CA 95816

California Department of Parks and Recreation*
Natural Resources Division
P.O. Box 942896
Sacramento, CA 94296

California Department of Water Resources*
Central Valley Flood Protection Board
3310 El Camino Avenue, Room 151
Sacramento, CA 95821

California Department of Water Resources*
Environmental Services Office
P.O. Box 942836
Sacramento, CA 94236

California Highway Patrol*
Office of Special Projects
601 North Seventh Street
Sacramento, CA 95811

California Natural Resources Agency*
1416 Ninth Street, Suite 1311
Sacramento, CA 95814

California Department of General Services*
Environmental Services Section
707 Third Street, Eighth Floor
West Sacramento, CA 95605

California Air Resources Board*
1001 I Street
P.O. Box 2815
Sacramento, CA 95812

California Department of Resources
Recycling and Recovery
Waste Management Division
P.O. Box 4025
Sacramento, CA 95812

California State Water Resources Control Board*
Division of Water Quality
P.O. Box 100
Sacramento, CA 95812

California Department of Toxic Substances Control*
700 Heinz Avenue, Suite 200
Berkeley, CA 94710

California Energy Commission*
1516 Ninth Street, MS-29
Sacramento, CA 95814

Native American Heritage Commission*
915 Capitol Mall, Room 364
Sacramento, CA 95814

Public Utilities Commission*
505 Van Ness Avenue
San Francisco, CA 94102

California State Lands Commission
100 Howe Avenue, Suite 100 South
Sacramento, CA 95825

Commission Chair
California Transportation Commission
1120 N Street, (MS-52)
Sacramento, CA 95814

Regional

Executive Office, Bruce Wolfe*
Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612

President, Julie Pierce
Association of Bay Area Governments
101 Eighth Street
Oakland, CA 94607

Executive Director, Steve Heminger
Metropolitan Transportation Commission
101 Eighth Street
Oakland, CA 94607

Executive Officer, Jack Broadbent
Bay Area Air Quality Management District
939 Ellis Street
San Francisco, CA 94109

Theresa Bourgeois
Pacific Gas & Electric Company
111 Almaden Boulevard, Room 814
San Jose, CA 95115

AT&T California
Attn: Laura Wendover
3745 B North First Street #200
San Jose, CA 95134

Comcast Cable TV
Construction Department
1900 S 10th Street
San Jose, CA 95112

Local

James Porter
Director, Department of Public Works
County of San Mateo
555 County Center, 5th Floor
Redwood City, CA 94063

Planning Director, Steve Monowitz
County of San Mateo Planning and Building
455 County Center, 2nd Floor
Redwood City, CA 94063

James McKim
San Mateo County Transportation Authority
1250 San Carlos Avenue, 3006
San Carlos, CA 94070-1306

Sandy Wong, Executive Director
City/County Association of Governments of San Mateo County
555 County Center
Redwood City, CA 94063

Superintendent, Ramana Chinnakotla
City of Redwood City Public Works
1400 Broadway Street
Redwood City, CA 95110

Planning Manager, Steven Turner
City of Redwood City
Community Development Department,
Planning & Housing
1017 Middlefield Road
Redwood City, CA 94063

Community Development Director,
Aaron Aknin
City of Redwood City
Community Development Department,
Planning & Housing
1017 Middlefield Road
Redwood City, CA 94063

City Engineer, Saber Sarwary
City of Redwood City
Community Development Department,
Engineering & Transportation Services
1017 Middlefield Road
Redwood City, CA 94063

Senior Transportation Coordinator,
Jessica Manzi,
City of Redwood City
Community Development Department,
Engineering & Transportation Services
1017 Middlefield Road
Redwood City, CA 94063

Assistant City Attorney, Veronica Ramirez
City of Redwood City
1017 Middlefield Road
Redwood City, CA 94063

City Clerk, Silvia Vonderlinden
City of Redwood City
1017 Middlefield Road
Redwood City, CA 94063

Documents Librarian, Elisa Navarro
Redwood City Downtown Library
1044 Middlefield Road
Redwood City, CA 94063 95030

Elected Officials

Honorable Barbara Boxer
United States Senator
70 Washington Street, Suite 203
Oakland, CA 94607

Honorable Dianne Feinstein
United States Senator
One Post Street, Suite 2450
San Francisco, CA 94104

Honorable Jackie Speier
Representative in Congress, 14th District
155 Bovet Road, Suite 780
San Mateo, CA 94402

Honorable Anna G. Eshoo
Representative in Congress, 18th District
698 Emerson Street
Palo Alto, CA 94301

Jerry Hill, State Senate District 13
1528 South El Camino Real, Suite 303
San Mateo, CA 94402

Kevin Mullin, State Assembly District 22
1528 South El Camino Real, Suite 302
San Mateo, CA 94402

Warren Slocum, San Mateo County Board of Supervisors, District 4
Hall of Justice
400 County Center
Redwood City, CA 94063

Mayor, John D. Seybert
City of Redwood City
1645 Alameda De Las Pulgas
Redwood City, CA 94061

Jeffrey Gee, City of Redwood City Council
351 Montserrat Drive
Redwood City, CA 94065

Chapter 6 References

ABAG 1999 Bay Trail Plan. Association of Bay Area Governments. URL: http://www.baytrail.org/baytrailplan.html. July 30, 1999.

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Appendix A CEQA Checklist

Supporting documentation of all California Environmental Quality Act (CEQA) checklist determinations is provided in Chapter 2 of this Initial Study/Environmental Assessment (IS/EA). Documentation of "No Impact" determinations is provided at the beginning of Chapter 2. Discussion of all impacts, avoidance, minimization, and/or mitigation measures is under the appropriate topic headings in Chapter 2.

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CEQA Environmental Checklist

04-SM-101 **04-SM-84**	**PM 4.6/6.5** **PM 25.3/25.7**	**04-235360**
Dist.-Co.-Rte.	PM/PM	E.A.

This checklist identifies physical, biological, social and economic factors that might be affected by the proposed project. In many cases, background studies performed in connection with the projects indicate no impacts. A NO IMPACT answer in the last column reflects this determination. Where there is a need for clarifying discussion, the discussion is included either following the applicable section of the checklist or is within the body of the environmental document itself. The words "significant" and "significance" used throughout the following checklist are related to CEQA, not NEPA, impacts. The questions in this form are intended to encourage the thoughtful assessment of impacts and do not represent thresholds of significance.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
I. AESTHETICS: Would the project:				
a) Have a substantial adverse effect on a scenic vista	☐	☐	☐	☒
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway	☐	☐	☐	☒
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒
II. AGRICULTURE AND FOREST RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and the forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒
III. AIR QUALITY: Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non- attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☐	☒
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐
IV. BIOLOGICAL RESOURCES: Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☒	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☒
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒
V. CULTURAL RESOURCES: Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☐	☐	☒
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☒	☐
VI. GEOLOGY AND SOILS: Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	☐	☐	☒	☐
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42?	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
iv) Landslides?	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☐	☒
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒

VII. GREENHOUSE GAS EMISSIONS: Would the project:

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	An assessment of the greenhouse gas emissions and climate change is included in the body of environmental document. While the Department has included this good faith effort in order to provide the public and decision-makers as much information as possible about the project, it is the Department determination that in the absence of further regulatory or scientific information related to GHG emissions and CEQA significance, it is too speculative to make a significance determination regarding the project's direct and indirect impact with respect to climate change. The Department does remain firmly committed to implementing measures to help reduce the potential effects of the project. These measures are outlined in the body of the environmental document.

VIII. HAZARDS AND HAZARDOUS MATERIALS: Would the project:

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☐	☒
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☒	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☒
IX. HYDROLOGY AND WATER QUALITY: Would the project:				
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	☒
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	☒	☐
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☒	☐
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐
f) Otherwise substantially degrade water quality?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☒	☐
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☒
j) Inundation by seiche, tsunami, or mudflow	☐	☐	☐	☒

X. LAND USE AND PLANNING: Would the project:

a) Physically divide an established community?	☐	☐	☐	☒
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

XI. MINERAL RESOURCES: Would the project:

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

XII. NOISE: Would the project result in:

a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
XIII. POPULATION AND HOUSING: Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
XIV. PUBLIC SERVICES:				
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:	☐	☐	☐	☒
Fire protection?	☐	☐	☐	☒
Police protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
XV. RECREATION:				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒
XVI. TRANSPORTATION/TRAFFIC: Would the project:				
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☒	☐
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county Transportation Commission for designated roads or highways?	☐	☐	☒	☐
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
e) Result in inadequate emergency access?	☐	☐	☐	☒
f) Conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☐	☒
XVII. UTILITIES AND SERVICE SYSTEMS: Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☒
e) 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?	☐	☐	☐	☒
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☐	☒
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒

XVIII. MANDATORY FINDINGS OF SIGNIFICANCE

a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☒	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	☒	☐
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

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Appendix B Section 4(f) *De Minimis* Determination

Section 4(f) of the Department of Transportation Act of 1966, codified in federal law at 49 United States Code (USC) 303, declares that "it is the policy of the United States Government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites."

Section 4(f) specifies that the Secretary [of Transportation] may approve a transportation program or project . . . requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance, or land of an historic site of national, state, or local significance (as determined by the federal, state, or local officials having jurisdiction over the park, area, refuge, or site) only if:

- there is no prudent and feasible alternative to using that land; and
- the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use.

Section 4(f) further requires consultation with the Department of the Interior and, as appropriate, the involved offices of the Department of Agriculture and the Department of Housing and Urban Development in developing transportation projects and programs that use lands protected by Section 4(f). If historic sites are involved, then coordination with the State Historic Preservation Officer (SHPO) is also needed.

The environmental review, consultation, and any other action required in accordance with applicable federal laws for this project is being, or has been, carried-out by the Department under its assumption of responsibility pursuant to 23 USC 327.

Description of Proposed Project

See Chapter 1 of this IS/EA for a description of the project and the proposed Build Alternatives. The purpose of the proposed project is to alleviate peak hour congestion at the US 101/Woodside Road interchange and to improve traffic operations and pedestrian and bicycle access in the interchange area.

Build Alternatives 3 and 8B would both have the same design footprint and require the same construction activities in the vicinity of the project area parks and recreation facilities. Therefore, the following discussion applies to both Build Alternatives.

The No Build Alternative would make no improvements to the US 101/Woodside Road interchange. Woodside Road and the ramp configurations would remain unchanged.

Section 4(f) De Minimis Determination

Section 6009(a) of SAFETEA-LU amended Section 4(f) legislation at 23 United States Code (USC) 138 and 49 USC 303 to simplify the processing and approval of projects that have only *de minimis* impacts on lands protected by Section 4(f). This revision provides that once the U.S. Department of Transportation (USDOT) determines that a transportation use of Section 4(f) property, after consideration of any impact avoidance, minimization, and mitigation or enhancement measures, results in a *de minimis* impact on that property, an analysis of avoidance

alternatives is not required and the Section 4(f) evaluation process is complete. FHWA's final rule on Section 4(f) *de minimis* findings is codified in 23 Code of Federal Regulations (CFR) 774.3 and CFR 774.17.

Responsibility for compliance with Section 4(f) has been assigned to the Department pursuant to 23 USC 326 and 327, including determinations and approval of Section 4(f) evaluations, as well as coordination with those agencies that have jurisdiction over a Section 4(f) resource that may be affected by a project action.

Project Use

East of US 101, a Bay Trail segment extends along Seaport Boulevard starting east of Blomquist Street, within the project area. The Bay Trail is considered a Section 4(f) resource under the U.S. Department of Transportation Act of 1966. A map detail of the Bay Trail in the project area is provided in Figure B-1.

The Bay Trail segment extends northward to the Port of Redwood City and municipal marina to the west and Pacific Shores Center to the north. In the project area, the Bay Trail consists of an 8-foot-wide shared-use trail that is separated from Seaport Boulevard by a landscaped buffer. The Bay Trail provides recreation access along the salt crystallizer beds and Bay slough areas farther north of the project area and also serves bicycle commuters to Pacific Shores Center. The section of the trail in the project area does not have any seating or Bay Trail signs.

Project construction would result in temporary impacts to the 150-foot segment of the Bay Trail within the project area. Temporary closures or detours of a short segment of the Bay Trail for up to approximately two weeks would be required to preserve public safety while construction takes place along East Bayshore Road and Seaport Boulevard. Once the realignment of East Bayshore Road is completed, the trail would be reopened. The length of the trail closure would be substantially shorter in duration than the overall construction period of approximately 3 years. Any detour routes onto Seaport Boulevard would be separated from traffic by a temporary barrier (such as K-rail) for the safety of trail users.

Visitors to the Bay Trail in the project area during construction would be exposed to the periodic sights and sounds of construction equipment as well as structural and roadway work on the Woodside Road undercrossing, reconstructed interchange ramps, Veterans Boulevard flyover ramps, and Seaport Boulevard/East Bayshore Road/Blomquist Street intersection. At any time during construction, temporary noise and visual impacts could be pronounced during activities such as structure demolition and pile driving. As stated above, temporary trail closures would be required during roadway work along East Bayshore Road and Seaport Boulevard, which would prevent trail users from being exposed to noise and visual disturbance during some construction periods.

The project would also result in minor permanent changes to the Section 4(f) resource. Both of the Build Alternatives would widen and realign East Bayshore Road to the northeast at its intersection with Woodside Road, Seaport Boulevard, and Blomquist Street. A new right-turn lane would be added from East Bayshore Road to Seaport Boulevard, and the sidewalk, curb, and corner along East Bayshore Road and Seaport Boulevard would be reconstructed. Approximately 30 feet of the Bay Trail along Seaport Boulevard would be reconstructed where it connects with the rebuilt sidewalk. One of the Section 4(f) resources, a landscaped area separating the Bay

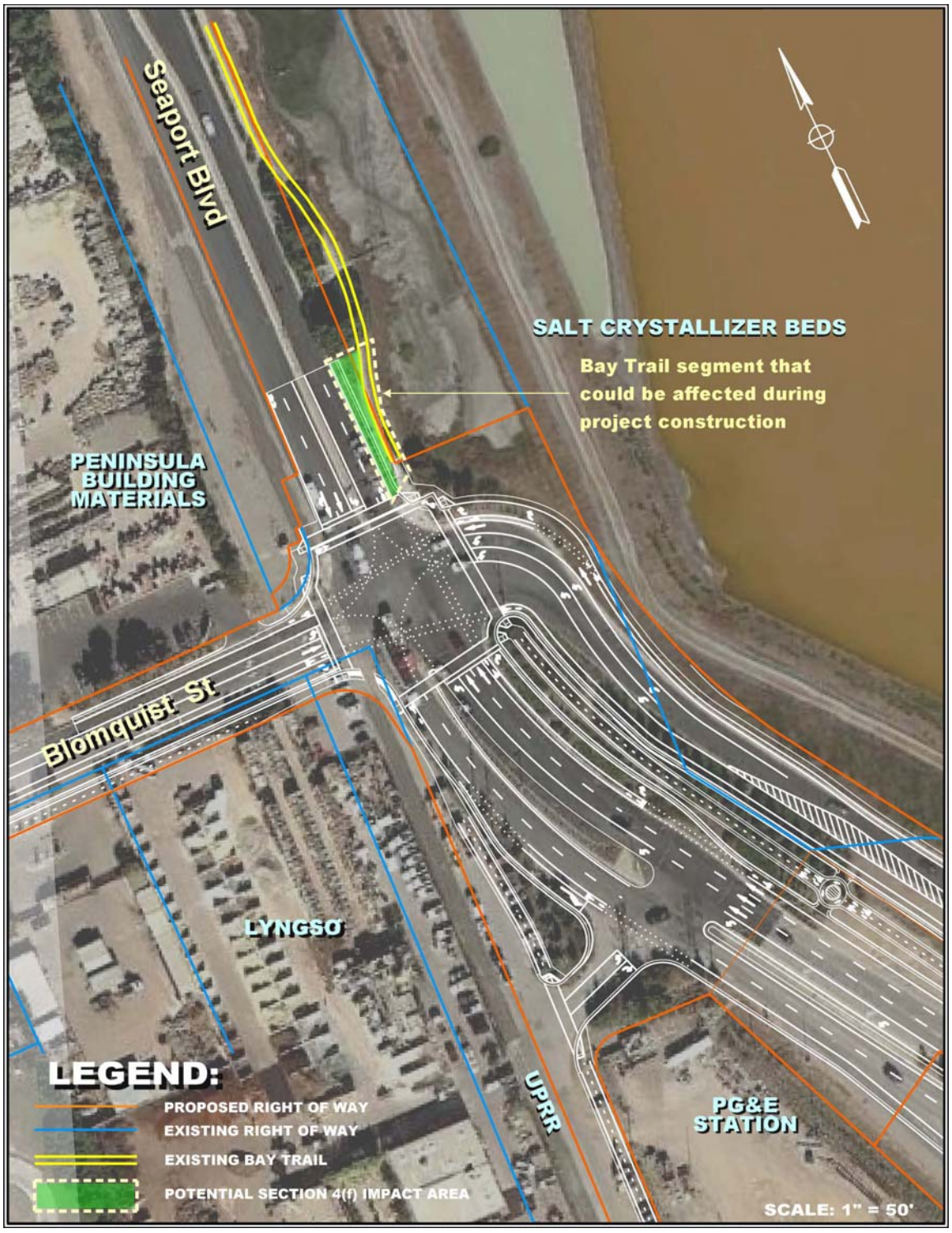

Figure B-1: Bay Trail Map

Trail from Seaport Boulevard, may also be permanently removed to accommodate the new right-turn lane and reconstructed curb and sidewalk. Up to approximately 1,500 square feet of the Section 4(f) resource could be permanently affected (see Photo 1 and Figure B-1). The actual area of the Section 4(f) resource that is permanently removed may be much smaller. Landscaping that is removed or damaged during project construction will be replaced in kind where proper setback exists and where feasible, in accordance with Department policy.

Photo 1. View of the Bay Trail and landscaped buffer along Seaport Boulevard, looking north from the northeast corner of Seaport Boulevard/East Bayshore Road/Blomquist Street. The northern limit of the project work would be just before the tree that is in the center of the photo. The landscaping that may be removed is between the Bay Trail and Seaport Boulevard.

The Bay Trail segment in the project area does not have any seating, Bay Trail signs, or other amenities that would be affected by the project.

***De Minimis* Definition and Application to the Project**

De minimis impacts on publicly owned parks, recreation areas, and wildlife and waterfowl refuges are defined as those that do not adversely affect the activities, features, and attributes of the 4(f) resource. Potential project-related impacts to the Bay Trail are considered *de minimis* for the following reasons:

- The project may slightly shift approximately 30 feet of the Bay Trail to conform to the new alignments of the sidewalk on the east side of East Bayshore Road and the crosswalk to the

north side of Blomquist Street. These changes would not affect the activities, features, and attributes of the Bay Trail. The project would improve pedestrian and bicycle access to the Bay Trail from areas to the south of US 101. The project is not anticipated to increase the use of the Bay Trail such that substantial physical deterioration would occur, or affect the recreation functions of the Bay Trail that make it a Section 4(f) resource.

- Some of the landscaping separating the Bay Trail from Seaport Boulevard may be permanently removed from the Section 4(f) resource. Landscaping that is removed or damaged during project construction will be replaced in kind where proper setback exists and where feasible, in accordance with Department policy. The removal or replacement of some landscaping in this area is not expected to adversely affect views to and from the Bay Trail; the recreational experience of those using the Bay Trail; or the activities, features, and attributes of the 4(f) resource.

Public Notice Process

The Department will request concurrence from the City of Redwood City, which has jurisdiction over this Bay Trail segment, that the project's use of the Section 4(f) resource with both of the Build Alternatives will not adversely affect the features and attributes of the property, and that the City has been informed of the Department's intent to make a *de minimis* finding based on that agreement.

Minimization Measures During Construction

Many project construction activities would take place at night, when the Bay Trail is not typically in use. Temporary closures or detours of a short segment of the Bay Trail up to approximately two weeks would be required to preserve public safety while construction takes place along East Bayshore Road and Seaport Boulevard. Once the realignment of East Bayshore Road is completed, the trail would be reopened. The length of the trail closure would be substantially shorter in duration than the overall construction period of approximately 3 years. Any detour routes onto Seaport Boulevard would be developed in coordination with, and approved by, the City of Redwood City. The detour route would be separated from traffic by a temporary barrier (such as K-rail) for the safety of trail users. Additional avoidance and minimization measures are described in Section 2.1.1.3.

Resources Evaluated Relative to the Requirements of Section 4(f)

This section of the document discusses parks, recreational facilities, wildlife refuges and historic properties found within or next to the project area that do not trigger Section 4(f) protection because either: 1) they are not publicly owned, 2) they are not open to the public, 3) they are not eligible historic properties, 4) the project does not permanently use the property and does not hinder the preservation of the property, or 5) the proximity impacts do not result in constructive use.

In addition to the Bay Trail, two other features in or within 0.5 mile of the project area would be considered publicly owned parkland which would qualify for consideration under Section 4(f).

- Hoover Park is approximately 1,900 feet southeast of the US 101/Woodside Road interchange. This 10.18-acre park at Woodside Road and Spring Street has a pool (summer

only), ball fields, play equipment and a play area, a picnic area with barbecue pits, basketball courts, and restrooms (Redwood City 2012a).

- Andrew Spinas Park at Second Avenue and Bay Road is approximately 2,000 feet east-southeast of the interchange. The 1.46-acre park has a water feature, play equipment and a play area, a picnic area, tennis and basketball courts, and restrooms (Redwood City 2012b).

Each facility is owned and maintained by the City of Redwood City.

Project construction activities in the vicinity of Hoover Park would be limited to striping and sign installation, which would not result in noise or visual impacts to park visitors. Other project construction activities would be at a sufficient distance from the park that temporary noise or visual impacts to park visitors are not expected. There would be no project impacts that would qualify as "use" under Section 4(f). Therefore, the provisions of Section 4(f) are not triggered.

Andrew Spinas Park is separated from the project area by several multistory buildings along US 101, Broadway, and Bay Road. The commercial, business, and industrial development between the project area and the park would provide both acoustic and visual shielding from project-related construction activities. No permanent or temporary noise or visual impacts to park visitors are expected. The project would not "use" any portion of Andrew Spinas Park under Section 4(f), meaning that the park would not be acquired, be occupied, or negatively impacted for the purposes of this project (23 CFR 774.17).

No sensitive historic properties or wildlife refuges are present in the project area (URS 2014, 2015).

Appendix C Summary of Relocation Benefits

California Department of Transportation Relocation Assistance Program

Relocation Assistance Advisory Services

DECLARATION OF POLICY

"The purpose of this title is to establish a uniform policy for fair and equitable treatment of persons displaced as a result of federal and federally assisted programs in order that such persons shall not suffer disproportionate injuries as a result of programs designed for the benefit of the public as a whole."

The Fifth Amendment to the U.S. Constitution states, "No Person shall…be deprived of life, liberty, or property, without due process of law, nor shall private property be taken for public use without just compensation." The Uniform Act sets forth in statute the due process that must be followed in Real Property acquisitions involving federal funds. Supplementing the Uniform Act is the government-wide single rule for all agencies to follow, set forth in 49 Code of Federal Regulations (CFR) Part 24. Displaced individuals, families, businesses, farms, and nonprofit organizations may be eligible for relocation advisory services and payments, as discussed below.

FAIR HOUSING

The Fair Housing Law (Title VIII of the Civil Rights Act of 1968) sets forth the policy of the United States to provide, within constitutional limitations, for fair housing. This act, and as amended, makes discriminatory practices in the purchase and rental of most residential units illegal. Whenever possible, minority persons shall be given reasonable opportunities to relocate to any available housing regardless of neighborhood, as long as the replacement dwellings are decent, safe, and sanitary and are within their financial means. This policy, however, does not require The Department to provide a person a larger payment than is necessary to enable a person to relocate to a comparable replacement dwelling.

Any persons to be displaced will be assigned to a relocation advisor, who will work closely with each displacee in order to see that all payments and benefits are fully utilized and that all regulations are observed, thereby avoiding the possibility of displacees jeopardizing or forfeiting any of their benefits or payments. At the time of the initiation of negotiations (usually the first written offer to purchase), owner-occupants are given a detailed explanation of the state's relocation services. Tenant occupants of properties to be acquired are contacted soon after the initiation of negotiations and also are given a detailed explanation of the Department's Relocation Assistance Program. To avoid loss of possible benefits, no individual, family, business, farm, or nonprofit organization should commit to purchase or rent a replacement property without first contacting a Department relocation advisor.

RELOCATION ASSISTANCE ADVISORY SERVICES

In accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, the Department will provide relocation advisory assistance to any person, business, farm or nonprofit organization displaced as a result of the acquisition of real

property for public use, so long as they are legally present in the United States. The Department will assist eligible displacees in obtaining comparable replacement housing by providing current and continuing information on the availability and prices of both houses for sale and rental units that are "decent, safe and sanitary." Nonresidential displacees will receive information on comparable properties for lease or purchase (for business, farm and nonprofit organization relocation services, see below).

Residential replacement dwellings will be in a location generally not less desirable than the displacement neighborhood at prices or rents within the financial ability of the individuals and families displaced, and reasonably accessible to their places of employment. Before any displacement occurs, comparable replacement dwellings will be offered to displacees that are open to all persons regardless of race, color, religion, sex, national origin, and consistent with the requirements of Title VIII of the Civil Rights Act of 1968. This assistance will also include the supplying of information concerning federal and state assisted housing programs and any other known services being offered by public and private agencies in the area.

Persons who are eligible for relocation payments and who are legally occupying the property required for the project will not be asked to move without first being given at least 90 days written notice. Residential occupants eligible for relocation payment(s) will not be required to move unless at least one comparable "decent, safe and sanitary" replacement dwelling, available on the market, is offered to them by The Department.

RESIDENTIAL RELOCATION PAYMENTS

The Relocation Assistance Program will help eligible residential occupants by paying certain costs and expenses. These costs are limited to those necessary for or incidental to the purchase or rental of a replacement dwelling and actual reasonable moving expenses to a new location within 50 miles of the displacement property. Any actual moving costs in excess of the 50 miles are the responsibility of the displacee. The Residential Relocation Assistance Program can be summarized as follows:

Moving Costs

Any displaced person, who lawfully occupied the acquired property, regardless of the length of occupancy in the property acquired, will be eligible for reimbursement of moving costs. Displacees will receive either the actual reasonable costs involved in moving themselves and personal property up to a maximum of 50 miles, or a fixed payment based on a fixed moving cost schedule. Lawful occupants who move into the displacement property after the initiation of negotiations must wait until the Department obtains control of the property in order to be eligible for relocation payments.

Purchase Differential

In addition to moving and related expense payments, fully eligible homeowners may be entitled to payments for increased costs of replacement housing.

Homeowners who have owned and occupied their property for 180 days or more prior to the date of the initiation of negotiations (usually the first written offer to purchase the property), may qualify to receive a price differential payment and may qualify to receive reimbursement for certain nonrecurring costs incidental to the purchase of the replacement property. An interest differential payment is also available if the interest rate for the loan on the replacement dwelling

is higher than the loan rate on the displacement dwelling, subject to certain limitations on reimbursement based upon the replacement property interest rate. The maximum combination of these three supplemental payments that the owner-occupant can receive is $22,500. If the total entitlement (without the moving payments) is in excess of $22,500, the Last Resort Housing Program will be used (see the explanation of the Last Resort Housing Program below).

Rent Differential

Tenants and certain owner-occupants (based on length of ownership) who have occupied the property to be acquired by the Department prior to the date of the initiation of negotiations may qualify to receive a rent differential payment. This payment is made when the Department determines that the cost to rent a comparable "decent, safe and sanitary" replacement dwelling will be more than the present rent of the displacement dwelling. As an alternative, the tenant may qualify for a down payment benefit designed to assist in the purchase of a replacement property and the payment of certain costs incidental to the purchase, subject to certain limitations noted under the Down Payment section below. The maximum amount payable to any eligible tenant and any owner-occupant of less than 180 days, in addition to moving expenses, is $5,250. If the total entitlement for rent supplement exceeds $5,250, the Last Resort Housing Program will be used.

To receive any relocation benefits, the displaced person must buy or rent and occupy a "decent, safe and sanitary" replacement dwelling within one year from the date the Department takes legal possession of the property, or from the date the displacee vacates the displacement property, whichever is later.

Down Payment

The down payment option has been designed to aid owner-occupants of less than 180 days and tenants in legal occupancy prior to the Departments initiation of negotiations. The down payment and incidental expenses cannot exceed the maximum payment of $5,250. The one-year eligibility period in which to purchase and occupy a "decent, safe and sanitary" replacement dwelling will apply.

Last Resort Housing

Federal regulations (49 CFR 24) contain the policy and procedure for implementing the Last Resort Housing Program on federal-aid projects. Last Resort Housing benefits are, except for the amounts of payments and the methods in making them, the same as those benefits for standard residential relocation as explained above. Last Resort Housing has been designed primarily to cover situations where a displacee cannot be relocated because of lack of available comparable replacement housing, or when the anticipated replacement housing payments exceed the $22,500 and $5,250 limits of the standard relocation procedure, because either the displacee lacks the financial ability or other valid circumstances.

After the initiation of negotiations, the Department will within a reasonable length of time, personally contact the displacees to gather important information, including the following:

- Number of people to be displaced.
- Specific arrangements needed to accommodate any family member(s) with special needs.

- Financial ability to relocate into comparable replacement dwelling which will adequately house all members of the family.
- Preferences in area of relocation.
- Location of employment or school.

NONRESIDENTIAL RELOCATION ASSISTANCE

The Nonresidential Relocation Assistance Program provides assistance to businesses, farms and nonprofit organizations in locating suitable replacement property, and reimbursement for certain costs involved in relocation. The Relocation Advisory Assistance Program will provide current lists of properties offered for sale or rent, suitable for a particular business's specific relocation needs. The types of payments available to eligible businesses, farms and nonprofit organizations are: searching and moving expenses, and possibly reestablishment expenses; or a fixed in lieu payment instead of any moving, searching and reestablishment expenses. The payment types can be summarized as follows:

Moving Expenses

Moving expenses may include the following actual, reasonable costs:

- The moving of inventory, machinery, equipment and similar business-related property, including: dismantling, disconnecting, crating, packing, loading, insuring, transporting, unloading, unpacking, and reconnecting of personal property. Items acquired in the right-of-way contract may not be moved under the Relocation Assistance Program. If the displacee buys an Item Pertaining to the Realty back at salvage value, the cost to move that item is borne by the displacee.
- Loss of tangible personal property provides payment for actual, direct loss of personal property that the owner is permitted not to move.
- Expenses related to searching for a new business site, up to $2,500, for reasonable expenses actually incurred.

Reestablishment Expenses

Reestablishment expenses related to the operation of the business at the new location, up to $10,000 for reasonable expenses actually incurred.

Fixed In Lieu Payment

A fixed payment in lieu of moving, searching, and reestablishment payments may be available to businesses that meet certain eligibility requirements. This payment is an amount equal to half the average annual net earnings for the last two taxable years prior to the relocation and may not be less than $1,000 nor more than $20,000.

ADDITIONAL INFORMATION

Reimbursement for moving costs and replacement housing payments are not considered income for the purpose of the Internal Revenue Code of 1954, or for the purpose of determining the extent of eligibility of a displacee for assistance under the Social Security Act, or any other law, except for any federal law providing local "Section 8" Housing Programs.

Any person, business, farm or nonprofit organization that has been refused a relocation payment by the Department relocation advisor or believes that the payment(s) offered by the agency are inadequate may appeal for a special hearing of the complaint. No legal assistance is required. Information about the appeal procedure is available from the relocation advisor.

California law allows for the payment for lost goodwill that arises from the displacement for a public project. A list of ineligible expenses can be obtained from the Department Right-of-Way. California's law and the federal regulations covering relocation assistance provide that no payment shall be duplicated by other payments being made by the displacing agency.

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Your Rights and Benefits as a Displaced Business, Farm, or Nonprofit Organization Under the California Department of Transportation Relocation Assistance Program

California Department of Transportation

Introduction

In building a modern transportation system, the displacement of a small percentage of the population is often necessary. However, it is the policy of Caltrans that displaced persons shall not suffer unnecessarily as a result of programs designed to benefit the public as a whole.

Displaced businesses, farms, and nonprofit organizations may be eligible for relocation advisory services and payments.

This brochure provides information about available relocation services and payments. If you are required to move as the result of a Caltrans transportation project, a Relocation Agent will contact you. The Relocation Agent will be able to answer your specific questions and provide additional information.

Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 as Amended "The Uniform Act"

The purpose of this Act is to provide for uniform and equitable treatment of persons displaced from their business, farm or non-profit organization, by federal and federally assisted programs and to establish uniform and equitable land acquisition policies for federal and federally assisted programs.

49 Code of Federal Regulations Part 24 implements the "Uniform Act" in accordance with the following relocation assistance objective:

> To ensure that persons displaced as a direct result of federal or federally-assisted projects are treated fairly, consistently and equitably so that such persons will not suffer disproportionate injuries as a result of projects designed for the benefit of the public as a whole.

While every effort has been made to assure the accuracy of this booklet, it should be understood that it does not have the force and effect of law, rule, or regulation governing the payment of benefits. Should any difference or error occur, the law will take precedence.

Relocation Services

The California Department of Transportation has two programs to aid businesses, farms and nonprofit organizations which must relocate.

These are:

1. The Relocation Advisory Assistance Program, which is to aid you in locating a suitable replacement property, and

2. The Relocation Payments Program, which is to reimburse you for certain costs involved in relocating. These payments are classified as:

   - Moving and Related Expenses (costs to move personal property not acquired).
   - Reestablishment Expenses (expenses related to the replacement property).
   - In-Lieu Payment (a fixed payment in lieu of moving and related expenses, and reestablishment expenses).

   Note: Payment for loss of goodwill is considered an acquisition cost. California law and the federal regulations mandate that relocation payments cannot duplicate other payments such as goodwill.

You will **not** be eligible to receive any relocation payments until the State has actually made the first written offer to purchase the property. You will also receive at least 90 days' written notice before you must move.

Some Important Definitions...

Your relocation benefits can be better understood if you become familiar with the following terms:

Business: Any lawful activity, with the exception of a farm operation, conducted primarily for the purchase, sale, lease and rental of personal or real property, or for the manufacture, processing, and/or marketing of products, commodities, or any other personal property, or for the sale of services to the public, or solely for the purpose of this Act, and outdoor advertising display or displays, when the display(s) must be moved as a result of the project.

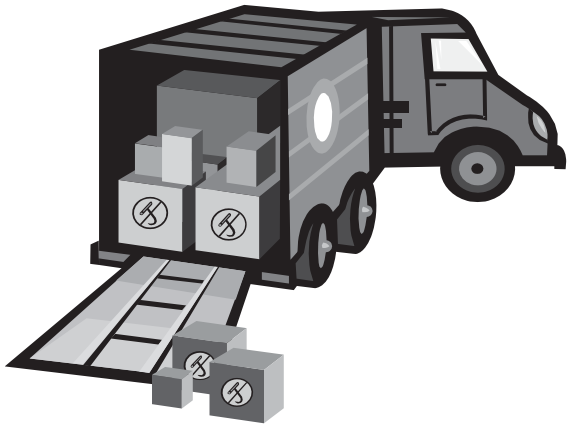
Small Business: A business having not more than 500 employees working at the site being acquired or displaced by a program or project.

Contributes Materially: A business or farm operation must have had average annual gross receipts of at least $5,000 or average annual net earnings of at least $1,000, in order to qualify as a bona-fide operation.

Farm Operation: Any activity conducted solely or primarily for the production of one or more agricultural products or commodities, including timber, for sale and home use, and customarily producing such products or commodities in sufficient quantity to be capable of contributing materially to the operator's support.

Nonprofit Organization: A public or private entity that has established its nonprofit status under applicable law.

MOVING EXPENSES



If you qualify as a displaced business, farm or nonprofit organization, you are entitled to reimbursement of your moving costs and certain related expenses incurred in moving. To qualify you must legally occupy the property as the owner or lessee/tenant when Caltrans initiates negotiations for the acquisition of the property **OR** at the time Caltrans acquires title or takes possession of the property. However, to assure your eligibility and prompt payment of moving expenses, you should contact your Relocation Agent before you move.

You Can Choose Either:

Actual Reasonable Moving Costs - You may be paid for your actual reasonable moving costs and related expenses when a commercial mover performs the move. Reimbursement will be limited to a move of 50 miles or less. Related expenses, with limitations, may include:

- Transportation.
- Packing and unpacking personal property.
- Disconnecting and reconnecting personal property related to the operation.
- Temporary storage of personal property.
- Insurance while property is in storage or transit, or the loss and damage of personal property if insurance is not reasonably available.
- Expenses in finding a replacement location ($2,500 limit).
- Professional services to plan and monitor the move of the personal property to the new location.
- Licenses, permits and fees required at the replacement location.

OR

Self-Move Agreement - You may be paid to

move your own personal property based on the lower of two acceptable bids obtained by Caltrans.

Under this option, you will still be eligible for reimbursement of related expenses listed above that were not included in the bids.

OR

In-Lieu Payment – A small business may be eligible to accept a fixed payment between $1,000 and $40,000, based on your annual earnings IN LIEU OF the moving cost and related expenses. Consult your Relocation Agent for more information about this option.

Actual Reasonable Moving Costs

You may be paid the actual reasonable and necessary costs of your move when a professional mover performs the move. All of your moving costs must be supported by paid receipts or other evidence of expenses incurred. In addition to the transportation costs of your personal property, certain other expenses may also be reimbursable, such as packing, crating, unpacking and uncrating, and the disconnecting, dismantling, removing, reassembling, and

reinstalling relocated machinery, equipment, and other personal property.

Other expenses such as professional services necessary for planning and carrying out the move, temporary storage costs, and the cost of licenses, permits and certifications may also be reimbursable. This is not intended to be an all-inclusive list of moving related expenses. Your Relocation Agent can provide you with a complete explanation of reimbursable expenses.

Self-Move Agreement

If you agree to take full responsibility for all or part of the move of your business, farm, or nonprofit organization, the Department may approve a payment not to exceed the lower of two acceptable bids obtained by the Department from qualified moving firms or a qualified Department staff employee. A low-cost or uncomplicated move may be based on a single bid or estimate at the Department's discretion. The advantage of this moving option is the fact that it relieves the displaced business, farm, or nonprofit organization operator from documenting all moving expenses. The Department may make the payment without additional documentation as long as the payment is limited to the amount of

the lowest acceptable bid or estimate. Other expenses, such as professional services for planning, storage costs, and the cost of licenses, permits, and certifications may also be reimbursable if determined to be necessary. These latter expenses must be pre approved by the Relocation Agent.

Requirements:

Before you move, you must provide Caltrans with the:

- Certified inventory of all personal property to be moved.
- Date you intend to vacate the property.
- Address of the replacement property.
- Opportunity to monitor and inspect the move from the acquired property to the replacement property.

Related Expenses

1. Searching Expenses for Replacement Property: Displaced businesses, farms, and nonprofit organizations are entitled to reimbursement for actual reasonable expenses incurred in searching for a replacement property, not to exceed $2,500. Expenses may include transportation, meals, and lodging when away from home; the reasonable value of the time spent during the search; fees paid to the real estate agents, brokers or consultants; and other expenses determined to be reasonable and necessary by the Department.

2. Direct Loss of Tangible Personal Property:
Displaced businesses, farms, and nonprofit organizations may be eligible for a payment for the actual direct loss of tangible personal property which is incurred as a result of the move or discontinuance of the operation. This payment will be based upon the lesser of:

a) The fair market value of the item for continued use at the displacement site minus the proceeds from its sale.

OR

b) The estimated cost of moving and reinstalling the replaced item, based on the lowest acceptable bid or estimate obtained by the Department for eligible moving and related expenses, including dismantling and reassembly, but with no allowance for storage, cost of code requirement betterments or upgrades at the replacement site.

EXAMPLE:
You determine that the "document shredder" cannot be moved to the new location because of its condition, and you will not replace it at the new location.

Fair Market Value of the Document Shredder based on its use at the current location	$ 1,500
Proceeds: Price received from selling the Document Shredder	- $ 500
Net Value	$ 1,000

OR

Estimated cost to move	$ 1,050

Based on the "lessor of", the amount of the "Loss of Tangible Personal Property" = **$ 1,000**

Note: You are also entitled to all reasonable costs incurred in attempting to sell the document shredder (e.g. advertisement).

3. Purchase of Substitute Personal Property:
If an item of personal property, which is used as part of the business, farm, or nonprofit organization, is not moved but is promptly replaced with a substitute item that performs a

comparable function at the replacement site, the displacee is entitled to payment of the lesser of:

a) The cost of the substitute item, including installation costs at the replacement site, minus any proceeds from the sale or trade-in of the replaced item;

OR

b) The estimated cost of moving and reinstalling the replaced item, based on the lowest acceptable bid or estimate obtained by the Department for eligible moving and related expenses, including dismantling and reassembly, but with no allowance for storage, cost of code requirement betterments or upgrades at the replacement site.

EXAMPLE A:

You determine that the copying machine cannot be moved to the new location because it is now obsolete and you will replace it.

Cost of a substitute *Copying Machine* including installation costs at the replacement site.		$ 3,000
Trade-in Allowance	-	$ 2,500
Net Value		$ 500

OR

Estimated cost to move		$ 550

Based on the "lesser of", the amount of the "Substitute Personal Property" =		**$ 500**

EXAMPLE B:

You determine that the chairs will not be used at the new location because they no longer match the décor and you will replace them.

Cost of substitute chairs		$ 1,000
Proceeds: From selling the Chairs	-	$ 100
Net Value		$ 900

OR

Estimated cost to move	$	200
Based on the "lesser of", the amount of the "Substitute Personal Property" =	**$**	**200**

Note: You are also entitled to all reasonable costs incurred in attempting to sell the document shredder (e.g. advertisement).

4. Disconnecting and Reinstallation: You will be reimbursed for your actual and reasonable costs to disconnect, dismantle, remove, reassemble and reinstall any machinery, equipment or other personal property in relation to its move to the new location. This includes connection to utilities available nearby and any modifications to the personalty that is necessary to adapt it to utilities at the replacement site.

5. Physical changes at the new location: You may be reimbursed for certain physical changes to the replacement property if the changes are necessary to permit the reinstallation of machinery or equipment necessary for the continued operation of the business. ***Note:*** *The changes cannot increase the value of the building*

for general purposes, nor can they increase the mechanical capability of the buildings beyond its normal requirements.

6. The cost of installing utilities from the right of way line to the structure(s) or improvements on the replacement site.

7. Marketing studies, feasibility surveys and soil testing.

8. One-time assessments or impact fees for anticipated heavy utility usage.

Reestablishment Expenses

A small business, farm or nonprofit organization may be eligible for a payment, not to exceed $25,000, for expenses actually incurred in relocating and reestablishing the enterprise at a replacement site.

Reestablishment expenses may include, but are not limited to, the following:

1. Repairs or improvements to the replacement real property required by Federal, State or local laws, codes or ordinances.

2. Modifications to the replacement of real property to make the structure(s) suitable for the business operation.

3. Construction and installation of exterior signing to advertise the business.

4. Redecoration or replacement such as painting, wallpapering, paneling or carpeting when required by the condition of the replacement site or for aesthetic purposes.

5. Advertising the new business location.

6. The estimated increased costs of operation at the replacement site during the first two years, for items such as:

   a) Lease or rental charges
   b) Personal or real property taxes
   c) Insurance premiums, and
   d) Utility charges (excluding impact fees).

7. Other items that the Department considers essential for the reestablishment of the business or farm.

In-Lieu Payment (Fixed)

Displaced businesses, farms, and nonprofit organizations may be eligible for a fixed payment in lieu of (in place of) actual moving expenses, personal property losses, searching expense, and reestablishment expenses. The fixed payment may not be less than $1,000 or more than $40,000.

For a business to be eligible for a fixed payment, the Department must determine the following:

1. The business owns or rents personal property that must be moved due to the displacement.

2. The business cannot be relocated without a substantial loss of existing patronage.

3. The business is not part of a commercial enterprise having more than three other businesses engaged in the same or similar activity, which are under the same ownership and are not being displaced by the department.

4. The business contributed materially to the income of the displaced business operator during the two taxable years prior to displacement.

Any business operation that is engaged solely in the rental of space to others is not eligible for a fixed payment. This includes the rental of space for residential or business purposes.

Eligibility requirements for farms and nonprofit organizations are slightly different than business requirements. If you are being displaced from a farm or you represent a nonprofit organization and are interested in a fixed payment, please consult your relocation counselor for additional information.

Note: A nonprofit organization must substantiate that it cannot be relocated without a substantial loss of existing patronage (membership or clientele). The payment is based on the average of two years annual gross revenues less administrative expenses.

The Computation of Your In-Lieu Payment:

The fixed payment for a displaced business or farm is based upon the average annual net earnings of the operation for the two taxable

years immediately preceding the taxable year in which it was displaced. Caltrans can use a different two year period if it is determined that the last two taxable years do not accurately reflect the earnings of the operation.

EXAMPLE: Caltrans acquires your property and you move in 2013:

2011 Annual Net Earnings	$ 10,500
2012 Annual Net Earnings	$ 12,500
TOTAL	$ 23,000
Average over two years	**$ 11,500**

This would be the amount of your in-lieu payment. Remember - this is in-lieu of all other moving benefits. You must provide the Department with proof of net earnings to support your claim.

Proof of net earnings can be documented by income tax returns, certified financial statements, or other reasonable evidence of net earnings acceptable to the Department.

Note: The computation for nonprofit organizations differs in that the payment is computed on the basis of average annual gross revenues less administrative expenses for the two-year period specified above.

Before You Move:

A. Complete a "Request for Determination of Entitlement" form available from your Relocation Agent, and return it promptly.

B. Include a written statement of the reasons the business cannot be relocated without a substantial loss in net earnings.

C. Provide certified copies of tax returns for the two tax years immediately preceding the tax year in which you move. (If you move anytime in the year 2013, regardless of when negotiations began or the State took title to the property, the taxable years would be 2011 and 2012).

D. You will be notified of the amount you are entitled to after the application is received and approved.

E. You cannot receive the payment until after you vacate the property, AND submit a claim for the payment within 18 months of the date of your move.

Relocation Advisory Assistance

Any business, farm or non-profit organization, displaced by Caltrans shall be offered relocation advisory assistance for the purpose of locating a replacement property. Relocation services are provided by qualified personnel employed by Caltrans. It is their goal and desire to be of service to you and assist in any way possible to help you successfully relocate.

A Relocation Agent from Caltrans will contact you personally. Relocation services and payments will be explained to you in accordance with your eligibility. During the initial interview with you, your needs and desires will be determined as well as your need for assistance.

You can expect to receive the following services, advice and assistance from your Relocation Agent who will:

- Determine your needs and preferences.
- Explain the relocation benefits and eligibility.
- Provide information on replacement properties for your consideration.
- Provide information on counseling you can obtain to help minimize hardships in adjusting to your new location.
- Assist you in completing loan documents, rental applications or Relocation Claims Forms.

AND provide information on:

- Security deposits.
- Interest rates and terms.
- Typical down payments.
- Permits, fees and local planning ordinances.
- SBA loan requirements.
- Real property taxes.
- Consumer education literature.

If you desire, your Relocation Agent will give you current listings of other available replacement property. Transportation will be provided to inspect available property, especially if you are elderly or handicapped. Though you may use the services of a real estate broker, Caltrans cannot provide a referral.

Your Relocation Agent is familiar with the services provided by others in your community and will provide information on other federal, state, and local programs offering assistance to displaced persons. If you have special needs, your Relocation Agent will make every effort to secure the services of those agencies with trained personnel who have the expertise to help you.

If the highway project will require a considerable number of people to be relocated, Caltrans will establish a temporary Relocation Field Office on or near the project. Project relocation offices will be open during convenient hours and evening hours if necessary.

In addition to these services, Caltrans is required to coordinate its relocation activities with other agencies causing displacements to ensure that all persons displaced receive fair and consistent relocation benefits.

Remember - YOUR RELOCATION AGENT is there to offer advice and assistance. Do not hesitate to ask questions. And be sure you fully understand all of your rights and available benefits.

YOUR RIGHTS AS A DISPLACEE

It is important to remember that your relocation benefits will not have an adverse effect on your:

- Social Security Eligibility
- Welfare Eligibility
- Income Taxes

In addition, the Title VIII of the Civil Rights Act of 1968 and later acts and amendments make discriminatory practices in the purchase and rental of most residential units illegal if based on race, color, religion, sex, or national origin.

Caltrans' Non-Discrimination Policy ensures that all services and/or benefits will be administered to the general public without regard to race, color, national origin, or sex in compliance with Title VI of the 1964 Civil Rights Act (42 USC 2000d. et seq.).

And you always have the Right to Appeal any decision by Caltrans regarding your relocation benefits and eligibility.

Your Right of Appeal is guaranteed in the "Uniform Act" which states that any person may file an appeal with the head of the responsible

agency if that person believes that the agency has failed to properly determine the person's eligibility or the amount of a payment authorized by the Act.

If you indicate your dissatisfaction, either verbally or in writing, Caltrans will assist you in filing an appeal and explain the procedures to be followed. You will be given a prompt and full opportunity to be heard. You have the right to be represented by legal counsel or other representative in connection with the appeal (but solely at your own expense).

Caltrans will consider all pertinent justifications and materials submitted by you and other available information needed to ensure a fair review. Caltrans will provide you with a written determination resulting from the appeal with an explanation of the basis for the decision. If you are still dissatisfied with the relief granted, Caltrans will advise you that you may seek judicial review.

Americans with Disabilities Act (ADA) Notice:

This document is available in alternative formats for people with physical disabilities. Please call (916) 654-5413, or write to 'Department of Transportation - Right of Way, MS-37, 1120 N Street, Sacramento, CA 95814,' for information.

NOTES:

Appendix D Title VI Policy Statement

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY EDMUND G. BROWN Jr., Governor

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE DIRECTOR
P.O. BOX 942873, MS-49
SACRAMENTO, CA 94273-0001
PHONE (916) 654-5266
FAX (916) 654-6608
TTY 711
www.dot.ca.gov

Flex your power!
Be energy efficient!

March 2013

NON-DISCRIMINATION
POLICY STATEMENT

The California Department of Transportation, under Title VI of the Civil Rights Act of 1964 and related statutes, ensures that no person in the State of California shall, on the grounds of race, color, national origin, sex, disability, religion, sexual orientation, or age, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity it administers.

For information or guidance on how to file a complaint based on the grounds of race, color, national origin, sex, disability, religion, sexual orientation, or age, please visit the following web page: http://www.dot.ca.gov/hq/bep/title_vi/t6_violated.htm.

Additionally, if you need this information in an alternate format, such as in Braille or in a language other than English, please contact the California Department of Transportation, Office of Business and Economic Opportunity, 1823 14th Street, MS-79, Sacramento, CA 95811. Telephone: (916) 324-0449, TTY: 711, or via Fax: (916) 324-1949.

MALCOLM DOUGHERTY
Director

"Caltrans improves mobility across California"

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Appendix E Noise Receptors and Barriers

The attached plans show the proposed project limits and the locations of the noise receptors and existing and modeled noise barriers analyzed in Section 2.2.7.

For reference, Table 2.2.7-2: Modeled Noise Level has been reproduced here.

Receptor ID	Location	Loudest-Hour Noise Levels, Leq[h] dBA				Noise Increase Over Existing			Activity Category (NAC)	Impact[1] (All Alt)
		2015 Ex.	2042 No Build	2042 Alt 3	2042 Alt 8B	2042 No Build	2042 Alt 3	2042 Alt 8B		
ST-1	East of Marina Townhomes	67	67	67	67	0	0	0	Calibr-ation Point	None
R-13	Marina Townhomes, Front Porch (632 True Wind Way)	67	67	67	67	0	0	0	B(67)	A/E
R-13a	Marina Townhomes, Front Porch (630 Bair Island Road)	64	59	59	59	-5[4]	-5[4]	-5[4]	B(67)	None
R-13b	Marina Townhomes (One Marina Building 2)	66	65	65	65	-1[4]	-1[4]	-1[4]	B(67)	None
R-13c	Marina Townhomes, Grassy Area (636 Fan Trail Way)	68	68	68	68	0	0	0	B(67)	A/E
R-13d	Marina Townhomes, Grassy Area (636 Fan Trail Way)	66	66	66	66	0	0	0	B(67)	A/E
ST-2	Docktown Marina	72	72	72	72	0	0	0	Calibr-ation Point	None
R-14	Houseboat at Docktown Marina	67	67	67	67	0	0	0	B(67)	A/E
R-14a	Houseboat at Docktown Marina	64	64	64	64	0	0	0	B(67)	None
R-14b	Houseboat at Docktown Marina	59	59	59	59	0	0	0	B(67)	None
R-15	Pool at One Marina Hotel (One Marina Way)	67	53	53	53	-13[4]	-13[4]	-13[4]	E(72)	None
R-1	Women's Correctional Center (1590 Maple Street)	56	56	56	56	0	0	0	C(67)	None
R-2	Correctional Center Land	73	73	73	73	0	0	0	C(67)	None[2]
ST-3	Grassy Area Along Oddstad Drive	74	74	74	74	0	0	0	E(72)	None[3]
R-3	Harbor View Place	70	70	70	70	0	0	0	E(72)	None
LT-4	Harbor View Place	69	69	70	70	0	1	1	E(72)	None
R-4	Harbor View Place	64	64	65	65	0	1	1	E(72)	None
ST-4	Harbor View Place	63	63	63	63	0	0	0	E(72)	None
ST-5	Seaport Blvd & Stein Am Rhein Ct	62	62	64	64	0	2	2	F	None
R-5	Bay Trail	69	72	70	70	3	1	1	C(67)	A/E
R-6	Upper-level patios at Casa de Redwood senior apartments, 1280 Veterans Blvd	65	67	67	67	2	2	2	B(67)	A/E
R-7	Pool Area for Marymount Manor (1321 Marshall St)	50	51	51	51	1	1	1	B(67)	None
ST-6	County of San Mateo Parking Lot (Veterans Blvd)	65	66	65	65	1	0	0	F	None

Receptor ID	Location	Loudest-Hour Noise Levels, Leq[h] dBA				Noise Increase Over Existing			Activity Category (NAC)	Impact[1] (All Alt)
		2015 Ex.	2042 No Build	2042 Alt 3	2042 Alt 8B	2042 No Build	2042 Alt 3	2042 Alt 8B		
LT-1	Hoover City Park (2100 Spring St) Parking Lot	69	70	72	72	1	3	3	F	None
R-8	Hoover City Park Basketball Court	59	59	60	60	0	1	1	C(67)	None
R-9	Hoover City Park Ball Field	54	55	55	55	1	1	1	C(67)	None
LT-2	Near Summit Preparatory Charter High School (890 Broadway)	65	65	65	65	0	0	0	F	None
R-10	Summit Preparatory Charter High School benches (890 Broadway)	61	61	62	62	0	1	1	C(67)	None
LT-3	Douglas Ct & E. Bayshore Rd	69	70	70	70	1	1	1	F	None
R-11	Backyard at R. C. Mobile Park (1903 E Bayshore Rd)	69	70	70	70	1	1	1	B(67)	A/E
ST-7	Redwood Mobile Estates (2053 E Bayshore Rd), #16	57	57	57	57	0	0	0	B(67)	None
ST-8	Stanford Health Care (450 Broadway)	69	69	69	69	0	0	0	C(67)	A/E
R-12	Redwood Mobile Estates (2053 E Bayshore Rd)	69	70	70	70	1	1	1	B(67)	A/E
ST-9	Redwood Mobile Estates (2053 E Bayshore Rd), #55	57	58	58	58	1	1	1	B(67)	None
R-16	Harbor Village Mobile Home Park (408 Rose Ave)[5]	70	70	70	70	0	0	0	B(67)	A/E
R-17	Avenue 2 Apartments pool (1107 Second Ave)	64	64	64	64	0	0	0	B(67)	None
R-18	Avenue 2 Apartments upper-level patios (1107 Second Ave)	70	70	70	70	0	0	0	B(67)	A/E
R-19	Backyard of 3001 Hoover St	67	67	67	67	0	0	0	B(67)	A/E
R-20	Backyard of 3017 Hoover St	63	63	63	63	0	0	0	B(67)	None
R-21	Front yard of 3000 Hoover St	62	62	62	62	0	0	0	B(67)	None
R-22	Front yard of 3008 Hoover St	59	59	59	59	0	0	0	B(67)	None

[1] Impact Type: A/E = Approach or Exceed the NAC.
[2] This receptor is located on institutional land that is under construction with a correctional facility. The receptor is modeled without taking into account any potential shielding from project structures or buildings. At this time, it is not known if any outdoor areas of frequent human use that would benefit from a lowered noise level will be constructed with the project. Due to the land use, it is likely that any outdoor use areas would be well shielded from highway traffic noise by the correctional facility structures.
[3] There are no benches or other such landscaping to indicate that this is a location of frequent human use that would benefit from a lowered noise level.
[4] The future noise reduction indicated at these receptors is due to the construction of One Marina Hotel and not to project improvements.
[5] The address of Harbor Village Mobile Home Park is 3015 East Bayshore Road, but the address of receptor was recorded in the field as 408 Rose Avenue, which is just south of 2575 East Bayshore Road.

Figure C-1. Noise Measurement, Receiver, and Barrier Locations
US 101/SR 84 (Woodside Road) Project, Alternatives 3 and 8B

0 40 80 160 240 320
Feet

Legend

- Receivers
- Proposed Barriers
- Existing Barriers
- Proposed Alignment

N

Figure C-2a. Noise Measurement, Receiver, and Barrier Locations
US 101/SR84 (Woodside Road) Project, Alternative 3

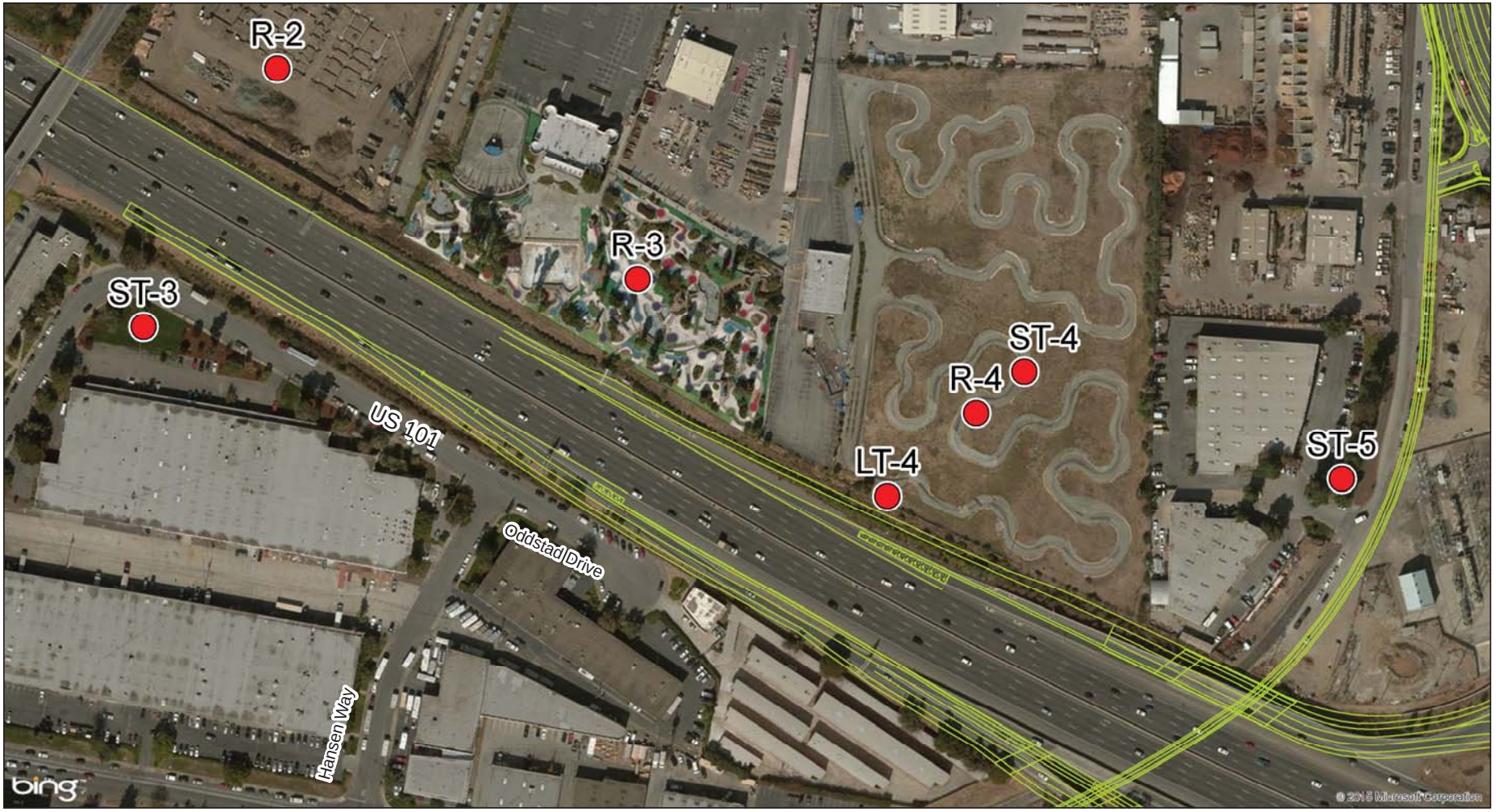

Figure C-2b. Noise Measurement, Receiver, and Barrier Locations
US 101/SR84 (Woodside Road) Project, Alternative 8B

0 40 80 160 240 320 Feet

Legend

- Receivers
- Proposed Barriers
- Existing Barriers
- Proposed Alignment

N

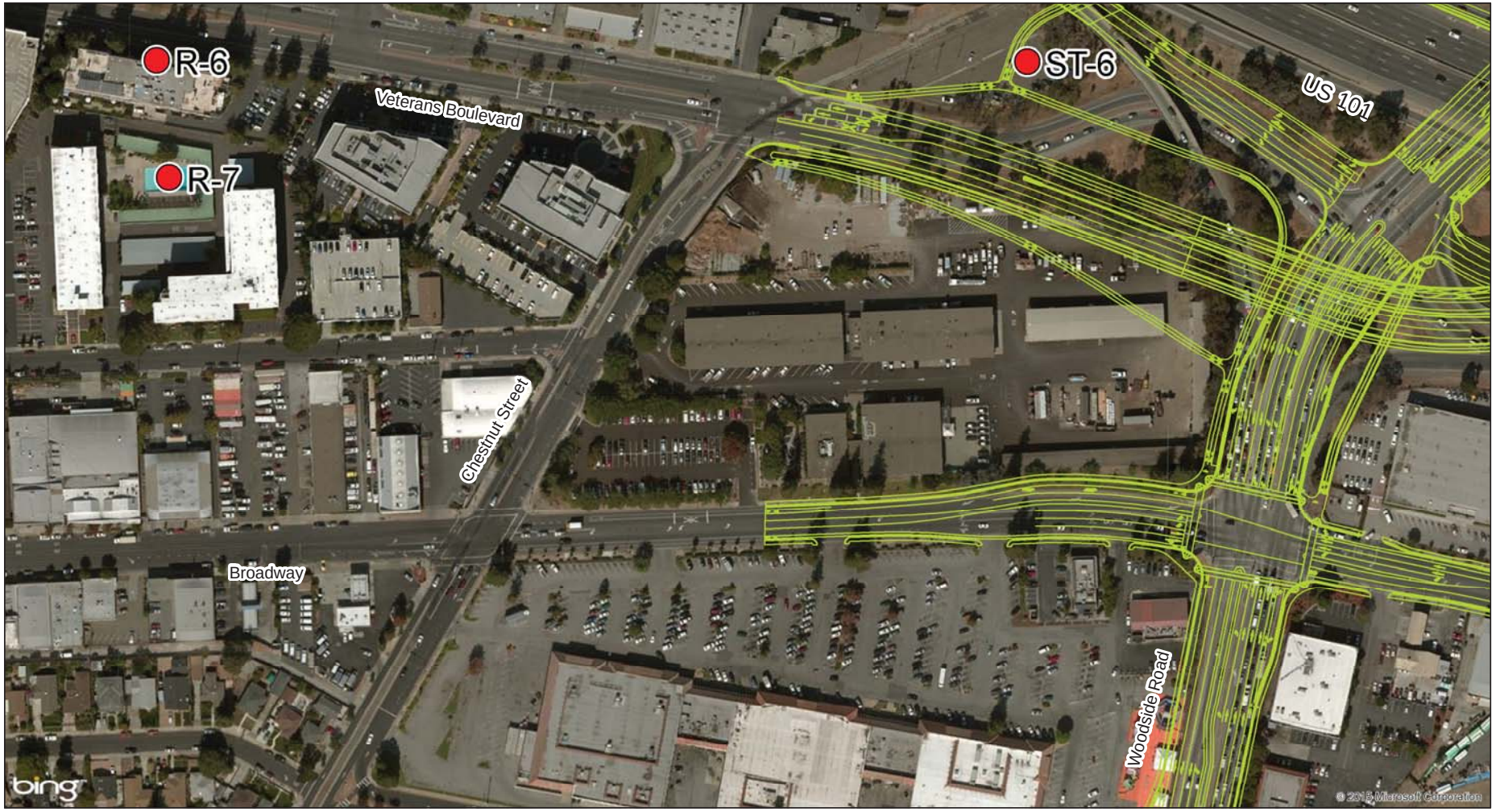

Figure C-3a. Noise Measurement, Receiver, and Barrier Locations
US 101/SR84 (Woodside Road) Project, Alternative 3

0 40 80 160 240 320
Feet

Legend

- Receivers
- Proposed Barriers
- Existing Barriers
- Proposed Alignment

N

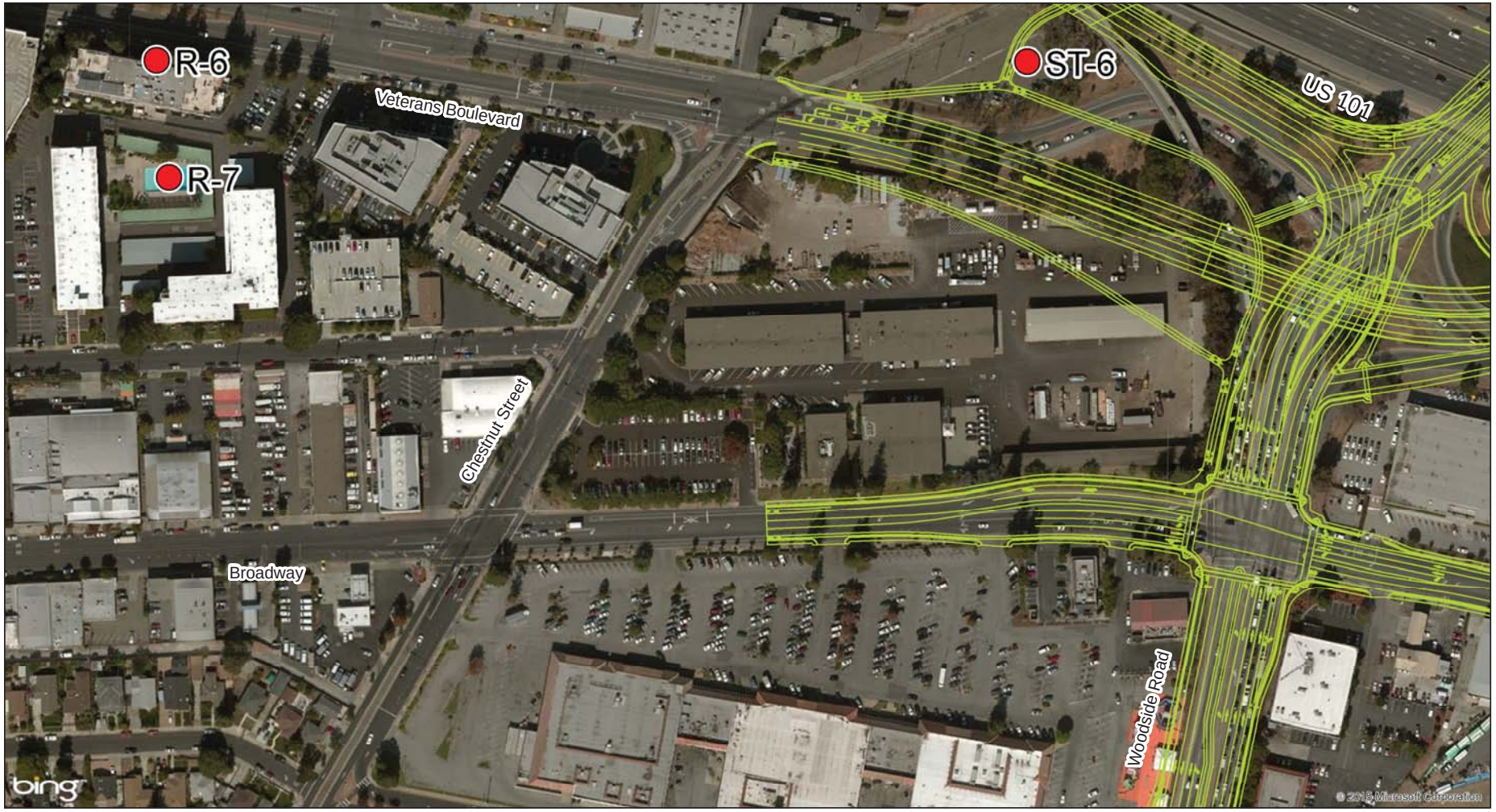

Figure C-3b. Noise Measurement, Receiver, and Barrier Locations
US 101/SR84 (Woodside Road) Project, Alternative 8B

0 40 80 160 240 320
Feet

Legend

- Receivers
- Proposed Barriers
- Existing Barriers
- Proposed Alignment

N

Figure C-4. Noise Measurement, Receiver, and Barrier Locations
US 101/SR 84 (Woodside Road) Project, Alternatives 3 and 8B

0 40 80 160 240 320
Feet

Legend

- Receivers
- Proposed Barriers
- Existing Barriers
- Proposed Alignment

N

Figure C-5a. Noise Measurement, Receiver, and Barrier Locations
US 101/SR 84 (Woodside Road) Project, Alternative 3

0 40 80 160 240 320 Feet

Legend

- Receivers
- Proposed Barriers
- Existing Barriers
- Proposed Alignment

N

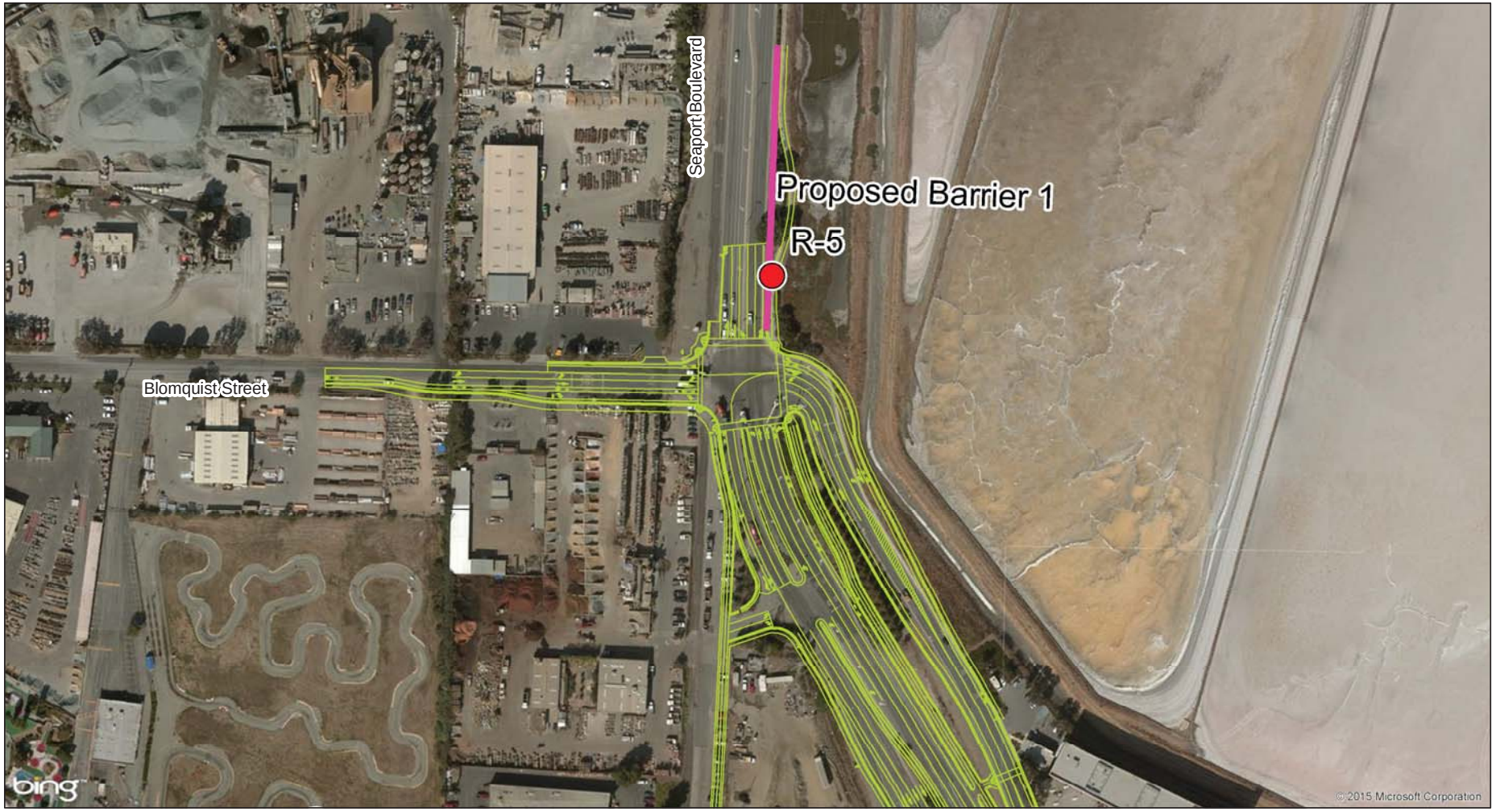

Figure C-5b. Noise Measurement, Receiver, and Barrier Locations
US 101/SR 84 (Woodside Road) Project, Alternative 8B

0 40 80 160 240 320
Feet

Legend

- Receivers
- Proposed Barriers
- Existing Barriers
- Proposed Alignment

N

Figure C-6a. Noise Measurement, Receiver, and Barrier Locations
US 101/SR 84 (Woodside Road) Project, Alternative 3

Figure C-6b. Noise Measurement, Receiver, and Barrier Locations
US 101/SR 84 (Woodside Road) Project, Alternative 8B

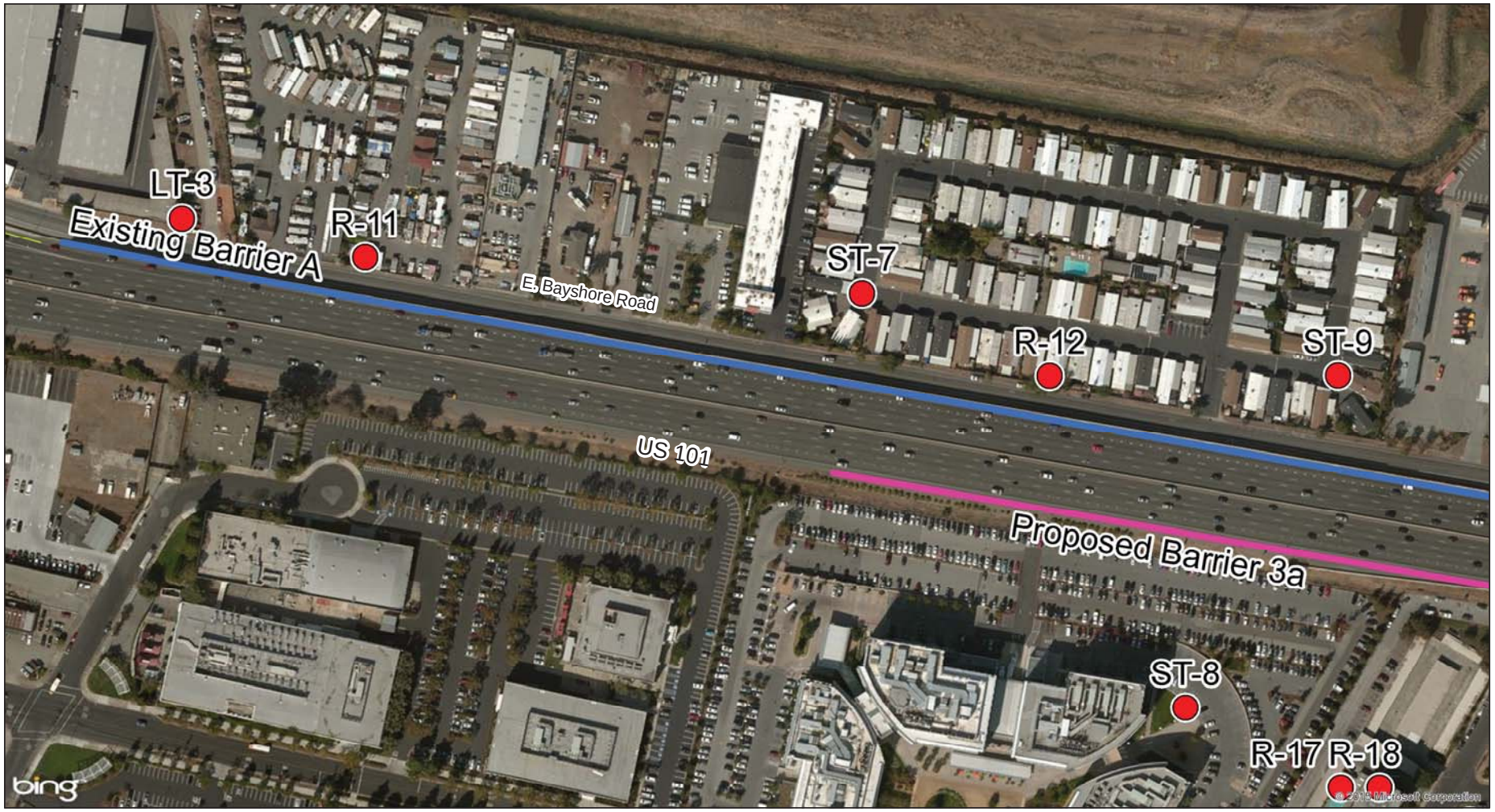

Figure C-7a. Noise Measurement, Receiver, and Barrier Locations
US 101/SR 84 (Woodside Road) Project, Alternatives 3 and 8B
Proposed Barrier 3A

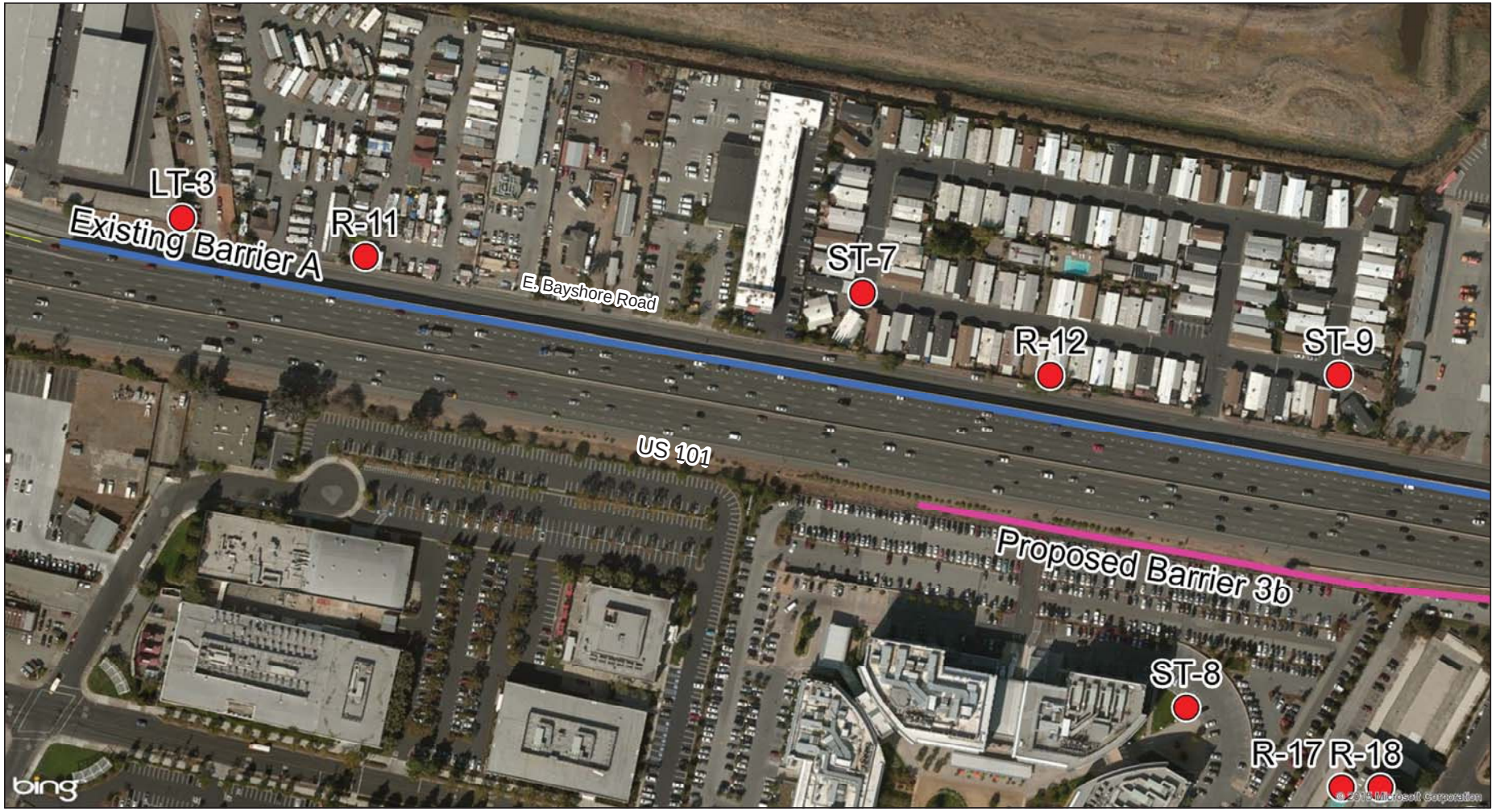

Figure C-7b. Noise Measurement, Receiver, and Barrier Locations
US 101/SR 84 (Woodside Road) Project, Alternatives 3 and 8B
Proposed Barrier 3B

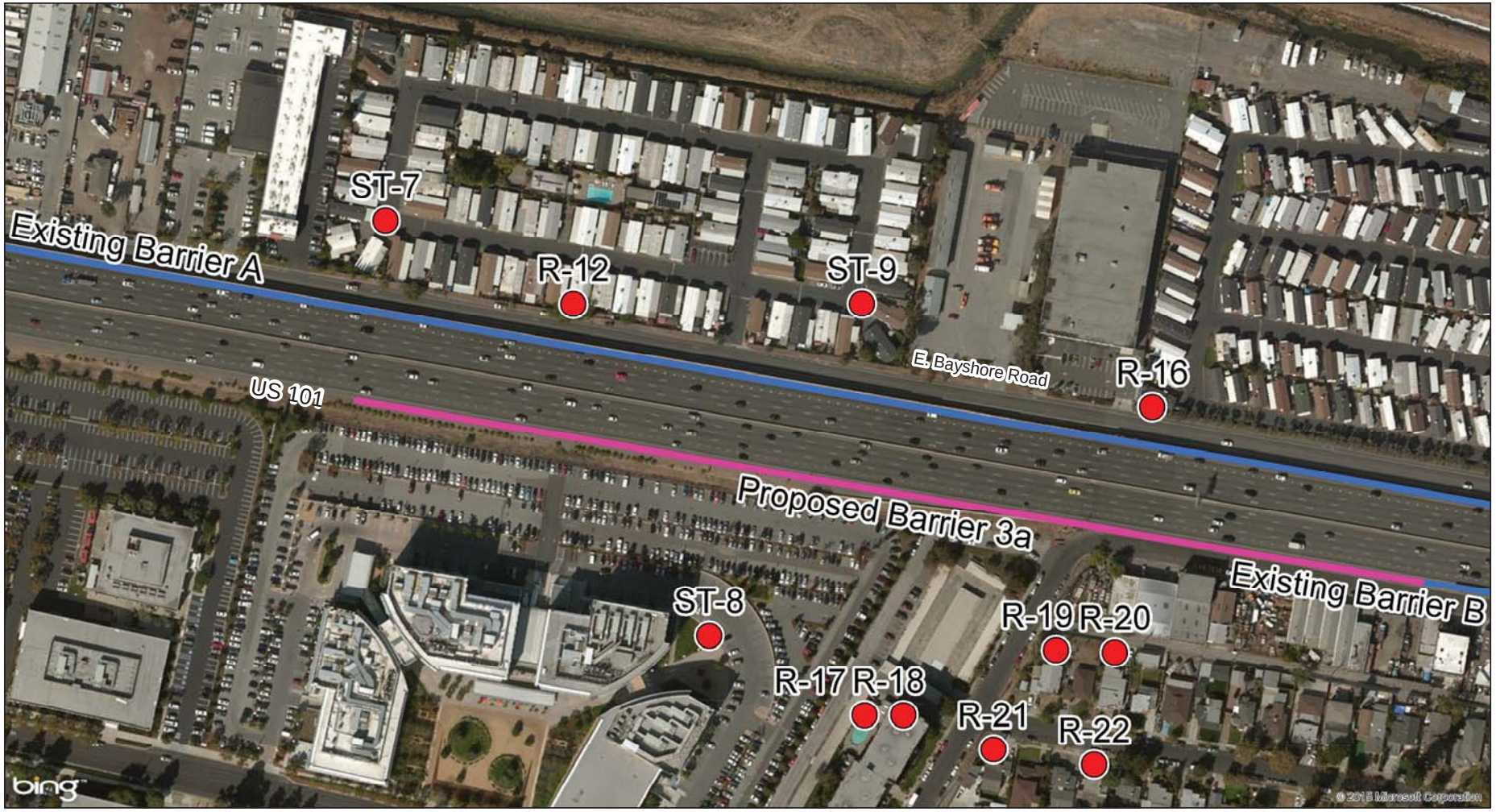

Figure C-8a. Noise Measurement, Receiver, and Barrier Locations
US 101/SR 84 (Woodside Road) Project, Alternatives 3 and 8B
Proposed Barrier 3A

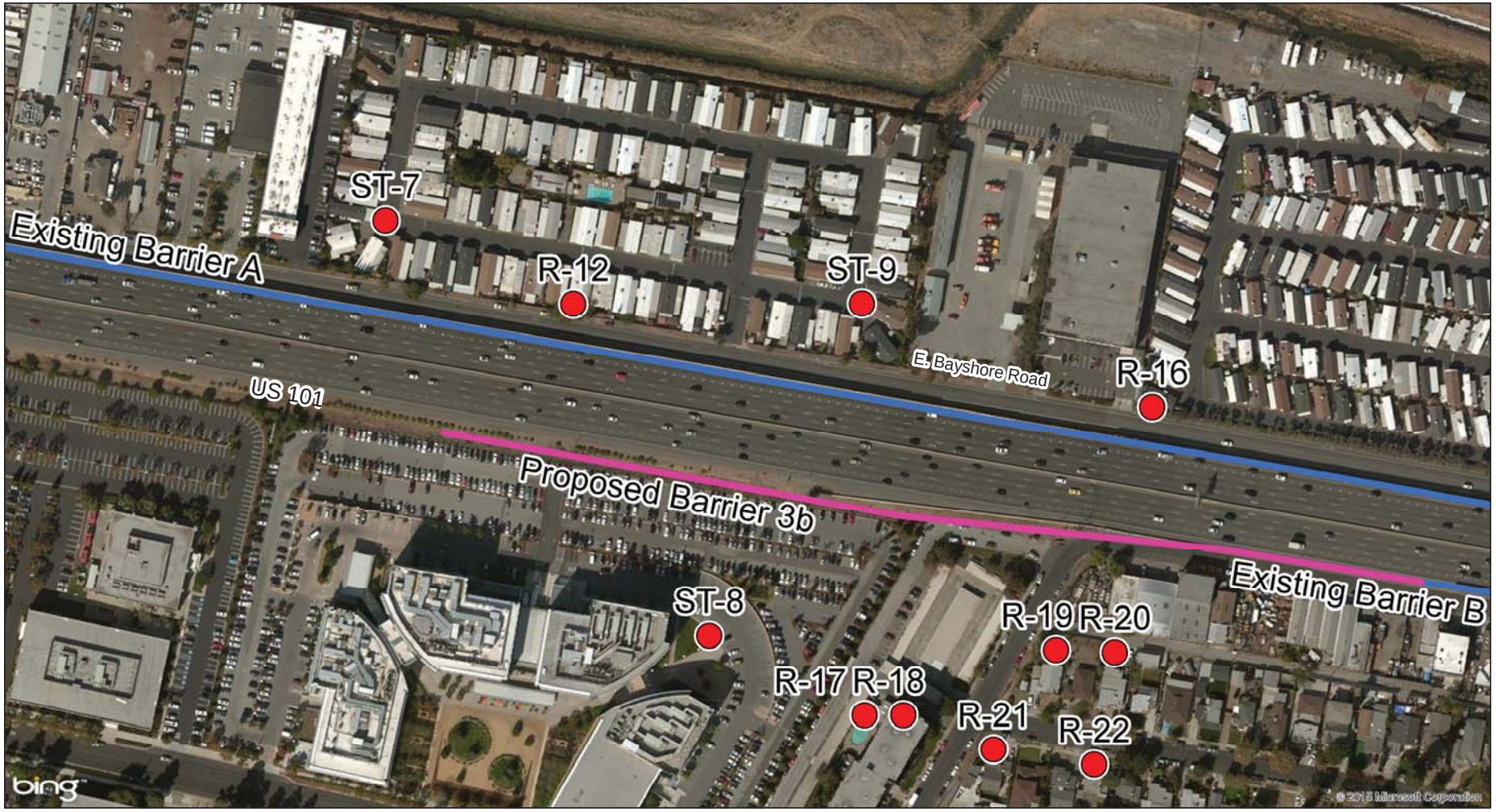

Figure C-8b. Noise Measurement, Receiver, and Barrier Locations
US 101/SR 84 (Woodside Road) Project, Alternatives 3 and 8B
Proposed Barrier 3B

0 40 80 160 240 320 Feet

Legend

- Receivers
- Proposed Barriers
- Existing Barriers
- Proposed Alignment

N

Appendix F Consultation and Coordination

This appendix includes the following consultation and correspondence regarding the proposed project.

- $PM_{2.5}$ Interagency Consultation Summary and MTC Air Quality Conformity Task Force determination that the project is not a Project of Air Quality Concern.
- USFWS species list.
- The Department's Section 106 SHPO Concurrence, dated October 8, 2015.

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$PM_{2.5}$ Interagency Consultation Summary and MTC Air Quality Conformity Task Force Determination

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Summary of Project Assessment for $PM_{2.5}$ Interagency Consultation for US 101/Woodside Road Interchange Improvement Project

The proposed project is located in the San Francisco Bay Area Air Basin, which does not attain National Ambient Air Quality Standards (NAAQS) for particulate matter 2.5 micrometers in diameter or less (PM2.5). Therefore, the proposed project and other federally funded projects are required to undergo a screening process set forth by United States Environmental Protection Agency (USEPA) Final Conformity Rule EPA-420-F-10-011 (71 Federal Register 12468). This process was established to protect public health with a margin of safety. The process involves interagency consultation, facilitated through the Metropolitan Transportation Commission's (MTC's) Air Quality Conformity Task Force, regarding whether a project meets specific criteria defined in Title 40 CFR Part 93 for Projects of Air Quality Concern.

On July 23, 2015, the Air Quality Conformity Task Force determined that the proposed project is not a project of Air Quality Concern (POAQC) as defined by 40 CFR 93.123(b)(1). Therefore, a project-level PM2.5 hot-spot analysis is not required for the project.

The proposed project is not a Project of Air Quality Concern (POAQC) based on the following:

- The Build Alternatives would not change truck travel demands compared to the No Build Alternative.
- Most trucks in the project area would be small, non-diesel trucks.
- Most intersection levels of service around the interchange would improve with the Build Alternatives compared to the No Build Alternative.
- No violations of the federal annual standard for PM2.5 have been recorded in the last 5 years.

Meeting notes from the July 23, 2015 Air Quality Conformity Task Force meeting follow.

Air Quality Conformity Task Force
Summary Meeting Notes
July 23, 2015

Participants:
Andrea Gordon – BAAQMD
Amir Fanai – BAAQMD
Kevin Nguyendo – Caltrans
Rodney Tavitas – Caltrans
Lynn McIntyre – AECOM
Paul Krupka – Redwood City
Ginger Vagenas – EPA
Stew Sonnenberg – FHWA
Joseph Vaughn – FHWA
Ted Mately – FTA
Dick Fahey – Caltrans
Adam Crenshaw – MTC
Harold Brazil – MTC

1. **Welcome and Self Introductions**: Harold Brazil (MTC) called the meeting to order at 9:35 am.

2. $PM_{2.5}$ Project Conformity Interagency Consultations

a. Consultation to Determine Project of Air Quality Concern Status

i. US 101/SR 84 (Woodside Road) Interchange Improvement Project

Ms. Lynn McIntyre (AECOM) began her description of the US 101/SR 84 (Woodside Road) Interchange Improvement project by stating that the project would:

- Reconfigure an existing interchange (with no change to US 101 mainline)
- Widen a 0.4-mile segment of SR 84 (Woodside Road) from 5 to 6 lanes
- Construct new flyover ramps between US 101 and Veterans Boulevard
- Improve the intersections of Woodside Road with Veterans Boulevard, Broadway, and Bay Road to the west of US 101, and Seaport Boulevard/East Bayshore Road/Blomquist Road to the east of US 101
- Construct additional pedestrian and bicycle facilities throughout the project area

Ms. McIntyre also indicated that the purpose of the US 101/SR 84 Interchange project is to improve:

- Peak-hour congestion at the US 101/Woodside Road interchange
- Traffic operations at nearby intersections along Woodside Road
- Bicycle and pedestrian access near the interchange

The consultant team's scoping meeting presentation was compiled into a video (no audio), which may be viewed at: https://www.youtube.com/watch?v=c2Q9ieK07bE&feature=youtu.be

Ms. McIntyre mentioned that the project area is less than a mile from a Bay Area Air Quality Management District (BAAQMD) monitor, Alternative 3A has been removed from the project analysis and that Redwood City is preparing a NEPA document for the project and will be available for public review later this year.

Ms. McIntyre concluded her presentation by stating that intersection at LOS D, E or F improve in the build alternative and that the project would not change truck travel demands or truck AADT percentages (compared to the No Build scenario).

Andrea Gordon (BAAQMD) asked Ms. McIntyre for clarification on what a "diverging diamond" interchange was and Ms. McIntyre stated that it was an interchange that has the two directions of traffic on the non-freeway road cross to the opposite side on both sides of the bridge at the freeway. Video for the diverging diamond interchange can be found at: https://www.youtube.com/v/WF9Cx0pMsbI%26autoplay=1

Ginger Vagenas (EPA) asked about the truck type by axle tables in the assessment form, specifically the difference between less than 5 axles and 5 or more axles. Ms. McIntyre indicated she would follow up on this clarification after the meeting. Ms. Vagenas went on to say that she did not feel the project was of air quality concern because truck traffic did not increase between the build and no-build scenarios (regardless of the truck axle number definition information).

Amir Fanai (BAAQMD) mentioned that the truck AADT percentages on US 101 and SR 84 could be misleading (the higher truck percentages being on SR 84 and the lower truck percentages being on US 101 when the values should be the other way around). Ms. McIntyre stated that she would follow up with clarifying information after the meeting.

Ms. Vagenas also commented that if build scenarios cause increases in truck traffic (which is not the case with the US 101/SR 84 (Woodside Road) Interchange Improvement project), the Task Force will need 2-axle truck, gas versus diesel, fuel composition information.

> ***Final Determination:*** With input from FTA, EPA and Caltrans, the Task Force concluded that the US 101/SR 84 (Woodside Road) Interchange Improvement project was not of air quality concern.

b. Confirm Projects Are Exempt from $PM_{2.5}$ Conformity

Harold Brazil (MTC) heard no comments from the Task Force on the **2b_Exempt List 71015.pdf** list of projects.

Final Determination: With input from FHWA, FTA, EPA, Caltrans and MTC, the Task Force agreed that the project on the exempt list (**2b_Exempt List 71015.pdf**) is exempt from $PM_{2.5}$ project level analysis.

3. Projects with Regional Air Quality Conformity Concerns

a. Review of the Regional Conformity Status for New and Revised Projects

Adam Crenshaw (MTC) discussed information to assist Task Force review of regional conformity status for new and revised projects:

Non-Exempt, Not Regionally Significant Revision to San Francisco's Great Highway Restoration Project (SF-110005)

Mr. Crenshaw indicated that the San Francisco's Great Highway Restoration is currently included in the 2015 TIP as an emergency restoration project to stabilize a portion of the Great Highway in preparation to restore it to four automobile travel lanes following storm damage to the roadway. Mr. Crenshaw went on to say that staff is now proposing to update the scope of the project to include the permanent restoration phase of the project. Mr. Crenshaw also mentioned that the traffic volume on this segment of roadway is currently 9,500 vehicles in average daily traffic (ADT) and projected to be 10,900 ADT in 2040. (This approach is consistent with the Task Force's previous guidance on road diets) As such, staff requested the Task Force's concurrence that incorporating this change in scope into the 2015 TIP would not require an update to the conformity analysis.

New Projects Staff Propose to Include in the 2015 TIP

Mr. Crenshaw also stated that MTC staff had received requests from sponsors to add 35 new exempt projects to grouped listings in future revisions.

Mr. Crenshaw received no questions or comments on the above mentioned agenda items.

4. Release of Draft Transportation Conformity Analysis for the Amended Plan Bay Area and 2015 Transportation Improvement Program (Update)

Harold Brazil (MTC) updated the group on comments received to date on the conformity analysis for the Amended Plan Bay Area and 2015 Transportation Improvement Program and received no comments.

5. Providing Additional Guidance to Project Sponsors for Consultation Process

Harold Brazil (MTC) and Adam Crenshaw (MTC) discussed MTC staffing issues which are slowing updates to the existing guidance available to project sponsors for going through the project level conformity consultation process. Ginger Vagenas (EPA) commented that this item needs to remain on the backburner on the Task Force's "to do" list of activities.

6. Consent Calendar

a. June 18, 2015 Air Quality Conformity Task Force Meeting Summary

Final Determination: With input from all members, the Task Force concluded that the consent calendar was approved.

7. Other Items

Harold Brazil (MTC) notified the Task Force that he would be following-up (via email) on two projects previously going through consultation:

- San Francisco Department of Public Works - Second Street Improvements Project; **SF-130011** (from 1-22-15 Task Force Meeting)

McIntyre, Lynn

From: Fund Management System <fms@mtc.ca.gov>
Sent: Thursday, July 23, 2015 3:58 PM
To: ssarwary@redwoodcity.org
Cc: Fund Management System; Harold Brazil
Subject: FMS POAQC Project TIP ID SM-050027 (US 101 / Woodside Interchange Improvement) update: Project is a not a POAQC

Dear Project Sponsor

Based on the recent interagency consultation with the Air Quality Conformity Task force, Project TIP ID SM-050027 (FMS ID:2534.00) does not fit the definition of a project of air quality concern as defined by 40 CFR 93.123(b)(1) or 40 CFR 93.128 and therefore is not subject to PM2.5 project level conformity requirement. Please save this email as documentation confirming the project has undergone and completed the interagency consultation requirement for PM2.5 project level conformity. Note project sponsors are required to undergo a proactive public involvement process which provides opportunity for public review as outlined by 40 CFR 93.105(e). For projects that are not of air quality concern, a comment period is only required for project level conformity determinations if such a comment period would have been required under NEPA. For more information, please see FHWA PM2.5 Project Level Conformity Frequently Asked Questions (FAQ):
http://www.fhwa.dot.gov/environment/air_quality/conformity/reference/faqs/pm25faqs.cfm

If you have any questions, please direct them to Harold Brazil at hbrazil@mtc.ca.gov or by phone at (510) 817-5747

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USFWS Species List

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United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
FEDERAL BUILDING, 2800 COTTAGE WAY, ROOM W-2605
SACRAMENTO, CA 95825
PHONE: (916)414-6600 FAX: (916)414-6713

Consultation Code: 08ESMF00-2015-SLI-0518 March 07, 2016
Event Code: 08ESMF00-2016-E-02172
Project Name: US 101/SR 84 (Woodside Road) Interchange Project -- created on May 13, 2015 03:13

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, under the jurisdiction of the U.S. Fish and Wildlife Service (Service) that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Please follow the link below to see if your proposed project has the potential to affect other species or their habitats under the jurisdiction of the National Marine Fisheries Service:

http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and

the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment

United States Department of Interior
Fish and Wildlife Service

Project name: US 101/SR 84 (Woodside Road) Interchange Project -- created on May 13, 2015 03:13

Official Species List

Provided by:

Sacramento Fish and Wildlife Office
FEDERAL BUILDING
2800 COTTAGE WAY, ROOM W-2605
SACRAMENTO, CA 95825
(916) 414-6600

Expect additional Species list documents from the following office(s):

San Francisco Bay-Delta Fish and Wildlife
650 CAPITOL MALL
SUITE 8-300
SACRAMENTO, CA 95814
(916) 930-5603
http://kim_squires@fws.gov

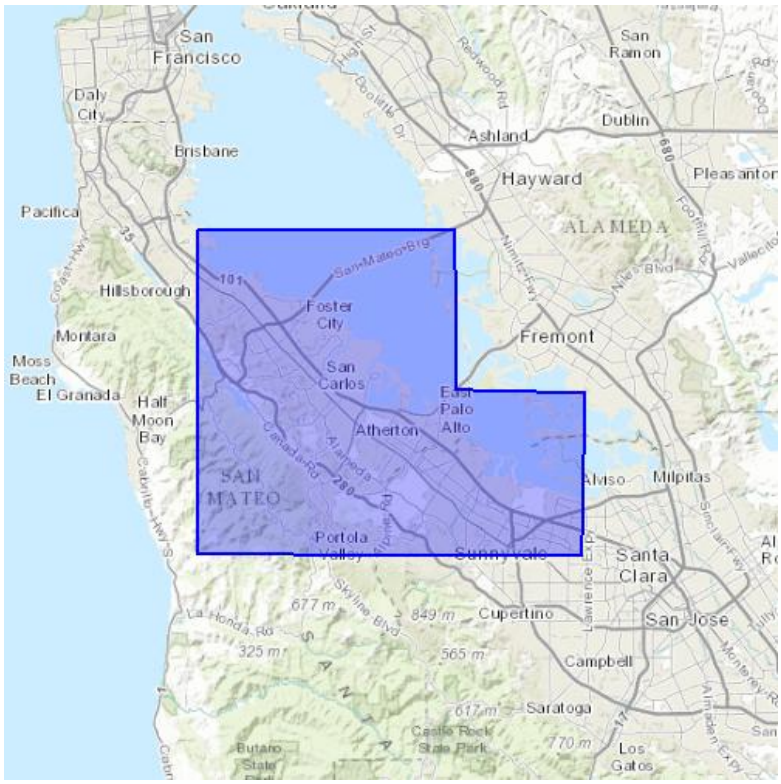
Consultation Code: 08ESMF00-2015-SLI-0518
Event Code: 08ESMF00-2016-E-02172

Project Type: TRANSPORTATION

Project Name: US 101/SR 84 (Woodside Road) Interchange Project -- created on May 13, 2015 03:13
Project Description: Interchange Project

Please Note: The FWS office may have modified the Project Name and/or Project Description, so it may be different from what was submitted in your previous request. If the Consultation Code matches, the FWS considers this to be the same project. Contact the office in the 'Provided by' section of your previous Official Species list if you have any questions or concerns.

Project Location Map:



Project Coordinates: MULTIPOLYGON (((-122.37516403198242 37.624565140159575, -122.12453842163086 37.624565140159575, -122.12385177612305 37.501010429493284, -121.99819564819336 37.49883141715704, -122.00094223022461 37.37343130288926, -122.37585067749023 37.374522644077246, -122.37516403198242 37.624565140159575)))

Project Counties: Alameda, CA | San Mateo, CA | Santa Clara, CA

Endangered Species Act Species List

There are a total of 29 threatened or endangered species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Critical habitats listed under the **Has Critical Habitat** column may or may not lie within your project area. See the **Critical habitats within your project area** section further below for critical habitat that lies within your project. Please contact the designated FWS office if you have questions.

Amphibians	**Status**	**Has Critical Habitat**	**Condition(s)**
California red-legged frog *(Rana draytonii)* Population: Entire	Threatened	Final designated	
California tiger Salamander *(Ambystoma californiense)* Population: U.S.A. (Central CA DPS)	Threatened	Final designated	
Birds			
California Clapper rail *(Rallus longirostris obsoletus)* Population: Entire	Endangered		
California Least tern *(Sterna antillarum browni)*	Endangered		
Marbled murrelet *(Brachyramphus marmoratus)* Population: CA, OR, WA	Threatened	Final designated	
western snowy plover *(Charadrius nivosus ssp. nivosus)* Population: Pacific coastal pop.	Threatened	Final designated	

Yellow-Billed Cuckoo *(Coccyzus americanus)* Population: Western U.S. DPS	Threatened	Proposed	
Crustaceans			
Conservancy fairy shrimp *(Branchinecta conservatio)* Population: Entire	Endangered	Final designated	
Vernal Pool fairy shrimp *(Branchinecta lynchi)* Population: Entire	Threatened	Final designated	
Vernal Pool tadpole shrimp *(Lepidurus packardi)* Population: Entire	Endangered	Final designated	
Fishes			
Delta smelt *(Hypomesus transpacificus)* Population: Entire	Threatened	Final designated	
steelhead *(Oncorhynchus (=salmo) mykiss)* Population: Northern California DPS	Threatened	Final designated	
Tidewater goby *(Eucyclogobius newberryi)* Population: Entire	Endangered	Final designated	
Flowering Plants			
California seablite *(Suaeda californica)*	Endangered		
Contra Costa goldfields *(Lasthenia conjugens)*	Endangered	Final designated	

Fountain thistle *(Cirsium fontinale var. fontinale)*	Endangered		
Marin dwarf-flax *(Hesperolinon congestum)*	Threatened		
Robust spineflower *(Chorizanthe robusta var. robusta)*	Endangered	Final designated	
San Mateo Woolly sunflower *(Eriophyllum latilobum)*	Endangered		
Showy Indian clover *(Trifolium amoenum)*	Endangered		
White-Rayed pentachaeta *(Pentachaeta bellidiflora)*	Endangered		
Insects			
Bay Checkerspot butterfly *(Euphydryas editha bayensis)* Population: Entire	Threatened	Final designated	
Mission Blue butterfly *(Icaricia icarioides missionensis)* Population: Entire	Endangered		
Myrtle's Silverspot butterfly *(Speyeria zerene myrtleae)* Population: Entire	Endangered		
San Bruno Elfin butterfly *(Callophrys mossii bayensis)* Population: Entire	Endangered		
Mammals			
Salt Marsh Harvest mouse *(Reithrodontomys raviventris)*	Endangered		

Population: wherever found			
San Joaquin Kit fox *(Vulpes macrotis mutica)* Population: wherever found	Endangered		
Reptiles			
Alameda whipsnake *(Masticophis lateralis euryxanthus)* Population: Entire	Threatened	Final designated	
San Francisco Garter snake *(Thamnophis sirtalis tetrataenia)* Population: Entire	Endangered		

Critical habitats that lie within your project area

The following critical habitats lie fully or partially within your project area.

Amphibians	**Critical Habitat Type**
California red-legged frog *(Rana draytonii)* Population: Entire	Final designated
Birds	
Marbled murrelet *(Brachyramphus marmoratus)* Population: CA, OR, WA	Final designated
western snowy plover *(Charadrius nivosus ssp. nivosus)* Population: Pacific coastal pop.	Final designated
Insects	
Bay Checkerspot butterfly *(Euphydryas editha bayensis)* Population: Entire	Final designated

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Section 106 SHPO Concurrence

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OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION
1725 23rd Street, Suite 100
SACRAMENTO, CA 95816-7100
(916) 445-7000 Fax: (916) 445-7053
calshpo@parks.ca.gov
www.ohp.parks.ca.gov

October 8, 2015 Reply To: FHWA_2015_0909_001

Noah M. Stewart
Acting Chief, Office of Cultural Resource Studies
Caltrans District 4
PO Box 23660, MS 8-A
Oakland, CA 94623-0660

Re: Determinations of Eligibility for the Proposed US 101/SR 84 Woodside Road Interchange Improvement Project, San Mateo County, CA

Dear Mr. Stewart:

Thank you for consulting with me about the subject undertaking in accordance with the January 1, 2014 *First Amended Programmatic Agreement Among the Federal Highway Administration, the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, and the California Department of Transportation Regarding Compliance with Section 106 of the National Historic Preservation Act, as it Pertains to the Administration of the Federal-Aid Highway Program in California* (PA).

In your letter of August 26, 2015, Caltrans determined that the following properties were not eligible for the National Register of Historic Places:

- Redwood City Harbor Company spur/Union Pacific Railroad, Redwood City, CA
- PG&E Redwood Substation, 10 Seaport Boulevard, Redwood City, CA
- City of Redwood City Municipal Service Center, 1400 Broadway Street, Redwood City, CA
- Broadway Pumping Station, northeast corner of Woodside Road and Broadway Street Intersection, Redwood City, CA
- US Post Office, 1100 Broadway Street, Redwood City, CA
- Kliklok Corporation Building, 1089 Mills Way, Redwood City, CA
- Denny's Restaurant, 1201 Broadway Street, Redwood City, CA

Based on my review of the submitted documentation I concur.

Thank you for considering historic properties during project planning. If you have any questions, please contact Natalie Lindquist of my staff at (916) 445-7014 or email at natalie.lindquist@parks.ca.gov .

Sincerely,

Julianne Polanco
State Historic Preservation Officer

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Appendix G Environmental Commitment Record

Table G-1: Summary of Minimization and/or Mitigation Measures

Minimization and/or Mitigation Measure	Section Reference in IS/EA	Responsible Party	Timing
Parks and Recreational Facilities			
Develop a trail closure plan to minimize the number of closure days, provide detour routes, and communicate to the public with a mandatory signage plan and notices posted at Bay Trail access points.	2.1.1.3	Department, City of Redwood City	Final Design
A TMP will be developed to address impacts to motor vehicle, bicycle, and pedestrian access during project construction. The TMP will document that bicycle and pedestrian access is to be maintained to the maximum extent feasible as part of construction staging. The plan will also include a public outreach plan including public officials, neighborhood groups, special interest groups, and transit agencies.	2.1.1.3	Department, City of Redwood City	Final Design
Relocations and Real Property Acquisition			
The Department's Relocation Assistance Program will be made available to assist in providing relocation benefits or entitlements to property owners.	2.1.2.4	Department	Final Design
Utilities/Emergency Services			
The TMP prepared during the design phase of the project will minimize traffic disruptions from project construction and will provide for public outreach to inform local agencies and the public of the times and locations of upcoming construction, construction signs in and approaching the project area, and incident management for traffic control in the vicinity of construction activities. Access will be maintained for emergency response vehicles.	2.1.4.3	Department, City of Redwood City	Final Design
Traffic and Transportation/Pedestrian and Bicycle Facilities			
The TMP will address impacts to motor vehicle, transit, bicycle, and pedestrian access during project construction. Various TMP elements such as portable Changeable Message Signs and the Construction Zone Enhance Enforcement Program may be used to alleviate and minimize delay to the traveling public.	2.1.5.4	Department, City of Redwood City	Final Design
Visual/Aesthetics			
The project design will incorporate architectural treatment to all walls, bridges, and barriers. The City of Redwood City will be included in the design and selection of any aesthetic treatment for the project.	2.1.6.4	Department, City of Redwood City	Final Design
Replacement highway planting will be provided in all unpaved areas within the project limits for the selected alternative. Replacement planting, including trees, shrubs and groundcover, will meet the Department's current setback and sight distance requirements.	2.1.6.4	Department	Final Design
Cultural Resources			
If cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area will be diverted until a qualified archaeologist can assess the nature and significance of the find.	2.1.7.4	City of Redwood City, Resident Engineer, Construction Contractor	Construction

Table G-1: Summary of Minimization and/or Mitigation Measures

Minimization and/or Mitigation Measure	Section Reference in IS/EA	Responsible Party	Timing
Contact the County Coroner if human remains are discovered and stop disturbances and activities in any area or nearby area suspected to overlie remains. Follow provisions of California Public Resources Code Section 5097.98 as applicable. If the remains are thought to be Native American, the Coroner will notify the Native American Heritage Commission.	2.1.7.4	City of Redwood City, Resident Engineer, Construction Contractor	Construction
Water Quality and Storm Water Runoff			
Implement a SWPPP that will include storm water BMPs applicable to construction of the proposed project. The SWPPP must also comply with the goals and restrictions identified in the San Francisco RWQCB's Basin Plan. Standard Special Provision 07-345 will be included in the PS&E to address the preparation of the SWPPP document and the implementation of the SWPPP during construction.	2.2.2.4	Construction Contractor	Final Design
Implement short-term (construction) and long-term (permanent) BMPs outlined in the City of Redwood City and Department approved list and listed in Section 2.2.2.4.	2.2.2.4	Construction Contractor	Final Design, Construction
Geology and Soils			
Design and construct project elements to meet seismic design requirements for ground shaking and ground motions, as determined for the project vicinity and site conditions (liquefaction, settlement, and corrosion).	2.2.3.4	City of Redwood City, Construction Contractor	Final Design
Perform additional geotechnical subsurface and design investigations during final project design and engineering phase, including site-specific evaluation of subsurface conditions (such as potential for liquefaction and lateral spreading) at the location of proposed foundation features.	2.2.3.4	City of Redwood City	Final Design
Excavations in existing embankments fill should not exceed slopes of 1.5:1 without shoring designed by a Registered Civil Engineer.	2.2.3.4	City of Redwood City, Construction Contractor	Construction
Undertake a comprehensive evaluation of construction dewatering as a part of the field investigation program. The plan may include installation of groundwater monitoring wells along with in-situ permeability tests to better evaluate the hydraulic conductivity of the subsurface soils. These data will provide the basis to evaluate construction dewatering schemes appropriate for both Build Alternatives.	2.2.3.4	City of Redwood City	Final Design

Table G-1: Summary of Minimization and/or Mitigation Measures

Minimization and/or Mitigation Measure	Section Reference in IS/EA	Responsible Party	Timing
Paleontology			
Caltrans Standard Specification 14-7.02 will be implemented during project construction to avoid potential impacts to sensitive paleontological resources, if present. Standard Specification 14-7.02 states: If paleontological resources are discovered at the job site, do not disturb the material and immediately: 1. Stop all work within a 60-foot radius of the discovery 2. Protect the area 3. Notify the Engineer The Department investigates and modifies the dimensions of the protected area if necessary. Do not move paleontological resources or take them from the job site. Do not resume work within the specified radius of the discovery until authorized.	2.2.4.4	City of Redwood City, Construction Contractor	Construction
Hazardous Waste and Materials			
If the project construction excavations will extend to groundwater, groundwater sampling, analysis, and characterization are recommended before the start of construction to investigate safety precautions for construction personnel. Furthermore, treatment and disposal options for extracted groundwater will need to be evaluated prior to any dewatering of excavations due to construction activities.	2.2.5.4	City of Redwood City	Final Design
If suspected petroleum hydrocarbon-impacted soils are encountered during soil excavation activities, soil should be sampled, tested, and characterized for petroleum hydrocarbons.	2.2.5.4	City of Redwood City, Construction Contractor	Construction
If soil excavation activities are planned near properties where chlorinated compounds may be present, the soil and groundwater should be sampled, tested, and characterized for chlorinated compounds.	2.2.5.4	City of Redwood City	Final Design
Additionally, prior to the beginning of, and periodically during any soil excavation work, surface soils should be tested for aerially deposited lead to evaluate safety recommendations for construction workers and soil management options.	2.2.5.4	City of Redwood City, Construction Contractor	Final Design, Construction
Any proposed property acquisitions require further investigation of soil and/or groundwater, due to the potential for presence of petroleum hydrocarbons, solvents, and aerially deposited lead.	2.2.5.4	City of Redwood City	Final Design
A qualified and licensed inspector should evaluate and sample the existing building and structures scheduled for demolition for the presence of potential asbestos-containing materials, lead-based paint, and PCBs.	2.2.5.4	City of Redwood City	Final Design
Air Quality			
Ensure that the construction contractor complies with the Department's Special Provisions and Standard Specifications in Section 14.	2.2.6.4	City of Redwood City, Construction Contractor	Final Design, Construction
Noise			
Restrict overly loud construction activities to between 7:00 a.m. and 8:00 p.m., weekdays (except on holidays), where feasible.	2.2.7.4	Redwood City, Construction Contractor	Construction

Table G-1: Summary of Minimization and/or Mitigation Measures

Minimization and/or Mitigation Measure	Section Reference in IS/EA	Responsible Party	Timing
Limit pile driving activities to daytime hours, where feasible.	2.2.7.4	Redwood City, Construction Contractor	Construction
Equip all internal combustion engine driven equipment with intake and exhaust mufflers that are in good condition and appropriate for the equipment.	2.2.7.4	Redwood City, Construction Contractor	Construction
Use "quiet" air compressors and other "quiet" equipment where such technology exists.	2.2.7.4	Redwood City, Construction Contractor	Construction
Prohibit unnecessary idling of internal combustion engines within 100 feet of residences.	2.2.7.4	Redwood City, Construction Contractor	Construction
Avoid staging of construction equipment within 200 feet of residences and locate all stationary noise-generating construction equipment, such as air compressors, portable power generators, or self-powered lighting systems as far practical from noise sensitive residences.	2.2.7.4	Redwood City, Construction Contractor	Construction
Require all construction equipment to conform to Section 14-8.02, Noise Control, of the latest Department Standard Specifications.	2.2.7.4	Redwood City, Construction Contractor	Construction
Natural Communities			
Existing landscaping affected by the project would be replaced, as discussed in Section 2.1.6.4. Landscaping would include the use of native species where possible.	2.3.1.2	Department Landscape Design	Final design
Wetlands and Other Waters of the United States			
Develop and implement a SWPPP that meets the standards and objectives to minimize storm water pollution impacts set forth in Section 13.37 of the Department's Standard Specifications. The SWPPP must also comply with the goals and restrictions identified in the RWQCB's Basin Plan. Any additional measures included in the Water Quality Certification will be implemented.	2.3.2.4	City of Redwood City, Construction Contractor	Final Design, Construction

Table G-1: Summary of Minimization and/or Mitigation Measures

Minimization and/or Mitigation Measure	Section Reference in IS/EA	Responsible Party	Timing
The contractor will comply with the following standards/BMPs, including but not limited to the following: 1. Where work areas encroach on wetlands, RWQCB-approved physical barriers will be constructed to prevent the flow or discharge of sediment into these systems. 2. Discharge of sediment into culverts and storm drains will be held to a minimum during construction of the barriers. 3. RWQCB-approved measures will be used to keep sediment from leaving the project construction area. 4. All off-road construction equipment should be cleaned of potential noxious weed sources (mud and vegetation) before entering the project area and after entering a potentially infested area before moving on to another area. The contractor will employ whatever cleaning methods (typically spraying with a high-pressure water hose) are necessary to ensure that equipment is free of noxious weeds. 5. Equipment should be considered free of soil, seeds, and other such debris when a visual inspection does not disclose such material. Disassembly of equipment components or specialized inspection tools is not required. Equipment washing stations will be placed in areas that afford easy containment and monitoring (preferably outside of the project area) and that do not drain into sensitive (riparian, wetland, etc.) areas.	2.3.2.4	City of Redwood City, Construction Contractor	Final Design
Upon completion of the project, all temporarily affected areas will be restored to approximately the original site conditions.	2.3.2.4	City of Redwood City, Department	Construction
Animal Species			
Migratory Birds			
If construction is scheduled during the nesting season for migratory birds (February 1 through August 31), structures in the project area, including the remaining trees, will be surveyed for nesting migratory birds no more than three days prior to the start of ground disturbing activities. The overcrossing will be inspected weekly for signs of nesting activity from the start of the nesting season until the end of the season, or until the existing overcrossing has been removed, depending upon which event occurs first.	2.3.3.4	City of Redwood City, Construction Contractor, Department	Construction

Table G-1: Summary of Minimization and/or Mitigation Measures

Minimization and/or Mitigation Measure	Section Reference in IS/EA	Responsible Party	Timing
If nests are identified in trees or under the overcrossing structure during preconstruction surveys, the following measures will be implemented: 1. Buffers will be established around active migratory bird nests found in trees or on the ground. The size of the buffer may vary for different species and will be determined in coordination with CDFW. A qualified biologist will delineate the buffer using ESA fencing, pin flags, and/or yellow caution tape. The buffer zone will be maintained around all active tree-nest sites until the young have fledged and are foraging independently. In the event that an active tree-nest is found after the completion of preconstruction surveys and after construction begins, all construction activities will be stopped until a qualified biologist has evaluated the nest and erected the appropriate buffer around it. 2. A qualified biologist will work with CDFW before the start of nesting season (February 1) to determine and implement appropriate techniques to discourage migratory birds from developing new nests on the underside of the overcrossing for the duration of construction, and remove any existing nests. Strategies may include installing exclusionary netting underneath the bridge and plugging drain holes with wire mesh prior to nesting season. In the event that nesting birds are present and attempt to build nests during construction, a biologist will work with CDFW to implement a strategy to prevent nests from becoming established.	2.3.3.4	City of Redwood City, CDFW, Department, Construction Contractor	Construction
Raptors			
Schedule vegetation removal during nonbreeding season: To avoid disruption or impacts to nesting raptors and other nesting birds, removal of vegetation (trees and ground cover) in the project's construction area should occur between September 1 and October 15, outside of the bird nesting season and prior to the rainy season.	2.3.3.4	City of Redwood City, Construction Contractor	Construction
If construction is scheduled during the nesting season (February 1 through August 31), the remaining trees in the BSA, the Broadway overcrossing, and the pedestrian overcrossing within 500 feet of the construction area will be surveyed no more than 3 days prior to ground-disturbing activities. If an active nest is found, a qualified biologist will determine the appropriate buffer size through consultation with CDFW.	2.3.3.4	City of Redwood City, Construction Contractor, CDFW	Construction

Table G-1: Summary of Minimization and/or Mitigation Measures

Minimization and/or Mitigation Measure	Section Reference in IS/EA	Responsible Party	Timing
If nesting activity is identified within the project's construction area, a qualified biologist will check the nest area weekly for potential disturbances associated with construction. Construction within the buffer is prohibited until the biologist determines the nest is no longer active. If an active nest is found after the completion of the preconstruction surveys and after construction begins, all construction activities will stop until the qualified biologist has evaluated the nest and an appropriate buffer has been established around the nest. Construction work will be excluded from the buffer area until the nesting activity is complete. If establishment of the buffer is not feasible, CDFW will be contacted for further avoidance and minimization guidelines. These requirements apply only to nesting activity.	2.3.3.4	City of Redwood City, Construction Contractor, CDFW, Department	Construction
Bats			
Disturbance of bats is of particular concern during the maternity roosting season (April 15 through August 31), when bats are likely to be raising young. The following measures will be implemented to avoid and minimize impacts on bats: 1. No more than three days prior to the start of ground disturbing activities, a qualified biologist will survey the trees and human-made structures in the BSA for evidence of bat roosts (e.g., bat guano). If bat roosts are located during preconstruction surveys, the roosts will be flagged and avoided during construction. To the extent possible, night work will be limited in areas where roosts are observed. 2. If roosts cannot be avoided during construction, exclusionary strategies will be developed through coordination with CDFW.	2.3.3.4	City of Redwood City, Construction Contractor, CDFW, Department	Construction
Threatened and Endangered Species			
General Conservation Measures			
Prior to initiation of the proposed action, the qualifications of the biological monitor(s) will be submitted to USFWS and CDFW for approval. Such approved biologists are hereafter referred to as the "USFWS-approved biologist(s)."	2.3.4.4	City of Redwood City, Construction Contractor, USFWS, CDFW	Pre-Construction

Table G-1: Summary of Minimization and/or Mitigation Measures

Minimization and/or Mitigation Measure	Section Reference in IS/EA	Responsible Party	Timing
USFWS-approved biologist(s) (knowledgeable about sensitive species and habitats in the action area) or designee(s) will conduct pre-construction surveys to examine the BSA for occurrences of special-status wildlife species. In the event that occupied nests or other habitats are found, the USFWS-approved biologist(s) will adhere to the measures set forth by the USFWS. If the situation is otherwise unique, the USFWS-approved biologist will discuss the situation with a Department biologist who will contact the USFWS and CDFW to determine how to avoid or relocate the resident animal(s).	2.3.4.4	City of Redwood City, Construction Contractor, USFWS, CDFW	Pre-Construction
All proposed construction will be limited to the existing and proposed right-of-way. Environmentally Sensitive Areas (ESAs) will be identified on contract plans and discussed in the Special Provisions. The ESAs will include areas designated in the environmental document and biological reports that support wetlands, waters, and/or habitats that potentially support listed species, and have been specifically identified to avoid during construction. ESA provisions may include, but are not limited to, the use of temporary orange fencing to delineate the proposed limit of work in areas adjacent to sensitive resources, or to delineate and exclude sensitive resources from potential construction impacts. Contractor encroachment into ESAs will not be allowed without a USFWS-approved biologist(s) or designee(s) being present. This includes staging/operation of heavy equipment or casting of excavation materials. ESA provisions will be implemented as a first order of work and remain in place until all construction is completed.	2.3.4.4	City of Redwood City, Construction Contractor, USFWS	Construction
No debris, soil, silt, sand, bark, slash, sawdust, cement, concrete, washings, petroleum products or other organic or earthen material shall be allowed to enter into or be placed where it may be washed by rainfall or runoff into waters of the United States or drainages. No discharges of excessively turbid water will be allowed, and all equipment will be well-maintained and free of leaks.	2.3.4.4	City of Redwood City, Construction Contractor	Construction

Table G-1: Summary of Minimization and/or Mitigation Measures

Minimization and/or Mitigation Measure	Section Reference in IS/EA	Responsible Party	Timing
Before the onset of construction and within 3 days of any new worker arrival, a USFWS-qualified biologist will conduct an education program for all construction personnel. At a minimum, the training will include a description of the salt marsh harvest mouse, California black rail, Ridgway's rail, and California least tern, and other listed species and their habitats; the potential occurrence of these species within the project area; an explanation of the status of these species and protection under the FESA, CESA, and all other federal, state, and local regulatory requirements; the measures to be implemented to conserve listed species and their habitats as they relate to the work site; and boundaries within which construction may occur. A fact sheet conveying this information will be prepared and distributed to all construction crews and project personnel entering the project area. Upon completion of the program, personnel will sign a form stating that they attended the program and understand all of the avoidance and minimization measures and implications of the FESA, CESA, and all other federal, state, and local regulatory requirements.	2.3.4.4	City of Redwood City, Construction Contractor, USFWS	Pre-Construction
Erosion control. Temporary erosion control and slope stabilization BMPs will be installed before the start of the wet season (October 15 through April 15). Erosion control measures may include silt fencing, straw wattles, straw bales, coir blankets, sediment traps, and other protective measures to minimize the potential for erosion of sediment beyond the work area or degradation of water quality in adjacent aquatic habitats.	2.3.4.4	City of Redwood City, Construction Contractor	Construction
Upon project completion, all temporarily disturbed areas will be restored to pre-construction conditions.	2.3.4.4	City of Redwood City, Construction Contractor	Construction
Salt Marsh Harvest Mouse			
Preconstruction Surveys. Preconstruction surveys will be conducted prior to the installation of the temporary mouse barrier.	2.3.4.4	City of Redwood City, Construction Contractor	Pre-Construction

Table G-1: Summary of Minimization and/or Mitigation Measures

Minimization and/or Mitigation Measure	Section Reference in IS/EA	Responsible Party	Timing
Temporary Mouse Barrier. Prior to the start of construction work near the Seaport Boulevard/East Bayshore Road/Blomquist Street intersection, a temporary mouse barrier will be erected to prevent the potential movement of individuals into the construction zone. The mouse barrier fence will consist of corrugated metal fencing a minimum of 1 foot taller than adjacent herbaceous and shrub vegetation and buried 1 foot deep into the soil to prevent mice from burrowing under the fence. ESA fencing on the construction side of the mouse-proof barrier will increase visibility and awareness of the protected area. To ensure proper exclusion, the mouse barrier must terminate at permanent passage barriers (i.e. permanent water, high levee) at both ends. The mouse barrier will be installed in such a manner that it will not exclude salt marsh harvest mice from upland refugia areas. In addition, the mouse barrier will be placed so that individuals would not become trapped within the mouse-proof barrier area.	2.3.4.4	City of Redwood City, Construction Contractor	Pre-Construction
Construction Monitoring. A USFWS-approved biologist(s) or designee(s) will monitor for potential salt marsh harvest mice presence prior to construction, and through installation of the previously described barrier. Following installation, the barrier will be inspected periodically along its margins as needed to maintain its integrity, and repaired within 24 hours. The USFWS-approved biologist(s) or designee(s) will have the authority to stop work if deemed necessary for any reason to protect the species. If a salt marsh harvest mouse is observed in the project area, work will be stopped immediately by the USFWS-approved biologist(s) or designee(s) until the salt marsh harvest mouse leaves the project area on its own volition. If the salt marsh harvest mouse does not leave the project area, work will not resume until after the USFWS and CDFW have been contacted and a decision is reached on how construction activities should proceed. The project resident engineer will consult with the USFWS-approved biologist(s) or designee(s) on how to proceed.	2.3.4.4	City of Redwood City, Construction Contractor, USFWS, CDFW	Construction
Erosion Control. Erosion control and other SWPPP measures will be installed to prevent materials from entering the tidal marsh.	2.3.4.4	City of Redwood City, Construction Contractor	Construction
Invasive Species			
Do not use species listed as noxious weeds in project landscaping and erosion control.	2.3.5.4	City of Redwood City, Construction Contractor	Construction
No disposal of soil and plant materials should be allowed from areas that support invasive species to areas dominated by native vegetation.	2.3.5.4	City of Redwood City, Construction Contractor	Construction

Table G-1: Summary of Minimization and/or Mitigation Measures

Minimization and/or Mitigation Measure	Section Reference in IS/EA	Responsible Party	Timing
All off-road construction equipment should be cleaned of potential noxious weed sources (mud and vegetation) before entering the project area and after entering a potentially infested area before moving on to another area. The contractor will employ whatever cleaning methods (typically spraying with a high-pressure water hose) are necessary to ensure that equipment is free of noxious weeds.	2.3.5.4	City of Redwood City, Construction Contractor	Construction
Equipment will be regularly cleaned and inspected to minimize the spread of soil, seeds, and other such debris. Equipment washing stations will be placed in easily accessible areas (preferably outside of the project area) and kept from draining into sensitive (riparian, wetland, etc.) areas.	2.3.5.4	City of Redwood City, Construction Contractor	Construction

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Appendix H List of Acronyms

AADT	Annual Average Daily Traffic
AB	assembly bill
ABAG	Association of Bay Area Governments
ACS	American Community Survey
ADA	Americans with Disabilities Act
ADL	aerially deposited lead
A/E	approach or exceed
APE	Area of Potential Effects
APN	Assessor's parcel number
ARB	California Air Resources Board
ARPA	Archaeological Resources Protection Act of 1979
BAAQMD	Bay Area Air Quality Management District
BCDC	Bay Conservation and Development Commission
BG	Block Group
BMP	Best Management Practice
BO	Biological Opinion
BSA	Biological Study Area
CA	California
Cal/EPA	California Environmental Protection Agency
Caltrans	California Department of Transportation
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act of 1980
CERFA	Community Environmental Response Facilitation Act of 1992
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CH_4	methane
CNPS	California Native Plant Society
CNDDB	California Natural Diversity Database
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CTP	California Transportation Plan
CWA	Clean Water Act
dB	decibel
dBA	A-weighted decibel
DCE	dichloroethylene
DDT	dichlorodiphenyltrichloroethane
DED	draft environmental document
Department	California Department of Transportation
DPS	distinct population segment
DSA	Disturbed Soil Area
EB	eastbound

EDR	Environmental Data Resources, Inc
EO	Executive Order
ESA	Environmentally Sensitive Area
F	Fahrenheit
FD	federal delisted
FE	federal endangered
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FHWA	Federal Highway Administration
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FP	fully protected under California Fish and Game Code
FONSI	Finding of No Significant Impact
ft	foot
FT	federal threatened
FTA	Federal Transit Administration
FTIP	Federal Transportation Improvement Program
GHG	greenhouse gas
Guidelines	Section 404(b)(1) Guidelines
HFC-23	fluoroform
HFC-134a	s,s,s,2-tetrafluoroethane
HFC-152a	difluoroethane
H_2S	hydrogen sulfide
HOV	high-occupancy vehicle
IPCC	Intergovernmental Panel on Climate Change
IS	Initial Study
IS/EA	Initial Study/Environmental Assessment
kV	kilovolt
$L_{eq[h]}$	Equivalent Sound Level over one hour
LEDPA	least environmentally damaging practicable alternative
LOS	level of service
LQG	large quantity generator
LT	long-term
LUST	Leaking Underground Storage Tank
MBTA	Migratory Bird Treaty Act
$\mu g/m^3$	microgram per cubic meter
MLD	most likely descendent
MMT	million metric tons
mph	miles per hour
MS4	municipal separate storm sewer systems
MSAT	Mobile Source Air Toxics
MTC	Metropolitan Transportation Commission
NA	not applicable
NAAQS	National Ambient Air Quality Standards
NAC	noise abatement criteria
NAHC	Native American Heritage Commission
NB	northbound

ND	Negative Declaration
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act of 1966
NHTSA	National Highway Traffic Safety Administration
NMFS	National Marine Fisheries Service
N_2O	nitrous oxide
NO_2	Nitrogen Dioxide
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NPL	national priorities list
NWIC	Northwest Information Center
O_3	ozone
OPR	Office of Planning and Research
OSHA	Occupational Safety and Health Act
PA	Programmatic Agreement
PCB	polychlorinated biphenyls
PCE	tetrachloroethylene
PDA	Priority Development Areas
PDT	project development team
PG&E	Pacific Gas and Electric Company
PM	post mile
$PM_{2.5}$	particulate matter less than 2.5 micrometers in diameter
PM_{10}	particulate matter less than 10 micrometers in diameter
POAQC	Project of Air Quality Concern
POM	polycyclic organic matter
ppm	parts per million
Protocol	Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects
PS&E	Plans, Specifications and Estimates
PSR	Project Study Report
PST	pacific standard time
PRC	Public Resources Code
R	receptor
RAP	Relocation Assistance Program
RCRA	Resource Conservation and Recovery Act of 1976
RTP	regional transportation plan
RWQCB	Regional Water Quality Control Board
SamTrans	San Mateo County Transit District
SB	southbound
SCL	Santa Clara
SDC	seismic design criteria
SE	state endangered
SF_6	sulfur hexafluoride
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SLIC	Spills, Leaks, Investigations and Clean-ups Database

SMCTA	San Mateo County Transportation Authority
SO_2	sulfur dioxide
SR	State Route
SSC	state species of concern
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
SWMP	Statewide Storm Water Management Plan
TCE	temporary construction easement
TIP	Transportation Improvement Programs
TMDL	Total Maximum Daily Load
TMP	Transportation Management Plan
TNM	Traffic Noise Model
TPH	Total petroleum hydrocarbons
TSCA	Toxic Substances Control Act
UCMP	University of California Museum of Paleontology
UPRR	Union Pacific Railroad
U.S.	United States
US 101	U.S. Highway 101
USACE	U.S. Army Corps of Engineers
USC	United States Code
U.S. EPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
USDOT	U.S. Department of Transportation
UST	underground storage tank
VA	Value Analysis
VMT	vehicle miles traveled
VOCs	volatile organic compounds
vph	vehicles per hour
WB	westbound
WDR	Waste Discharge Requirements
WPCP	Water Pollution Control Plan

Appendix I List of Technical Studies

Air Quality Impact Assessment (URS 2015)
Archaeological Survey Report (URS 2015)
Biological Assessment (URS 2015)
Community Impact Assessment (URS 2015)
Existing Conditions Report (Fehr & Peers 2014)
Extended Phase 1 Report (URS 2015)
Historical Resources Evaluation Report (JRP 2015)
Historic Property Survey Report (URS 2015)
Initial Site Assessment (URS 2014)
Jurisdictional Delineation (URS 2015)
Location Hydraulic Study (WRECO 2015)
Mobile Source Air Toxics (URS 2015)
Natural Environment Study (URS 2015)
Noise Abatement Decision Report (URS 2015)
Noise Study Report (Illingworth and Rodkin 2015)
Paleontological Identification Report (URS 2014)
Preliminary Geotechnical Report (URS 2015)
Storm Water Data Report (WRECO 2015)
Traffic Operations Analysis Report (Fehr & Peers 2015)
Visual Impact Assessment (URS 2015)
Water Quality Assessment Report (WRECO 2015)

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